BLACKETT MAGUIRE+ GOLDSMITH

BCA & Access Assessment Report

catholic healthcare

Jordan Springs
Residential Aged Care Development

July 2018

Ref.: 180144

Address | Suite 2.01,
22-36 Mountain St
Ultimo NSW 2007

Contact | Ph: 02 9211 7777
Fax: 02 9211 7774

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REPORT STATUS				
DATE	**REVISION**	**STATUS**	**AUTHOR**	**REVIEWED**
23/07/2018	-	BCA Assessment Report	BM	TH
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Brian Maguire
Director
Blackett Maguire + Goldsmith

Tony Heaslip
Director
Blackett Maguire + Goldsmith

A. INTRODUCTION

A.1 BACKGROUND / PROPOSAL

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by Catholic Health Care to undertake a BCA assessment for the proposed *Residential Aged Care Development* which involves the construction of a new five (5) storey aged care building at the corner of Jordon Springs Boulevard and Lakeside Parade, Jordan Springs.

The building design includes for the following:

- a ground floor level consisting of:
  - 32 undercover carparking spaces within an open sided resident drop off area:
  - main entry for residents with a lounge, chapel, multi-purpose room, café, salon, physio; and
  - staff areas including kitchen and laundry;
- four (4) levels of aged care resident use and sleeping areas consisting of 36 residents rooms per floor.

A.2 AIM

The aim of this report is to:

+ Undertake an assessment of the proposed Aged Care building against the Deemed-to-Satisfy (DTS) Provisions of the BCA 2016 Amd 1.
+ Identify any BCA compliance issues that require resolution/attention for the proposed development.

A.3 PROJECT TEAM

The following BM+G Team Members have contributed to this Report:

+ Project PCA – Brian Maguire (Director)
+ Peer Reviewer –Tony Heaslip (Director)

A.4 DOCUMENTATION

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

+ BCA 2016 Amd 1;
+ The Guide to the BCA 2016;
+ Architectural plans prepared by Young and Metcalf:

DRAWING TITLE	DATE	DRAWING TITLE	DATE
DA-100 D	31.07.2018	DA-110 D	31.07.2018
DA-111 D	31.07.2018	DA-200 H	31.07.2018
DA-201 G	31.07.2018	DA-202 G	31.07.2018
DA-203 G	31.07.2018	DA-204 G	31.07.2018

A.5 REGULATORY FRAMEWORK

Pursuant to clause 145 of the Environmental Planning and Assessment (EPA) Regulation 2000 all new building work must comply with the current National Construction Codes Series (i.e. the Building Code of Australia 2016 Amd 1, Volume 1).

A.6 LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

+ The following assessment is based upon a review of the architectural documentation.

- Notwithstanding Part D3 of the BCA (being part of this assessment), the building owner should be satisfied that their obligations under the DDA have been addressed.
- The Report does not address matters in relation to the following:
  i. Local Government Act and Regulations.
  ii. NSW Public Health Act 1991 and Regulations.
  iii. Occupational Health and Safety (OH&S) Act and Regulations.
  iv. Work Cover Authority requirements.
  v. Water, drainage, gas, telecommunications and electricity supply authority requirements.
- BM+G Pty Ltd do not guarantee acceptance of this report by Local Council, NSW Fire Brigades or other approval authorities.
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A.7 TERMINOLOGY

Alternative Solution – means a Building Solution which complies with the Performance Requirements other than by reason of satisfying the Deemed to Satisfy Provisions.

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

Construction Certificate – Building Approval issued by the Certifying Authority pursuant to Part 4A of the Environmental Planning & Assessment regulation 1979.

Deemed to Satisfy Provisions – means provisions which are deemed to satisfy the Performance Requirements.

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

Fire Resistance Level (FRL) - means the grading periods in minutes for the following criteria-

(a) structural adequacy; and
(b) integrity; and
(c) insulation,
and expressed in that order.

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

Occupation Certificate – Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 4A of the Environmental Planning & Assessment regulation 1979.

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

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

Compliance with the Performance Requirements can only be achieved by-

(a) complying with the Deemed-to-Satisfy Provisions; or
(b) formulating an Alternative Solution which-
  (i) complies with the Performance Requirements; or
  (ii) is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or
(c) a combination of (a) and (b).

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 dwelling.

B. BUILDING CHARACTERISTICS

B.1 BUILDING CLASSIFICATION

The following table presents a summary of relevant building classification items of the proposed development:

▪ **BCA Classification:**	Class 7a (carpark), Class 9c (Residential Aged Care Facility)
▪ **Rise in Storeys:**	The building has a rise in storeys of five (5)
▪ **Effective Height:**	More than 12m (assumed) however less than 25m.
▪ **Type of Construction:**	Type A Construction
▪ **Climate Zone:**	Zone 6

B.2 FLOOR AREA / VOLUME

Maximum size of fire compartment is as listed under Type A (of which the proposed development achieves compliance with):

Classification		Type A	Type B	Type C
9c	Max floor area	**8,000m²**	5,500m²	3,000m²
	Max volume	**48,000m³**	33,000m³	18,000m³
7a	Max floor area	N/A	N/A	N/A
	Max volume	N/A	N/A	N/A

B.3 FIRE SOURCE FEATURE

The distances from the nearest Fire Source Features are:

Boundary	Distance to Fire Source Feature
North	>6m to the far side of Jordan Springs Boulevard
East	>6m to the far side of Lakeside Parade
South	>6m to the allotment boundary
West	3.9m to the allotment boundary (Note: exceeds the 3m trigger that would otherwise require protection of windows)

C. SUMMARY OF KEY COMPLIANCE ISSUES

The following comprises a summary of the key compliance items identified in Section D of the report that will need to be addressed prior to issue of the respective Construction Certificates:

C.1. MATTERS REQUIRING CLARIFICATION OR REDESIGN:

	BCA (DtS) Clause	Description
1.	C1.9, C1.14, Spec C1.1	Buildings of Type A Construction require external walls to be non-combustible. The external cladding materials and the composition of the external walls need to be further assessed for compliance.
2.	D1.8	The stairs are to be constructed in accordance with the requirements of this clause, with respect to fire rating/separation from the building. Note comments associated with Stair 3.
3.	D2.15	A seamless threshold is required for access to external common areas and terraces.
4.	D2.16	External stairs are to be provided with barriers that restrict openings to 125mm maximum. The concessions for fire isolated exits do not apply. Bedroom window sills are required to be exactly 1m above FFL (i.e. not higher and not lower). Alternatively, if barriers are lower than 1m, then windows are to be restricted a maximum 125mm opening.
5.	D3.6	The location of columns and the proposed accessible carparking spaces are to be confirmed by the design consultant for compliance with AS2890.6
6.	E1.5	It is to be confirmed that the sprinkler stop valve is located above ground with direct access for fire-fighting personnel.
7.	Part E3	Passenger lift requirements are to be confirmed: + Stretcher facility (a stretcher laying horizontally providing a clear space of 600mm wide x 2000mm long x 1400mm high above floor level. + AS1735.12 compliance for Accessibility
8.	F2.4	A minimum of 1 x Unisex Accessible WC is to be provided to each floor. Currently there are 2 x *assisted* WCs shown, which will need to be addressed in the design development.
9.	F3.1	Ceiling heights to be a minimum of 2400mm throughout rooms and corridors, with the exception of storerooms, laundry, sanitary compartment, ensuite (which can be 2100mm).
10.	Section J	Energy Efficiency consultant's report to be provided demonstrating compliance with the Section J requirements for the building.

C.2. MATTERS REQUIRING FIRE SAFETY ENGINEERED PERFORMANCE SOLUTIONS:

	BCA (DtS) Clause	Description	BCA Performance Requirement
1.	C2.5	Smoke walls will not be continued through the external wall located within the undercroft area of the main entry / drop off zone	CP3
2.	Spec C3.4	Smoke doors will not be designed to swing in the direction of egress, not in both directions.	DP2
3.	D1.8	Stair 3 External Stair discharges adjacent to an undercroft.	DP5

C.3. MATTERS REQUIRING PERFORMANCE SOLUTIONS (OTHER THAN FIRE ENGINEERING):

	BCA (DtS) Clause	Description	BCA Performance Requirement
1.	Part D3	Circulation space into the resident rooms does not comply with AS1428.1-2009 (for the 7 rooms required to be accessible). The proposed ensuites within the designated accessible sole occupancy units will not be designed to comply with AS1428.1-2009.	DP1
2.	D3.8	TGSI will not be provided at the interface between the main entry pedestrian area and the vehicular drop off.	DP2
3.	Part F1	The external walls will need to be assessed for compliance against this Performance Requirement.	FP1.4

D. BCA ASSESSMENT

D.1 BCA DEEMED-TO-SATISFY COMPLIANCE ISSUES:

The following comments have been made in relation to the relevant BCA provisions relating to the compliance issues associated with the proposed new aged care building at Jordan Springs Boulevard, Jordan Springs.

SECTION A – CLASSIFICATION OF BUILDINGS & STRUCTURES

1. Clause A3.1 – Principles of 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.

2. Clause A3.3 – Multiple Classification

Each part of a building must be classified separately and where these parts have different purposes – If not more than 10% of the floor area of a storey – being the minor use, is used for a purpose which is a different classification applying to the major use, may apply to the whole storey. Note: This provision does not apply to certain minor uses as set out in this clause.

Comments: *The proposal consists of Class 9c (resident use and non-resident use areas) and a class 7a undercover carpark. There are no areas that are less than 10% that needed applicant of this provision.*

SECTION B - STRUCTURE

3. Part B1 – Structural Provisions

Structural engineering details prepared by an appropriately qualified structural engineer to be provided to demonstrate compliance with Part B1 in relation to the new structural elements of the building.

Comments: *Details are to be provided confirming that the design achieves compliance with the following is required at the time of application for Construction Certificate, inclusive of reference to the following Australian Standards (where relevant):*

- *AS 1170.0 – 2002 General Principles*
- *AS 1170.1 – 2002, including certification for balustrading (dead and live loads)*
- *AS 1170.2 – 2002, Wind loads*
- *AS 1170.4 – 2007, Earthquake loads*
- *AS 3700 – 2001, Masonry code*
- *AS 3600 – 2009, Concrete code*
- *AS 4100 – 1998, Steel Structures and/or*
- *AS 4600 – 2005, Cold formed steel.*
- *AS 2047 – 1999, Windows in buildings.*
- *AS 1288 – 2006, Glass in buildings.*

Further, the Building Importance Level for the development is to be stated and confirmed by the Structural Engineer

SECTION C – FIRE RESISTANCE

FIRE RESISTANCE AND STABILITY

4. Clause C1.1 – Type of Construction Required

The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1 except as allowed for in this clause.

Comments: *Type A Construction applies to this building.*

5. Clause C1.2 – Calculation of Rise in Storeys

The rise in storeys of a building is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space calculated in accordance with the requirements set out in this clause.

Comments*: The subject development has a Rise in Storeys of four (4).*

6. Clause C1.3 – Buildings of Multiple Classification

In a building of multiple classifications, the type of construction required for the building is the most fire-resisting type resulting from the application of Table C1.1 on the basis that the classification applying to the top storey applies to all storeys. This clause also contains exceptions in relation to Class 4 parts.

Comments*: The building is considered to be all class 9c (aged care) with the exception of the Class 7a (carpark) which has the same FRL requirements as the Class 9c parts. Type A Construction is required throughout.*

7. Clause 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 provided that it complies with the following:

- Class 2 or 3 (or mixture) where each SOU has access to at least 2 exits; or its own direct access to road or open space.
- A class 9c aged care building complying with the maximum compartment size specified in Table C2.2 for Type C Construction.

Comments: *The subject building has a rise in storeys of four (4). Therefore the concession permitting Type C Construction is not applicable in this instance.*

8. Clause C1.8 – Lightweight Construction

Lightweight construction must comply with Specification C1.8 if used in a wall system in accordance with sub-clauses (a) & (b).

Comments*: Compliance is readily achievable. This relates to fire rated walls that may be proposed in lightweight material.*

9. Clause C1.9 – Non-combustible Materials

The materials as set out in sub-clauses (a) to (e) of this clause, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required.

Comments: *Where it is proposed to use a combustible material complying with the concessions under Clause C1.9(e), Test Reports will need to be provided demonstrating that the material complies with the requirements set out in the respective subclauses.*

(As of 12 March 2018 C1.12 has been repealed in lieu of C1.9 and C1.14).

Comments: *Compliance readily achievable. Details demonstrating specific compliance will need to be provided at the Construction Certificate stage.*

10. Clause C1.10 – Fire Hazard Properties

The fire hazard properties of the following linings, materials and assemblies in a Class 2 to 9 building must comply with Specification C1.10 and the additional requirements of the NSW Provisions of the Code.

Comments*: Compliance is readily achievable. Architect to note in design specification. Material test data sheets will need to be submitted for further assessment to ensure compliance with the above.*

11. 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 non-combustible unless it is one of the following:

(a) An ancillary element that is non-combustible.
(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.
(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 one provided under (a) that—
  i. meets the 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 exit, where it would render the exit 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)

Comment: *Compliance is readily achievable*

COMPARTMENTATION AND SEPARATION

12. Clause C2.2 – General Floor Area and Volume Limitations

This clause sets out the parameters for the area and volume of for each class of building as required by sub-clauses (a), (b) & (c).

Comments*: Complies. Each floor of the class 9c part of the building is its own separate fire compartment and the limitations don't apply to a Class 7a carpark provided with sprinkler coverage. Accordingly, the class 7a and class 9c ground floor need not be fire separated from each other (simply smoke separated when the class 9c compartment exceeds 500m²).*

13. Clause C2.5 – Class 9a & 9c Buildings

Class 9c buildings must comply with the provisions of sub-clauses (a) & (b) of this Part and the NSW Provisions of the Code.

Comments*: The class 9c building must address the smoke compartment sizes as indicated in Clause C2.5 with respect smoke compartmentation & separation. The Smoke compartments have been designed and detailed on the architectural drawings indicating that they do not exceed the area limitations of 500m². The smoke walls and smoke doors will be required to be constructed in accordance with BCA Specifications C2.5 & C3.4 respectively.*

Note 1: The required smoke walls (if lightweight material) are to be lined at (a minimum of one side) with non-combustible lining not less than 13mm standard grade plasterboard. Note that the walls are to:

+ *not incorporate glass except safety glass in accordance with AS1288; and*
+ *be fitted with self-closing smoke doors with smoke seals; and*
+ *have all service penetrations protected at the junction of the smoke-proof wall to stop the passage of smoke; and*

- *Incorporate smoke dampers where air-handling ducts penetrate the wall – unless the duct forms part of a smoke hazard management system.*

Note 2: A reservoir/bulkhead is required above all smoke doors (between the top of door and underside of the imperforate ceiling) to be not less than 400mm. Alternatively, the ceiling can be perforated.

*Note 3: **A Performance Solution** will be formulated for the smoke separation at the main entry and the undercroft area.*

14. Clause C2.6 – Vertical Separation of Openings in External Walls

If in a building of Type A construction, any part of a window or other opening in an external wall is above another opening in the storey next below and its vertical projection falls no further than 450 mm outside the lower opening (measured horizontally), the openings must be separated by and horizontal or vertical spandrel with an FRL of 60/60/60, and for the purposes of C2.6, window or other opening means that part of the external wall of a building that does not have an FRL of 60/60/60 or greater.

***Comments**: The building is required will be provided with a sprinkler system complying with BCA Spec E1.5 throughout the whole development. Spandrel separation in external walls of the building is therefore not required.*

15. Clause C2.7 – Separation by Fire Walls

This clause sets out the requirements for the construction of fire walls that are to provide the separation of buildings and fire compartments as indicated in sub-clauses (b) & (c).

***Comments:** Not Applicable. There are no fire walls separating the building into separate fire compartments.*

16. Clause C2.12 – Separation of Equipment

Equipment as listed below must be separated from the remainder of the building with construction that achieves an FRL of 120/120/120 and doorways being self-closing -/120/30 fire doors:

- 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 or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.

***Comments:** It is noted that the fire service pump room is proposed to be located on the Ground Floor. Compliance with the construction that achieves an FRL of 120/120/120 is readily achievable.*

17. Clause C2.13 – Electricity Supply System

The following areas are to be fire separated from the remainder of the building by construction that achieves an FRL of 120/120/120:

- An electricity substation located within a building.
- A main switchboard which sustains emergency equipment operating in the emergency mode.
- If electrical conductors located within a building supply a substation (located within the building) which also supplies the main switchboard; or they supply the main switchboard itself must be fire separated by construction that achieves 120/120/120 or alternatively:
    - Have a classification in accordance with AS/NZS 3013 of not less than –
    - If located in a position that could be straight to damage by motor vehicles – WS53W; or
    - Otherwise – WS52W.

- Where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment switchgear is separated from the non-emergency equipment switchgear by metal partitions designed to minimise the spread of fault from the non-emergency equipment switchgear, e.g.:
    - Fire hydrant booster pumps.
    - Pumps for automatic sprinkler systems, water spray, chemical fluid suppression systems or the like.
    - Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building.
    - Air handling systems designed to exhaust and control the spread of fire and smoke.
    - Emergency lifts.
    - Control and indicating equipment.
    - Sound systems and intercom systems for emergency purposes

Comments: *Compliance is readily achievable.*

PROTECTION OF OPENINGS

18. Clause C3.2 – Protection of Openings in External Walls

Openings in an external wall that is required to have an FRL must –

(a) If the distance between the opening and the fire-source feature to which it is exposed is less than –

- 3 m from a side or rear boundary of the allotment; or
- 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
- 6 m from another building on the allotment that is not a Class 10, be protected in accordance with C3.4 and if wall-wetting sprinklers are used, they are located externally; and

(b) If the 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.

Comments: *Complies. The setback between the RC Building and the adjacent fire source features exceeds 6m, therefore not triggering a need for any protection of openings in the building.*

19. Clause C3.3 – Separation of External Walls & Associated Openings in Different Fire Compartments

The distance between parts of external walls and any openings within them in different fire compartments separated by a fire wall must be not less than that set out in Table C3.3 unless-

- Those parts of each wall have an FRL not less than 60/60/60; and
- Any openings protected in accordance with C3.4.

Comments: *Not Applicable.*

20. Clause C3.4 – Acceptable Methods of Protection

Where protection is required, doorways, windows and other openings must be protected as follows:

- Doorways –
  (A) Internal or external wall- wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or
  (B) -/60/30 fire doors that are self-closing or automatic closing.
- Windows –
  (A) Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or
  (B) -/60/- automatic closing fire shutters.
- Other openings –
  (A) Excluding voids – internal or external wall-wetting sprinklers, as appropriate; or
  (B) Construction having FRL not less than -/60/-.

Comments: *Not Applicable. None of the windows or door openings are exposed to a fire source feature not exposed to the external exit stairs.*

Note: *The proximity of Stair 3 to the*

21. Clause C3.7 – Protection of doorways in Horizontal Exits

Horizontal exits must be protected by a single fire door unless the subject building is a Class 7 or 8. The doors are to have an FRL as required by Specification C1.1 for the wall.

The doors must be self closing or automatic-closing, and the operation must be initiated by the activation of a smoke detector (or any other detector deemed suitable) installed in accordance with AS1670.1 located not more than 1.5m either side of the opening, and by any other fire alarm system such as sprinklers. .

Comments: *Not applicable. No horizontal exits are proposed in the development.*

22. Clause C3.8 – Openings in Fire-isolated Exits

This clause species that the doorways that open into fire-isolated exits must be protected by -/60/30 fire doors that are self-closing or automatic. This clause also details the deemed-to-satisfy methods of activation.

A window in the external walls of fire-isolated exits must be protected in accordance with C3.4 if it is within 6m of and exposed to a window or other opening in a wall of the same building other than in the same fire-isolated enclosure.

Comments: *Note: the exit stairs are designed as External Stairs in Lieu of Fire Isolated Exits, and therefore this clause does not strictly apply. Notwithstanding, the doors leading to the exit stair will be protected by -/60/30 self closing fire doors.*

23. Clause C3.9 – Service Penetrations in Fire-isolated Exits

Fire isolated exits must not be penetrated by any services other than electrical wiring as permitted by D2.7(e), ducting associated with a pressurisation system or water supply pipes for fire services.

Comments*: Note: the exit stairs are designed as External Stairs in Lieu of Fire Isolated Exits, and therefore this clause does not strictly apply.*

24. Clause C3.12 – Openings in Floors & Ceilings for Services

This clause applies to the floors and ceilings in buildings of Types A, B & C Construction and sets out the methods required to limit the spread of fire though openings in these building elements, required to resist the spread of fire.

Comments: *Openings for services through fire rated floors and ceilings must by a fire rated shafts complying with Specification C1.1 or protected in accordance with C3.15. The proposed methodology is to be confirmed. Certification will be required at OC stage.*

25. Clause C3.13 – Openings in Shafts

This clause specifies that in buildings of Type A Construction, openings in a wall providing access to a ventilating, pipe garbage or other services shaft, must be protected in accordance with this Clause, i.e. generally 1 hour fire rated doors, hoppers, access panels etc.

Comments: *Compliance is to be confirmed with the Construction Certificate documentation.*

26. Clause C3.15 – Openings for Service Installations

The clause details the requirements for protection of service openings in building elements that have an FRL, to prevent the spread of fire. C3.15 only applies only to an element required to have an FRL with respect to integrity or insulation.

Specification C3.15 prescribes materials and methods of installation for services that penetrate walls, floors and ceilings required to have an FRL.

Comments*: Openings for services through fire rated building elements must be protected in accordance with the methods set out in C3.15.*

SECTION C - SPECIFICATIONS

27. Specification C1.1 – Fire Resisting Construction

The new building works are required to comply with the requirements detailed under Table 3 of Specification C1.1 for Type A Construction (see appendix 1).

Comments*: Compliance with the requirements of Specification C1.1 for Type A Construction readily achievable.*

Further details and assessment are required for each variation including:

- *A mark-up of elevations showing the extent to which each of the cladding panel products are proposed;*
- *A section through the walls showing how the panel will be used (i.e. forming part of external wall v. attachment to external wall); and*
- *Test reports for each cladding panel product showing combustibility and fire hazard properties of the product as proposed.*

28. Specification C2.5 – Smoke-Proof Walls in Health-Care and Aged Care Buildings

This specification sets out requirements for the construction of smoke-proof walls in Class 9a health care buildings Class 9c aged care buildings.

***Comments**: Compliance is readily achievable. Plans indicating if horizontal or vertical smoke separation is to be used i.e. a fire rated ceiling or walls which extend the underside of the ceiling or roof covering.*

29. Specification C3.4 – Fire Doors, Smoke Doors, Fire Windows and Shutters

This Specification sets out the requirements for the construction of fire doors, smoke doors, fire windows and Fire Shutters.

***Comments:** Compliance is readily achievable with respect to the physical construction of the doors.*

***Note:**. It is understood that the smoke doors will not be designed to swing in both directions in this instance. A **Performance Solution** is required to address this.*

SECTION D – ACCESS & EGRESS

PROVISION FOR ESCAPE

30. Clause D1.2 – Number of Exits Required

This clause requires the provision of sufficient exits to enable safe egress in case of an emergency. D1.2 provides that all buildings must have at least one exit from each storey and sets out circumstances in which more than one exit may be required (e.g. 2 exits minimum from a class 9c building that contains sleeping areas).

***Comments**: The number of exits satisfies the minimum requirements of D1.2.*

31. Clause D1.3 – When Fire-isolated Stairways & Ramps are Required

This clause indicates when fire isolated stairways and ramps are required to enable safe egress from a building in the case of a fire, setting out the limits to which non-fire isolated exits can be used in Class 2, 3, 5, 6, 7, 8 and 9 buildings, with the exception of Class 9c aged care buildings. Every exit stair in a class 9c building is required to be enclosed within a fire isolated shaft.

***Comments**: The Class 9c building part proposed stairs as required exits and therefore the stairs are to be constructed in a fire resisting shaft, inclusive of a fire rated 'lid' (FRL 120/120120).*

32. Clause D1.4 – Exit Travel Distances

This clause specifies the permitted travel distances allowable from Class 2 to Class 9 buildings. Sub-clauses (a) to (f) specify the maximum distances to be taken into account for the various uses in each Class of building.

For the class 9c parts of the building, no point on the floor must be more than 20m to an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40m.

***Comments**: The architectural drawings indicate that compliance has been achieved for the building.*

33. Clause D1.5 – Distances Between Alternative Exits

Exits required as alternative exits must be –

- distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and
  - (i) not less than 9m apart; and
  - (ii) not more than –
    - in a Class 2 or 3 building - 45m apart; or
    - In a Class 9a health-care building, if such required exit serves a patient care area – 45m apart; or
    - In all other cases *(i.e. the class 9c in this instance)* – 60m apart.
- Located so that the alternative paths of travel do not converge such that they become less than 6m apart.

***Comments**: Complies. All exits are less than the maximum 60m apart, when measured back through the point of choice.*

Note: the distance between Stair 1 and Stair 3 is measured through the dining and lounge spaces under the assumption that there are no internal walls or partitions/screens in that area. IF such items are introduced the distances will be further extended and it may result in a departure.

34. Clause D1.6 – Dimensions of Exits

This clause specifies the minimum dimensions such as height and width of paths of travel from Class 2 to 9 buildings. It also specifies the minimum dimensions of doorways from the various compartments and the width of exit doors from buildings depending on the uses and functions carried out within them.

***Comments**: Compliance is readily achievable, noting the following requirements pertaining to the class 9c building part:*

- *The minimum unobstructed width of all public corridors in a class 9c building is 1500mm (including staff areas).*

- *The width of the corridors outside resident room entries are to be minimum 1800mm;*
- *The doorways in the building must have a minimum unobstructed opening as follows:*
  - *1070mm where it opens from a public corridor to a resident room;*
  - *870mm in other resident use areas such as doors in corridors, quiet rooms, hairdresser (salon) rooms, assisted bathrooms, resident ensuites, dining rooms, balconies and fire isolated exits; and*
  - *850 mm in non-resident use areas such as offices, storage areas, staff/nurse stations, kitchen, medication rooms and utility areas.*

Note: Where two door leaves are provided in resident use areas (except to the resident rooms) and one is to be secured in the closed position, the openable leaf must be a minimum of 870mm wide in resident use areas.

35. Clause D1.7 – Travel via Fire Isolated Exits

Sets out the requirements for safe discharge from various compartments and areas within a building, into a fire isolated stairway or passageway or ramp. Note: a ramp for changes of level in a fire isolated passageway is required in a Class 9 building.

Where a path of travel from the point of discharge of a fire isolated exit necessitates passing within 6m 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 –

- an FRL of not less than 60/60/60; and
- Any openings protected internally in accordance with BCA Clause C3.4,
- For a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

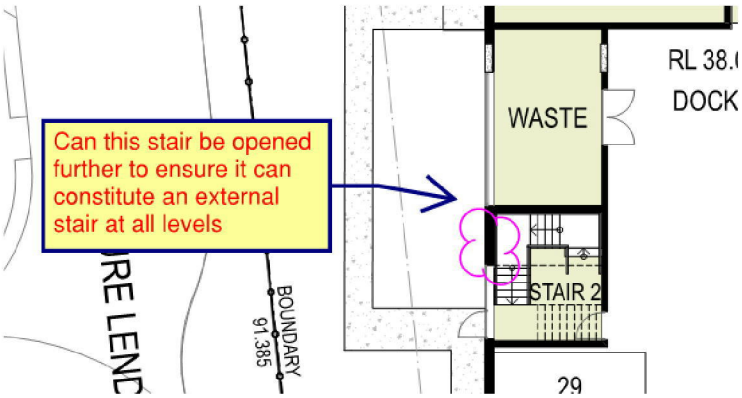
Comments: *Not applicable. All exits are designed as External Stairs in lieu of a fire isolated exit.*

36. Clause D1.8 – External Stairs in lieu of a Fire Isolated Exit

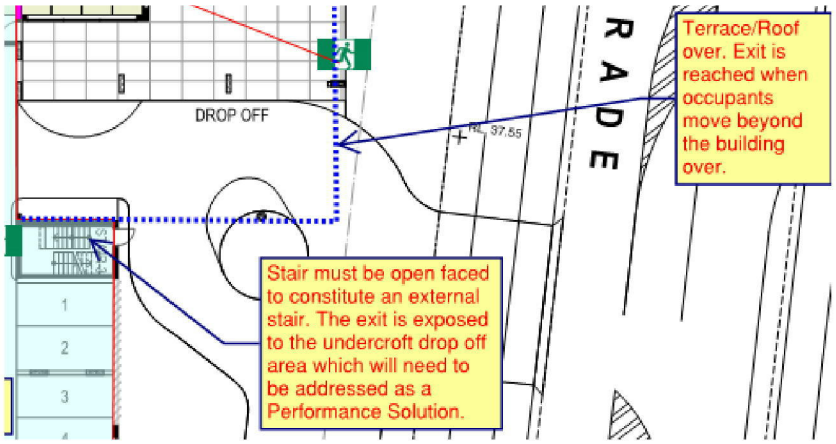
D1.8(a) An external stairway or ramp may serve as a required exit in lieu of a fire-isolated exit serving a storey below an effective height of 25m provided that it is constructed in accordance with the requirements of sub-clauses (a) to (d). The provisions also set out the requirements of protection for external required exits.

Comments: *All required stairs have been designed as external stairs "in lieu of a fire isolated exit". Stair 1 and 2 demonstrate that compliance is readily achievable, i.e. bounded by construction that achieves an FRL of 60/60/60; is not exposed to and/or within any unprotected openings closer than 6m and have no openings within 3m of the stair; nor can it be penetrated at roof level by any structure.*

The below stair on Ground Floor is to be further considered to assist in ensuring the stair can be considered as an external stair at all levels.



Performance Solution: *The stair 2 (below image) is exposed to the drop off undercroft area. This can be justified as a Performance Solution formulated by a fire engineer.*



37. Clause D1.10 – Discharge From Exits

This clause requires that an exit must not be blocked at the point of discharge. Barriers such as bollards must be installed to prevent vehicles from blocking the discharge from exits.

This clause also provides the methods of construction, location and separation, at exit discharge points for all building Classes.

Comments: *Compliance is readily achievable. The path must be via a gradient not steeper than 1:8, or and stair must be incorporated in the landscaping area, complete with handrails.*

Furthermore, it is noted on the drawings that discharging from Stair 3 enables occupants to travel in either direction around the building to gain access to the road.

Any gates located within the path of travel to the road must be fitted with a fail-safe device which automatically unlocks the door upon the activation of the sprinkler system or any other detector system

38. BCA Clause D1.11 – Horizontal Exits

Horizontal Exits must not be counted as required exits between sole-occupancy units or in an early childhood centre, primary or secondary school. Horizontal Exits may be counted as required exits in Class 9a-health care building or a Class 9c aged care building if the path of travel from a fire compartment leads by one or more Horizontal Exits directly into another fire compartment which has at least one required exit which is not a Horizontal exit.

In addition, 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 serviced by the Horizontal Exit of not less than 2.5m^2 per patient.

Comments: *Not applicable. No horizontal exits are proposed for the development.*

39. BCA Clause D1.12 – Non-required stairs, ramps or escalators

In an escalator, moving walkway, or non-required, non-fire-isolated stairway or pedestrian ramp must not be used between storeys in a patient care area in a class 9a building or a resident use area in a class 9c building.

Comments: *Not Applicable. The internal stair for staff circulation does not constitute a non-fire isolated stair.*

40. BCA Clause D1.16 – Plant Rooms & Lift Machine Rooms: Concession

A ladder may be used in lieu of a stairway to provide egress from a plant room with a floor area of not more than 100m²; or all but one point of egress from a plant room or a lift machine room with a floor area not more than 200m². Sub-clause (b) sets out the parameters for the ladders permitted to be used in this circumstance.

Comments: *The proposed development does not include any roof top or concealed plant rooms, rather the roof may support uncovered plant and equipment. Plant spaces and equipment on the roof is to be shown on the DA drawings submitted to the Consent Authority.*

CONSTRUCTION OF EXITS

41. Clause D2.2 – Fire-isolated Stairways & Ramps

A stairway or ramp, including landings that are required to be within a fire-resisting shaft must be constructed of non-combustible materials to protect the structural integrity of the shaft.

Comments: *Compliance is readily achievable. Confirmation will be required at the Construction Certificate application stage.*

42. Clause D2.4 – Separation of Rising & Descending Stair Flights

If a stairway serving as an exit is required to be fire-isolated there must be no direct connection between the rising and descending flights of stairs at the level from which egress is obtained. This clause also prescribes the level of construction required.

Comments*: Not applicable to this building. There is no basement or the like that requires ascending stairs.*

43. Clause D2.7 – Installations in Exits & Paths of Travel

This clause restricts the installation of certain services in fire-isolated exits, non-fire-isolated exits and certain paths of travel to exits. It prescribes which services shall not be installed as well as the circumstances in which certain services may be installed in fire-isolated and non-fire-isolated exits.

If installed in a path of travel to an exit, electrical distribution boards, communication cupboards and the like containing motors, etc. are to be enclosed with non-combustible construction, and doors are to be provided with smoke seals to the perimeter

Comments*: Compliance is readily achievable. Confirmation is to be provided at Occupation Certificate stage.*

44. Clause D2.9 – Width of Stairways

A required stairway or ramp that exceeds 2m in width is counted as having a width of only 2m unless it is divided by a handrail, barrier or other barrier continuous between landings and each division has a width of not more than 2m.

Comments*: Not applicable to this development.*

45. Clause D2.13 – Goings & Risers

This clause sets out the detailed requirements for the construction and geometry of the goings and risers in required stairways. These details are set out in sub-clauses (a) to (c) and Table D2.13 Riser and Going Dimensions.

Comments*: Compliance is readily achievable. All stairs are to have solid risers, and are to have contrast (and non-slip) nosings throughout in accordance with Clause 11.1 of AS1428.1-2009. Treads are not to overhang the riser.*

Riser and Going Dimensions (mm)			
	Riser (R)	**Going (G)**	**Quantity (2R + G)**
Maximum	190	355	700
Minimum	115	250	550

46. Clause D2.14 – Landings

The dimensions and gradients of landings in stairways are set out in this clause; the configuration will depend on the proposed use of a building. Sub-clause (b) details the layout for a Class 9a building to allow for the movement of a stretcher.

Application	Surface conditions	
	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

Landing surfaces must be slip resistant surfaces OR slip resistant nosing not less that listed in Table D2.14 when tested in accordance with AS4586.

Table D2.14 Slip-Resistance Classification

***Comments**: Compliance is readily achievable. Slip-resistance of the stairways to be verified by on-site test and report provided with the OC documentation.*

47. Clause 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 –

- In patient care areas in a class 9a health-care building, the door sill is not more than 25mm above the finished floor level to which the doorway opens: or
- In a Class 9c aged care building, a ramp is provided with a maximum gradient of 1:8 for a maximum height of 25mm over the threshold.

***Comments**: Compliance is assumed, i.e. a seamless interface between the external terraces and the internal spaces leading out. A 1:50 landing is required to all doorways, the full width of the door leaf.*

48. Clause D2.16 – Barriers to prevents falls (Balustrades)

This clause details where barriers are required to be provided and sets out in specific detail the construction requirements. Typically the following will apply to a class **9c** building:

- Barriers are required where the fall to the level below is more than 1m in height. The minimum height of a barrier is 1m above the floor of the landing, walkway, or the like; and 865mm above the floor of a stairway or a ramp.
- Bedroom window sills are required to be exactly 1m above FFL (i.e. not higher and not lower). Alternatively, if barriers are lower than 1m, then windows are to be restricted a maximum 125mm opening.
- Where the floor is more than 4m above the surface beneath the barrier any horizontal or near horizontal members between 150mm and 760mm above the floor must not could facilitate climbing.
- Barriers must be constructed so as to not permit a sphere of 125mm diameter to pass through. The exception to this is within fire isolated exits within the building, or within a class 7 or 8 building, where the rails can be positioned a maximum of 460mm apart, so long as a bottom rail is located so a sphere of 150mm cannot pass through the opening between the nosing of the stair treads and the rail or between the floor of the landing, balcony or the like.

***Comments**: Compliance is readily achievable. Details of the heights of windows to bedrooms are required.*

The internal circulation stair requires a 125mm sphere protection barrier.

49. Clause D2.17 – Handrails

This Clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings. Handrails are required to both sides of al stairs (with the exception of handrails for fire isolated exit stairs).

A class 9c building must be provided along each side of every passageway or corridor in a resident use area and must be:

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

***Comments**: Handrails are noted on the architectural drawings as being on both sides of the corridors, and also the exit stairs, thereby complying with this clause. Note: handrails are to comply with AS1428.1-2009 with respect to height, location and diameter.*

Stairways and ramps are capable of complying with these requirements, detailed review to be undertaken as part of CC application.

50. Clause D2.19 – Doorways & Doors

This clause applies to all doorways and refers to the types of doors that cannot be used in buildings of prescribed uses, the use of power operated doors and the force required to operate sliding doors.

A power operated door in a path of travel to a required exit must be able to be opened manually under a force of not more than 110N.

***Comments**: Compliance is readily achievable.*

51. Clause D2.20 – Swinging Doors

A swinging door *in a required exit* or *forming part of a required exit* must swing in the direction of egress and must not otherwise impede egress. In addition, the door must not encroach at any part of its swing by more than 500mm on the required width of the exit (with the exception of airlocks and sanitary compartments, and with the exception of buildings or building parts that are less than 200m^2).

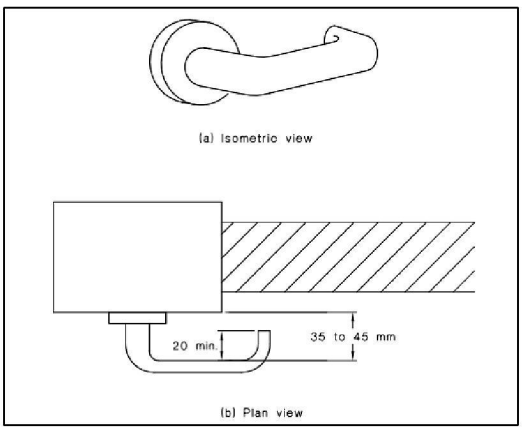
***Comments**: Compliance is achieved.*

52. Clause D2.21 – Operation of Latch

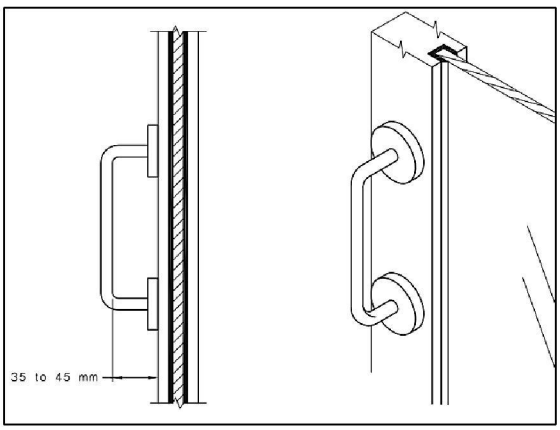
A door in a required exit or forming part of a required exit and in a path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by a single downward action or pushing action on a single device which is located between 900mm & 1.1m from the floor. This clause prohibits the use of devices such as deadlocks and knobs (rather, lever latches are required). D2.21 also sets out exceptions in relation to buildings where special security arrangements are required in relation to the uses carried out.

Where fitted with a fail-safe device which automatically unlocks the door upon the activation of a sprinkler system or detection system, the above need not apply.

***Comments**: Compliance is readily achievable. The main entry door is to be connected to a fail-safe device that ensures it opens automatically upon activation of the activation of sprinklers or smoke detection.*



Hinged door hardware



Sliding door hardware

53. Clause D2.22 – Re-entry from Fire-isolated exits

Doors of a fire-isolated exit must not be locked from the inside in a Class 9a health-care building, a Class 9c aged care building and in a fire-isolated exit serving a storey above 25m effective height, throughout the exit.

This clause details the exceptions to the above requirements if the doors are fitted with an automatic failsafe device that automatically unlocks the door upon the activation of a fire alarm as follows:

- 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
- 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.

***Comments**: Compliance is readily achievable. It is expected that doors leading into the fire isolated exit will be unlocked from the inside.*

54. Clause D2.23 – Signs on Doors

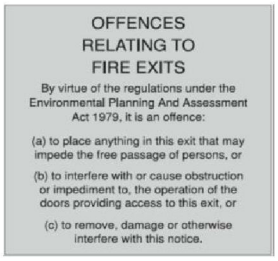
This clause requires the use of signs to alert persons that the operation of smoke doors and fire doors and doors discharging form fire isolated exits, must not be impaired and must be installed where they can be readily seen.

***Comments**: Compliance is readily achievable.*

*Any new **self-closing** fire and/or smoke doors leading into the fire stair (or external stair in lieu of) or forming part of a Horizontal Exit or smoke compartment are to be provided with signage as follows:*

*Any new **automatic closing** fire and/or smoke doors which are held on hold open devices that leads into the fire stair or forming part of a Horizontal Exit or smoke compartment are to be provided with signage as follows:*

In addition to the above, the doors which provide access to the fire isolated exits and also the Horizontal Exits must have signage provided adjacent to the entry doorway which states the following (ref Clause 183 of EP&A Reg 2000):



55. Clause D2.24 - Protection of Openable Window

This clause relates to the protection of openable windows in a class 9b early childhood centre, or openable windows in a bedroom in a class 2 or 3 building or a class 4 part of a building, where the floor level is more than 2m above the surface level beneath. The intent of this clause is to limit the risk of a person (especially a young child) falling through an openable window, however it does not apply to such a window where the lowest level of its window opening is less than 1.7m above the floor. Details for protection include the following:

- Openable portion of the window must have a device to restrict the opening; or
- Be fitted with a screen with secure fittings;
- Not permit a sphere of 125mm to pass through;
- Resist outward horizontal action of 250N;
- Have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.

In addition to the above, and for floors that are more than 4m above the surface level below, a barrier with a height not less than 865mm above the floor is required for all openable windows. The barrier must permit a sphere of 125mm to pass through, and must not have any horizontal or near horizontal elements between 150mm and 760mm above the floor that facilitate climbing

***Comments**: Not applicable. Does not apply to Class 9c parts.*

ACCESS FOR PEOPLE WITH A DISABILITY

56. Clause D3.1 – General Building Access Requirements.

The extent of access required depends on the classification of the building. Buildings and parts of buildings must be accessible as set out in Table D3.1 unless exempted by Clause D3.4.

For a *Class 9c building*, access is required to all common areas as follows:

- From the pedestrian entrance required to be accessible, to at least one floor containing SOUs and to the entrance doorway of each SO located on that level;
- To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, swimming pool, common laundry, games room, TV room, individual shop, dining room, public viewing area, ticket purchasing service, lunch room, lounge room and the like.
- Where a ramp complying with AS1428.1 or a passenger lift is installed to the entrance doorway of each SOU; and to and within rooms or spaces for use in common by the residents, located on the levels serviced by the lift or ramp.

Where more than 2 SOUS are required, they must be representative of the range of rooms available.

The building is noted to contain 144 SOU's requiring **7** accessible SOU's.

Comments:

Compliance is achieved for the quantum of accessible Sole Occupancy Units (i.e. the '2 leaf' doors are noted on the floor plans, thereby having the ability for the single leaf portion to have an unobstructed clearance of 870mm, however the minimum required 530mm circulation space to the doors is not available). Accordingly, a ***Performance Solution*** *will be formulated by a practising accessibility consultant for the circulation space to the rooms and also design of the proposed ensuites / WC pans (i.e. the ensuites are not proposed to comply with As1428.1-2009, rather are designed to meet the operational needs of the staff and residents in the facility). The size appears sufficient however the nature of the WC pan does not address AS1428.1.*

57. Clause D3.2 – General Building Access Requirements for People with Disabilities

This part requires accessways to be provided to accessible buildings from the main points of pedestrian entry at the allotment boundary and any accessible car parking space or accessible associated buildings connected by a pedestrian link.

Comments*: Compliance is readily achievable. Gradients, door thresholds and door widths are to be identified on the Construction Certificate drawings.*

58. Clause D3.3 – Parts of the Building to be Accessible

This part specifies the requirements for accessways within buildings which must be accessible.

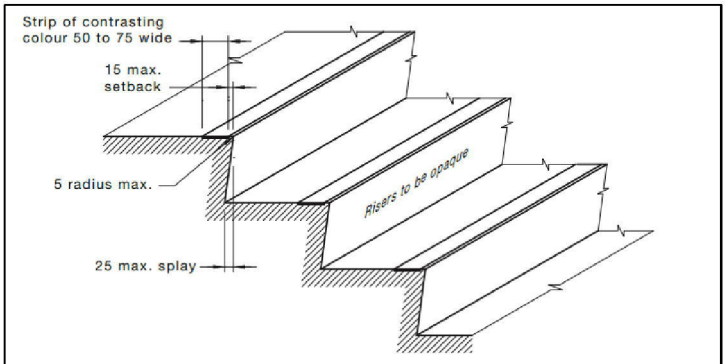
Comments: *Compliance is achieved, subject to ensuring appropriate door widths and corridor widths as per D1.6 above.*

All new doorways shall have a minimum luminance contrast of 30% provided between: door leaf and door jamb; or door leaf and adjacent wall; or architrave and wall; or door leaf and architrave; or door jamb and adjacent wall.

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

Circulation to the new doorways that are required to be accessible are to comply with Section 13 of AS1428.1-2009

Stair nosing serving the new stairway shall comply with the following diagram, which achieves a colour contrast luminance of 30% to the background (tread).



NOTE: A chamfered nosing 5 × 5 mm may be used.

DIMENSIONS IN MILLIMETRES

FIGURE 27(A) A TYPICAL STAIR NOSING PROFILE WITH NOSING STRIP

59. Clause D3.4 – Exemptions

This part provides exemptions to the Deemed-to-Satisfy provisions for access by people with a disability. This part provides details on buildings or parts of buildings not required to be accessible under the BCA where providing access would be inappropriate because of the nature of the area or the tasks undertaken.

Comments: *This concession can be applied to the utility/linen areas, servery, kitchen, laundry and staff areas.*

60. Clause D3.5 – Access Carparking

This part provides details of the number of accessible carparking spaces required in a carpark depending on the classification of the building.

Comments: *The number of accessible carparking spaces complies with the requirement of this clause (2 spaces + 1 shared space). Accessibility consultant to confirm location of columns in the carpark and the designated accessible spaces for compliance with AS2890.6.*

61. Clause D3.6 – Signage

Braille and tactile signage must be provided to required accessible sanitary facilities, spaces with hearing augmentation, ambulant sanitary facilities, pedestrian entrances that are not accessible, **and to each door required by Clause E4.5 to be provided with an exit sign. The latter is to state "EXIT and LEVEL**...."

Comments: *Compliance is readily achievable.*

62. Clause D3.7 – Hearing Augmentation

This part provides requirements for provision of hearing augmentation in accessible buildings, i.e. to be provided where an in-built amplification system (other than one used for emergencies), is installed:

- In a room in a class 9b building;
- In an auditorium, conference room, meeting room, or room for judiciary purposes.
- At any ticket office, teller's booth, reception area or the like where the public is screened from the service provider.

Comments: *Not applicable to the proposed development.*

63. Clause D3.8 – Tactile Indicators

This clause provides for the installation of tactile indicators in buildings required to be accessible and must be provided to warn people who are blind or have a vision impairment that they are approaching a stairway, escalator, passenger conveyor, ramp, overhead obstruction or an accessway meeting a vehicular way, except for areas exempted by D3.4.

Comments: *Stairways and ramps serving the Class 9c part will not need to be provided with Tactile Ground Surface Indicators as Clause D3.8(c) provides a concession to residential aged care (Class 3, 9a and 9c) buildings. Instead, handrails to stairways and ramps are to have raised tactile warning, in the form of a domed button 4-5mm in height and 10-12mm in diameter, on the top of each handrail, 150mm (+/-10mm, from the end of the handrail.*

However, the zone between the main entry and the vehicular path is required to have TGSI, unless this space is provided with a kerb and a kerb ramp. In this instance it is understood that CHL will pursue a ***Performance Solution*** *to provide an alternative to TGSI due to their inherent trip hazard to residents (based on bollards and texture/colour contrasting zones.*

64. Clause D3.12 – Glazing on an Accessway

This part requires the provision of a contrasting strip, chair rail, handrail or transom across all frameless or fully glazed doorways and surrounding glazing capable of being mistaken for an opening.

Comments: *Compliance is readily achievable.*

SECTION E – SERVICES AND EQUIPMENT

PART E1 FIRE FIGHTING EQUIPEMENT

65. Clause E1.3 – Fire hydrants

A fire hydrant system must be provided to serve a building having a total floor area greater than 500m² and where a fire brigade is available to attend a building fire, installed in accordance with the provisions of AS2419.

The hydrant booster assembly and any external fire hydrants are required to be located greater than 10 metres from an external wall of the building, or affixed to the external wall and protected by a radiant heat shield that has an FRL of 90/90/90 located 2 metres either side and 3 metres above the outlets.

Any gas meter must be located a minimum of 10-metres from the hydrant booster outlet.

A required fire services pump room is required to be accessible directly from the road or open space, or from a door opening from a fire isolated exit.

Comments: *The location of the fire hydrant booster is noted, being insight of the main entry, and further than 10m away from external walls of the building. Compliance is readily achievable.*

Note: *the location of the 'pump room' is considered to comply with the requirements of having direct access to the open space, in this instance via the main entry undercroft.*

66. Clause E1.4 – Fire hose reels

E1.4 does not apply to a Class 9c aged care building or classrooms and associated corridors in a primary or secondary school.

A fire hose reel system must be provided to serve a building where one or more internal fire hydrants are installed or in a building with a floor area greater than 500m².

This clause requires that the fire hose reel system must be installed in accordance with AS 2441 and sets out the detail for location and uses of fire hose reels.

Comments*: Compliance is readily achievable. Fire hose reels are not required for a class 9c building, rather they are required to provide coverage to all parts of the ground floor Class 7a carpark area only. The FHR are to be located no greater than 4m from an exit.*

67. Clause E1.5 – Sprinklers

A sprinkler system must be installed in a building or part of a building when required by Table E1.5 and comply with Specification E1.5.

Table E1.5 sets out which types of building occupancies and Classes which are required to have sprinkler systems installed in them.

Specification E1.5 sets out requirements for the design and installation of sprinkler systems.

Comments*: Compliance is readily achievable.*

The building requires a sprinkler system in accordance with AS2118.4-2012, and the sprinkler stop valve is required to be provided with direct access to the road or open space (i.e. not within an internal fire services pump room, unless that pump room has its own direct access to the outside).

68. Clause E1.6 – Portable fire extinguishers

Portable fire extinguishers must be provided as listed in Table E1.6 and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444.

Comments*: Compliance is readily achievable. A combination of H20 and C02 are required for each smoke compartment of the class 9c building.*

PART E2 SMOKE HAZARD MANAGEMENT

69. Clause E2.2 – General Requirements

Class 2 to 9 buildings must comply with the provisions of this Clause to remove smoke during a fire, to control the operation of air handling systems and to prevent the spread of smoke between compartments.

Buildings must comply with the provisions of Table E2.2a, as applicable to Class 2 to 9 buildings and Table E2.2b as applicable to Class 6 and 9b buildings. It deals with the design and construction of air handling systems that are part of a smoke hazard management system and air handling system that are not part of a smoke hazard management system.

Comments: *Compliance is readily achievable. Smoke Hazard Management provisions are to be addressed in accordance with BCA Spec E2.2, the building is required to be provided with the following:*

- *An Automatic Smoke Detection and Alarm System is to be provided throughout. The design and construction is to ensure that no detectors are located within 400mm of an air supply outlet or ceiling fan.*
- *Automatic Shutdown of any air handling system upon activation of the Automatic Smoke Detection System and Sprinkler System.*

Remote automatic indication of each zone must be given in each smoke compartment by means of one of the following:

- *Mimic panels with an illuminated alpha numeric display;* ***or***
- *Annunciator panels with alpha numeric display*

Manual call points are required to be installed in paths of travel so that no point on the floor is more than 30m from a manual call point.

PART E3 LIFT INSTALLATIONS

70. Clause E3.2- Stretcher facility in Lifts

A stretcher facility must be provided in at least one emergency lift required by E3.4, or where an emergency lift is not required, to serve at least one lift to those storeys above 12m effective height. 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 the floor level.

Comments: *Compliance is readily achievable. The architectural plans indicate that the proposed lift complies with the minimum required length and width dimensions.*

71. Clause E3.3 – Warning against the use of lifts in fire

A warning sign must be displayed where it can be readily seen, near every call button for a passenger lift or group of lifts throughout the building except a small lift such as a dumb waiter or the like; and

It must comply with the details and dimensions of Figure E3.3 and consist of incised, inlaid or embossed letters on metal, wood, plastic or similar plate securely and permanently attached to the wall, or letters incised or inlaid directly into the surface of the material forming the wall.

Comments: *Compliance is readily achievable.*

72. Clause E3.6 – Passenger Lifts

In an accessible building, every passenger lift must be one of the types identified 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.

Comments: *Compliance is readily achievable.*

73. Clause E3.7 – Fire Service Controls

In passenger lifts designed in accordance with AS 1735 Parts 1 and 2, all lift cars serving any storey above an effective height of 12m must be provided with fire service controls.

Comments: *Compliance is required. The building has an effective height of more than 12m.*

74. Clause E3.8 – Aged Care Buildings

Where residents in an aged care building are on levels which do not have direct access to a road or open space a building must be provided with either at least one lift to accommodate a stretcher in accordance with E3.2 (b) or a ramp in accordance with AS1428.1 and the ramp must discharge to a level providing direct access to a road or open space.

Comments: *Compliance is achievable. Design statement is to be provided with the application for construction certificate confirming compliance with the requirements of this clause.*

75. Clause E3.9 – Fire Service recall operation switch

Each group of lifts must be provided with one fire service control switch (required by Clause E3.7 above) that activates the fire service recall operation. This clause details the switch, the labelling, the key and operation procedures for a fire service recall operation.

Comments: *Compliance is required, and is to be confirmed as Construction Certificate stage.*

76. Clause E3.10 – Lift car fire service drive control switch

The lift car fire service drive control switch required by E3.7 must be activated from within the lift car. This clause details the switch, the initiation, the labelling and operation for the fire service drive control switch.

Comments: *Compliance is required, and is to be confirmed as Construction Certificate stage.*

EMERGENY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS

77. Clause E4.2 – Emergency Lighting Requirements

This clause details when emergency lighting must be installed in Class 2 to 9 buildings. The requirements for buildings and parts of buildings are detailed in sub-clauses (a) to (i) and each sub-clause must be considered as more than one may apply to any single building.

In a class 9a building, emergency lighting is required in every passageway, corridor, hallway or the like serving a treatment area or a ward area; and in every room having a floor area of more than 120m^2 in a patient care area.

Comments: *Compliance is assumed. A design statement is to be provided for assessment.*

78. Clause E4.5, E4.6 – Exit Signs

An exit sign must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress form a building. Sub-clauses (a) to (d) set out the situations where exit signs are required to be installed.

Comments: *Compliance is readily achievable.*

SECTION F – HEALTH & AMENITY

PART F1 DAMP AND WEATHERPROOFING.

79. Performance Requirement FP1.4

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause

a) Unhealthy or dangerous conditions, or loss of amenity for occupants; and

b) Undue dampness or deterioration of building elements.

Note 1: There are no Deemed-to-Satisfy provisions for this Performance Requirement in respect to External Walls.

Note 2: Refer to Clause F1.5 for roof coverings.

***Comments**: Design statement and documentation Performance Solution is to be provided with the Construction Certificate application, either by using:*

- *The Verification Methods in Clause FV1; or*
- *Other verification methods deemed acceptable by the Certifier; or*
- *Evidence to support that the use of the material or product, form of construction or design meets the Performance Requirements or the DTS provisions, such as a Certificate of Conformity (e.g. CodeMark); or*
- *By way of Expert Judgement.*

80. Clause F1.1 – Stormwater drainage

Stormwater drainage must comply with AS/NZ 3500.3.

Comments: Details of stormwater disposal, from a suitably qualified consultant are required to be submitted with the Construction Certificate Application.

81. Clause F1.4 – External Above Ground Membranes

Waterproofing membranes for external above ground use must comply with AS4654 Parts 1 and 2.

Comments: Compliance is readily achievable. Design statement is to be received from the Architect confirming the details and methods used to achieve compliance.

82. Clause F1.5 – Roof Coverings

This clause details the materials and appropriate standards, with which roofs must be covered with. The roofing requirements are set out in sub-clauses (a), (b) (c), (d), (e) & (f) which set out the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation.

Comments: Compliance is readily achievable.

83. Clause F1.6 – Sarking

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

Comments: Compliance is readily achievable.

84. Clause F1.7 – Waterproofing of Wet Areas

This clause requires that wet areas in Class 2 to 9 buildings must be waterproofed. It prescribes the standards to which the work must be carried out in sub-clauses (a) to (e) with emphasis in sub-clauses (c), (d) & (e) on the construction of rooms containing urinals and their installation.

***Comments**: Compliance is readily achievable. Details will be provided with the application for Construction Certificate.*

85. Clause F1.10 – Damp-proofing of Floors on the Ground

If the 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. Damp-proofing need not be provided if weatherproofing is not required or the floor is the base of a stair, lift or similar shaft which is adequately drained by gravitation or mechanical means.

***Comments**: Compliance is readily achievable.*

86. Clause F2.2 – Calculation of Number of Occupants & Facilities

This clause sets out the requirements for the calculation of the number of occupants and the number of sanitary facilities required to be installed in Class 2 to 9 buildings. The parameters for the calculation are set out in sub-clauses (a) to (d).

***Comments:** Complies.*

87. Clause F2.3 – Facilities in Class 3 to 9 Buildings

This clause provides the requirements for sanitary facilities to be installed in Class 3, 5, 6, 7, 8 and 9 buildings in accordance with Table F2.3. The requirements and variations are set out in sub-clauses (a) to (h).

***Comments**: Compliance is readily achievable. Each resident room has access to ensuites, and additional facilities are provided within the common areas at the ground and first floor levels.*

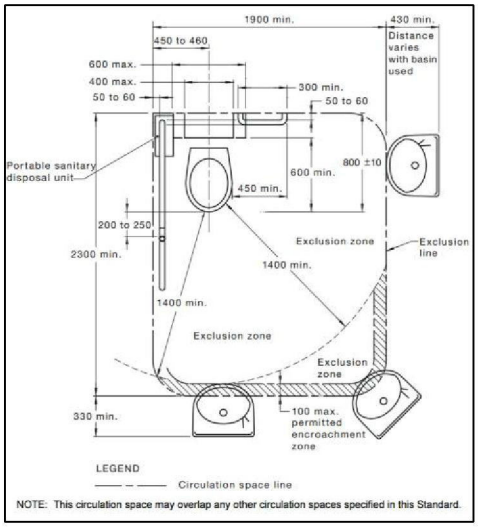
88. Clause F2.4 – Accessible Sanitary Facilities

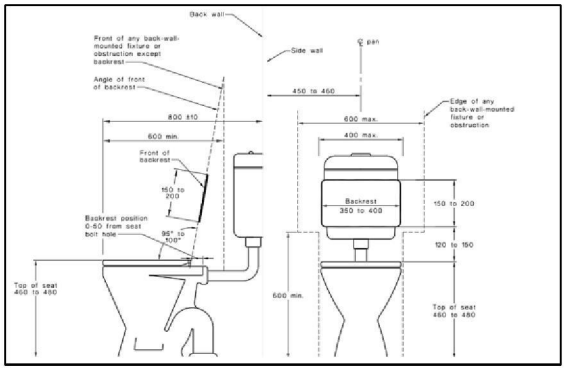
Accessible unisex sanitary compartments must be provided, in accordance with Table F2.4(a) and unisex showers must be provided in accordance with Table F2.4(b), in buildings or parts that are required to be accessible. The details for the provision of accessible sanitary facilities and compliance with AS 1428.1 are set out in sub-clauses (a) to (l).

***Comments**:*

Ensuites. Performance Solution. Rather than complying with AS1428.1, an Alternative Solution will be provided to justify the specific ensuite design that meets the operational needs of Southern Cross Care.

Common areas (resident use). Accessible facilities in the common areas are noted on the architectural drawings. These facilities have been provided and are capable of complying with the requirements of AS1428.1-2009 (extracts included below).





89. Clause F2.5 – Construction of Sanitary Compartments

Other than in an early childhood centre sanitary compartments must have doors and partitions that separate adjacent compartments and extend –

- from floor level to the ceiling in the case of a unisex facility; or
- a height of not less than 1.5m above the floor if primary school children are the principal users; or
- 1.8 above the floor in all other cases.

The door to a fully enclosed sanitary compartment must open outwards; or slide: or be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2m, measured in accordance with Figure F2.5 between the closet pan within the sanitary compartment and the doorway.

***Comments**: Compliance is readily achievable.*

90. Clause F2.8 – Waste Management

In a Class 9a health-care building and a Class 9c aged care building, facilities as set out in sub-clauses (a) & (b) must be provided to facilitate the emptying of containers of sewage and dirty water.

***Comments**: Compliance is readily achievable (there are less than 60 beds per floor in this facility) – there is a clean and dirty utility proposed on each floor. At least one slop hopper or other device other than a WC for the safe handling and disposal of liquid and solid wastes with a flushing apparatus, tap and grating must be provided for every 60 beds or part thereof; and an appliance for the disinfection of pans or an adequate means to dispose of receptacles.*

PART F3 ROOM HEIGHTS

91. Clause F3.1 Height of Rooms and other spaces

The ceiling heights in Class 2 to 9 buildings must not be less than required in sub-clauses (a) to (f) of this clause. The ceiling minimum heights for a class 9c building are as follows:

+ Office and admin areas – 2.4m;
+ Class 9c resident use areas, public corridors – 2.4m;
+ Public corridors in the office and admin areas – 2.1m;
+ All bathrooms, sanitary compartments, kitchens, store rooms etc. – 2.1m;

***Comments**: Compliance is readily achievable.*

PART F4 LIGHT AND VENTILATION

92. Clause F4.1 – Provision of natural Light

Natural lighting must be provided in:

(i) Class 2 buildings and Class 4 parts of buildings – to all habitable rooms.

(ii) Class 3 buildings – all bedrooms and dormitories.

(iii) Class 9a and 9c buildings – all rooms used for sleeping purposes.

(iv) Class 9b buildings – to all general purpose classrooms in primary or secondary schools and all playrooms and the like for the use of children in an early childhood centre.

***Comments:** Compliance is readily achievable.*

93. Clause F4.2 – Methods & Extent of Natural Lighting

Sub-clauses (a), (b) & (c) set out the requirement that natural light must be provided by windows and the size and location of such windows. Natural light can also be provided by the use of rooflights in accordance with the provisions of this Clause.

Note: the Guide to the BCA, as part of the commentary under F4.2, contains an example for determining proportional combination of windows and rooflights. Figure F4.2(1) in the Guide to the BCA contains an elevation showing method of measuring distance of window from boundary. Figure F4.2(2) contains an illustration of window sill in aged care building.

***Comments**: Compliance is achieved – all resident bedrooms have access to natural light. Details to be provided with the application for Construction Certificate.*

94. Clause F4.4 – Artificial Lighting

Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. Sub-clauses (a), (b) & (c) sets out the places where artificial lighting is always required in all classes of buildings and the standard to which it must be installed.

***Comments**: Compliance is readily achievable.*

95. Clause F4.5 – Ventilation of Rooms

A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F4.6 **or** a mechanical or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1.

Note: NSW F4.5(b) a mechanical ventilation or air-conditioning system complying with AS 1668.2 – the reference to AS/NZS 2666.1 is deleted from the BCA in NSW as the need to comply with this standard is regulated under the relevant section of the Public Health Act 1991.

***Comments**: Compliance is readily achievable. Noting that the facility is proposed to be mechanically ventilated to a large extent, a design statement is to be provided at the Construction Certificate stage confirming compliance with BCA Clause F4.5, AS1668.2 and AS/NZS 3666.1. See below for requirements for natural ventilation.*

96. Clause F4.6 – Natural Ventilation

Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened in accordance with sub-clauses (a), (b) & (c).

***Comments**: It is understood that the facility will be mechanically ventilated, Should any rooms rely on natural ventilation, confirmation will be required that a minimum 5% of the floor area of the room can be achieved for any windows that are fixed in a partially closed position.*

97. Clause F4.11 – Carparks

Every storey of a carpark except an open-deck carpark must have-

(a) A system of ventilation complying with AS 1668.2; or

(b) An adequate system of permanent natural ventilation.

***Comments**: Compliance is readily achievable. It is noted that the carpark is open on three (3) sides.*

98. Clause F4.12 – Kitchen Local Exhaust Ventilation

A commercial kitchen must be provided with a kitchen exhaust hood complying with AS AS/NZS 1668.1 and AS 1668.2 in accordance with the provisions of sub-clauses (a) and (b).

***Comments**: Compliance is readily achievable.*

PART F5 SOUND TRANSMISSION AND INSULATION

99. Clause F5.1 – Application of Part

The Deemed-to-Satisfy Provisions of this Part apply to Class 2 and 3 buildings and Class 9c aged care buildings.

***Comments**: Compliance is readily achievable.*

100. Clause F5.2 – Determination of Airborne Sound Insulation Ratings

A form of construction required to have an airborne sound insulation rating must comply with sub-clauses (a) and (b). Sub-clause (b) calls up the provisions of Specification F5.2.

***Comments:** Compliance is readily achievable.*

101. Clause F5.3 – Determination of Impact Sound Insulation Ratings

This part sets out the construction requirements for floors and walls in buildings required to have a sound insulation rating which must comply with sub-clauses (a), (b) & (c).

***Comments:** Compliance is readily achievable.*

102. Clause F5.4 – Sound Insulation Rating of Floors

The sound rating of floors in a Class 2 or 3 building must be calculated in accordance with the requirements of sub-clause (a) *and* **the floors in a Class 9c aged care building** must be calculated in accordance with sub-clause (b). The deemed-to-satisfy construction requirements are set out in Specification F5.2. Table 3A of the Specification prescribes Acceptable Forms of Construction for Floors.

***Comments:** Compliance is readily achievable.*

103. Clause F5.5 – Sound Insulation Rating of Walls

The sound rating required for walls in Class 2 and 3 buildings and Class 9c aged care buildings is set out in sub-clauses (a) to (f). The deemed-to-satisfy construction requirements are set out in Specification F5.2. Table 2A of the Specification prescribes Acceptable Forms of Construction for Walls.

***Comments**: Compliance is readily achievable.*

104. Clause F5.6 – Sound Insulation Rating of Services

This clause details the separation requirements for services. The requirements only apply to services which pass through more than one sole-occupancy unit or are located in a wall or floor cavity which separates sole-occupancy units. F5.6 does not apply if the pipe is only located in a single unit or any part of a Class A 2, 3 or 9cA building which is not part of a sole-occupancy unit.

***Comments**: Compliance is readily achievable.*

105. Clause F5.7 – Sound Isolation of Pumps

A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.

***Comments**: Compliance is readily achievable.*

SECTION G – ANCILLARY PROVISIONS

PART G1 MINOR STRUCTURES AND COMPONENTS

106. Clause G1.2 – Refrigerated Chambers, Strong-Rooms and Vaults

A refrigerated or cooling chamber, strongroom or vault which is of sufficient size for a person to enter must be capable of being opened from the inside by hand without a key. This clause also sets out the acceptable safety standards for a cooling chamber or strongroom by installation of dedicated controls within the chamber or vault and the external lights that indicate that the space is in use.

***Comments**: Compliance is readily achievable. Confirmation is to be provided from the kitchen consultant.*

107. NSW Clause G1.101 – Provision for Cleaning of Windows

A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level.

A building satisfies this requirement where the windows can be cleaned wholly from within the building; or provision is made for the cleaning of the windows by a method complying with the occupational Health and Safety Act 2000 and regulations made under that Act.

***Comments**: The applicant is to understand their obligations in this regard.*

SECTION J – ENERGY EFFICIENCY

PART J1 BUILDING FABRIC

108. SECTION J1.0 – Deemed-to-Satisfy Provisions

The provision of insulation of the building envelope will be required in the proposed Building, in accordance with Clauses J1.0 to J1.6, and the Tables therein, including Thermal Construction General, Roof and Ceiling Construction, Rooflights, Walls, and Floors. Design details and/or certification of design will be required to be provided in this regard.

***Comments**: Compliance is readily achievable. It is understood that the project will engage a qualified Energy Efficiency consultant to develop a report for the building that addresses all requirements pertaining to Section J.*

109. SECTION J2 – GLAZING

Glazing within the external building envelope will be required to be assessed/designed to achieve compliance with Clauses J2.0 to J2.5, including the Tables therein, having regard to the maximum aggregate air-conditioning energy attributable to each façade of the proposed building. A calculation demonstrating that the proposed design of the building complies with the requirements of Part J2 is required to be provided in this regard.

***Comments**: Compliance is readily achievable.*

110. SECTION J3 – BUILDING SEALING

The proposed building envelope will be required to be sealed to prevent air infiltration in accordance with the requirements of Clauses J3.0 to J3.6. Details or certification that the proposed building design complies with the requirements of Part J3 is required to be provided.

***Comments**: Compliance is readily achievable.*

111. SECTION J5 – AIR-CONDITIONING & VENTILATION SYSTEMS

Details and/or design certification which confirm that any proposed air-conditioning system or unit within the proposed building achieves compliance with the relevant requirements of Part J5 will be required to be provided from the Mechanical Engineer.

***Comments**: Compliance is readily achievable.*

112. SECTION J6 – ARTIFICIAL LIGHTING & POWER

Details and/or design certification which confirm that all artificial lighting, power control, and boiling/chilled water units within the proposed building achieves compliance with the relevant requirements of Part J6 will be required to be provided from the Electrical Engineer.

***Comments**: Compliance is readily achievable.*

113. SECTION J7 – HOT WATER SUPPLY & SWIMMING POOL & SPA POOL PLANT

Details and/or design certification which confirm that any proposed hot water supply system within the proposed building achieves compliance with the relevant requirements of Part J7 (Section 8 of AS 3500.4) will be required to be provided from the Hydraulic Engineer.

***Comments**: Compliance is readily achievable.*

114. SECTION J8 – ACCESS FOR MAINTENANCE & FACILITIES FOR MONITORING

See NSW Subsection J8 for access to maintenance.

Access must be provided to all plant, equipment and components that require maintenance in accordance with Part I2.

***Comments**: Compliance is readily achievable.*

Details are to be provided from the design consultants for their respective disciplines for proposed new glazing, building fabric, ventilation, electrical and hydraulic systems that compliance with the requirements of Section J has been achieved.

E. CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed Catholic Health Care project at Jordon Springs against the Deemed-to-Satisfy Provisions of the BCA 2016, Amd 1.

Arising from the review, it is considered that the proposed development can readily achieve compliance with the relevant provisions of the BCA. Necessary documentation will need to be provided with the application for the Construction Certificate to demonstrate detailed compliance with the BCA as outlined above.

APPENDIX 1

Building element	Class of building — FRL: (in minutes)			
	Structural adequacy/ Integrity/ Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is—				
For loadbearing parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/90	240/180/90
For non- loadbearing parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair shafts—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non- loadbearing	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding public corridors, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non- loadbearing	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non- loadbearing	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non- loadbearing	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

Notes:

1. The concession granted under clause C3.5 results in the roof of the building not being required to be fire rated (the building is provided throughout with sprinklers).
2. Where a combustible material is used as a finish or lining to a wall or roof, or sunscreen, or awning, to a building element required to have an FRL the material must be exempted or complies with the fire hazard properties prescribed under C1.10 and does not otherwise constitute an undue risk of fire spread via the façade of the building. See further in the body of the report with respect to Clause C1.9 and C1.14.
3. Lift shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL of 120/120/120.
4. Fire isolated exits are to be provided with a fire rated "lid" that achieves an FRL of 120/120/120.
5. Where roof lights are proposed they are required to be located not less than 3 metres from a roof light in an adjoining fire separated part; and must not be more than 20% of the area of the roof.

6. Any loadbearing internal walls or loadbearing fire walls are to be masonry or concrete.
7. A non-loadbearing wall that is required to be fire resisting must be non-combustible construction.
8. External walls must be non-combustible construction. Non-loadbearing parts of an external wall that are more than 3m from a fire source feature need not be fire rated.
9. Internal columns in this building (being less than 25m in effective height) that are in the storey immediately below the roof, can be constructed as follows:
    a. Building with a rise in storeys exceeding 3 – FRL 60/60/60, **or**
    b. Building with a rise in storeys not exceeding 3 – no FRL.

APPENDIX 2

FIRE SAFETY MEASURES

The following fire safety measures are required for the proposed development:

Essential Fire and Other Safety Measures	Standard of Performance
Alarm Signaling Equipment	AS1670.3 – 2004
Automatic Fail Safe Devices	BCA Clause D2.21
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a & AS 1670.1 - 2015.
Automatic Fire Suppression Systems	BCA Spec. E1.5 & AS2118.4-2012
Building Occupant Warning System activated by the Sprinkler System	BCA Spec E1.5 Clause 8 and/ or Clause 3.22 of AS 1670.1 – 2015
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005
Emergency Evacuation Plan	AS 3745 – 2002
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 – 2005
Fire Blankets	AS 3504 – 2006 & AS 2444 – 2001
Fire Dampers	BCA Clause C3.15, AS 1668.1 - 2015 & AS 1682.1 & 2
Fire Doors	BCA Clause C2.12, C2.13, C3.2, C3.4 and AS 1905.1 – 2015
Fire Hydrant Systems	BCA Clause E1.3 & AS 2419.1 – 2005
Fire Seals	BCA Clause C3.15 & AS 1530.4 – 2014 & AS 4072.1 – 2005
Fire Walls and floors	BCA Section C
Mechanical Air Handling Systems (automatic shutdown)	BCA Clause E2.2, AS/NZS 1668.1 - 2015 & AS 1668.2 – 2012
Paths of Travel	EP & A Regulation Clause 186
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
Smoke Dampers	AS/NZS 1668.1 – 2015
Smoke Doors	BCA Spec. C3.4 & C2.5
Warning & Operational signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 - 2015, BCA Clause C3.6, D2.23, E3.3
Potential Alternative solutions – • *TBC*	*TBA*

APPENDIX 3

BCA GUIDE – CLAUSE D1.8 EXTERNAL STAIRS

Figure D1.8(1)

PROTECTION OF THE EXTERNAL EXIT USING THE EXTERNAL WALL OF THE BUILDING IN ACCORDANCE WITH D1.8(c)(i)