BLACKETT MAGUIRE+ GOLDSMITH

BCA ASSESSMENT REPORT

154-162 Stafford Street, Penrith

fresh hope care

Ref: 180396

April 2019

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

Contact
Ph: 02 9211 7777
Fax: 02 9211 7774

CONTENTS

CONTENTS 2

A. INTRODUCTION 3
A.1 BACKGROUND / PROPOSAL 3
A.2 PROJECT TEAM 3
A.3 AIM 3
A.4 DOCUMENTATION 4
A.5 REGULATORY FRAMEWORK 4
A.6 LIMITATIONS & EXCLUSIONS 4
A.7 TERMINOLOGY 4

B. BUILDING CHARACTERISTICS 6
B.1 BUILDING CLASSIFICATION 6
B.2 FIRE SOURCE FEATURE 6

C. SUMMARY OF KEY COMPLIANCE ISSUES 7

D. BCA ASSESSMENT 8
SECTION A – CLASSIFICATION OF BUILDINGS & STRUCTURES 8
SECTION B - STRUCTURE 8
SECTION C – FIRE RESISTANCE 9
SECTION C - SPECIFICATIONS 14
SECTION D – ACCESS & EGRESS 15
SECTION E – SERVICES AND EQUIPMENT 25
SECTION F – HEALTH & AMENITY 29
SECTION J – ENERGY EFFICIENCY 33

E. CONCLUSION 34

REPORT STATUS				
DATE	REVISION	STATUS	AUTHOR	REVIEWED
7/02/2019	-	BCA Assessment Report	BM	TH
23/04/2019	1	Updated BCA Assessment Report	BM	TH

PREPARED BY:

Brian Maguire
Director
Blackett Maguire + Goldsmith

REVIEWED BY:

Tony Heaslip
Director
Blackett Maguire + Goldsmith

A. INTRODUCTION

A.1 BACKGROUND / PROPOSAL

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by Fresh Hope Care to undertake a BCA assessment for the proposed new Independent Living development at Stafford Street Penrith which involves the following:

- Basement – carparking for 36 vehicles; waste room; back of house storage;
- Ground Floor – main entry for office and communal spaces; residential apartments (1, 2 and 3 bed) surrounding an internal courtyard (17 units);
- First Floor – residential apartments (19 units).

The architectural drawings make reference to Building 1, 2 and 3, however all structures both located over the same basement carpark and are connected by elevated concrete bridges.

A.2 PROJECT TEAM

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

- Report Author – Brian Maguire | Director
- Peer Review – Tony Heaslip | Director

A.3 AIM

The aim of this report is to:

- Undertake an assessment of the proposed development building against the Deemed-to-Satisfy (DTS) Provisions of the BCA Volume One 2016 Amendment 1 and BCA Volume Two 2016. Note, BCA 2019 will be the relevant edition of the BCA should the CC application be received by a Certifying Authority after 30 April 2019. Accordingly, some comments have been made based on the current preview edition of the BCA 2019.
- Identify any BCA compliance issues that require resolution/attention for the proposed development.

Note: This report will provide an overview of relevant items of compliance with respect to BCA Part D3 and Access for people with Disabilities, however the project has engaged an Accredited Accessibility consultant to prepare a detailed report on all relevant aspects of the Access Code and the Disability (Access to Premises – Buildings) Standard 2010.

A.4 Documentation

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

- BCA Volume One 2016 Amendment 1 being mindful of the impending relevance of BCA 2019.
- Guide to the BCA
- Architectural floor plans and elevations prepared by Fulton Trotter Architects:

Drawing Number	Revision	Date	Drawing Number	Revision	Date
ACD0000	DA01	05/04/19	ACD1001	DA01	05/04/19
ACD1002	DA01	05/04/19	ACD1003	DA01	05/04/19
ACD2001	DA01	05/04/19	ACD2002	DA01	05/04/19
ACD2003	DA01	05/04/19	ACD2101	DA01	05/04/19
ACD3001	DA01	05/04/19	ACD3101	DA01	05/04/19
ACD5001	DA01	05/04/19	ACD6001	DA01	05/04/19
ACD6002	DA01	05/04/19	ACD6003	DA01	05/04/19

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 being mindful of the impending relevance of BCA 2019.

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.
- No assessment has been undertaken with respect to the Disability Discrimination Act (DDA) 1992. 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.
- No part of this document may be reproduced in any form or by any means without written permission from BM+G Pty Ltd. This report is based solely on client instructions, and therefore, should not be used by any third party without prior knowledge of such instructions.

A.7 Terminology

Building Code of Australia (BCA)

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 New South Wales under the provisions of the EPA Act and Regulation.

Construction Type

The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1, except as allowed for—

(i) certain Class 2, 3 or 9c buildings in C1.5; and

(ii) a Class 4 part of a building located on the top storey in C1.3 (b); and

(iii) open spectator stands and indoor sports stadiums in C1.7.

Type A construction is the most fire-resistant and Type C the least fire-resistant

Climatic Zone

An area defined in BCA Figure A1.1 and in Table A1.1 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Deemed to Satisfy Provisions (DtS)

Provisions which are deemed to satisfy the Performance Requirements.

Effective Height

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

Fire Resistance Level (FRL)

The grading periods in minutes for the following criteria-

(a) structural adequacy;

(b) integrity; and

(c) insulation,

and expressed in that order.

Fire Source Feature (FSF)

The far boundary of a road which adjoins 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.

National Construction Code Series (NCC)

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

Open Space

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 Solution (Alternative Solution)

A method of complying with the Performance Requirements other than by a DtS Solution.

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 DtS Provisions; or

(b) formulating a Performance Solution which-

  i. complies with the Performance Requirements; or

  ii. is shown to be at least equivalent to the DtS Provisions; or

(c) a combination of (a) and (b).

Sole occupancy Unit (SOU)

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.

Occupiable outdoor area

Means a space on a roof, balcony or similar part of a building—

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

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 2 (residential)*; Class 7a (Carpark)**
+ **RISE IN STOREYS:**	Three (3)
+ **EFFECTIVE HEIGHT:**	Less than 12m
+ **TYPE OF CONSTRUCTION:**	Type A Construction
+ **CLIMATE ZONE:**	Zone 5
+ **MAXIMUM FLOOR AREA / VOLUME:**	Not relevant to a Class 2 building or a sprinklered 7a carpark area.

**The communal spaces are ancillary uses to the class 2, and not for public use or assembly*

***The carpark entry points constitute a rise in storeys in this instance.*

B.2 FIRE SOURCE FEATURE

The distances from the nearest Fire Source Features are:

BOUNDARY	DISTANCE TO FIRE SOURCE FEATURE
+ North	Greater than 6m to the other side of Stafford Street
+ East	Greater than 6m to side boundary
+ South	3m to Building 1; 6m to Building 2
+ West	4.8m for Building 2 to the side boundary; Greater than 6m to the other side of Doonmore Street for Building 1

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 a Construction Certificate:

C.1 MATTERS REQUIRING FURTHER INFORMATION/PLAN AMENDMENTS

BCA CLAUSES		DESCRIPTION
1.	C2.6	Spandrel protection to external walls is required on the basis that the building is of Type A construction and is achieved with a vertical up turn or horizontal projection.
2.	D1.6	An unobstructed 1m wide path of travel is to be maintained between the handrails within the Fire Pump Room corridor.
3.	Part D3	Handrails are required to both sides of the non-fire isolated stairs.

C.2 MATTERS REQUIRED TO BE ADDRESSED AS A FIRE ENGINEERED PERFORMANCE SOLUTION

The following comments have been made in relation to the relevant BCA provisions relating to the compliance issues associated with the proposed development.

BCA CLAUSES		DESCRIPTION	PERFORMANCE REQUIREMENTS
1.	D1.4	The Distance to an exit exceeds the maximum permitted 40m within the Class 7a carpark.	DP4, EP2.2
2.	D1.5	The distance with the between alternative exits exceeds the maximum permitted.	DP4

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

The following comprises a summary of the key compliance issues identified under the clause-by-clause assessment of this report that will be addressed as Performance Solutions:

BCA Clause		Description
1.	FP1.4	The external walls will need to be assessed for compliance against this Performance Requirement.

D. BCA ASSESSMENT

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 1: This provision does not apply to certain minor uses as set out in this clause, such as Class 2, 3 or a laboratory.

Note 2: a plant room, lift room, boiler room or the like must take the classification of the part of the building in which it is situated.

Comment: *The buildings are Class 2 Residential, Class 7a Car Park and Class 9b assembly building (community).*

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.

Comment: *Details are to be provided confirming that the design achieves compliance with the following is required at the time of the 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 – 2018, Masonry code*
- *AS 3600 – 2019, Concrete code*
- *AS 4100 – 1998, Steel Structures and/or*
- *AS 4600 – 2005, Cold formed steel.*
- *AS 2159 –2009, Piling*
- *AS 1720.1 – 2010, Design of timber structure*
- *AS/NZS 1664.1 and 2 – 1997, Aluminium construction*
- *AS 2047 – 1999, Windows in buildings.*
- *AS 1288 – 2006, Glass in buildings.*

In addition, details pertaining to the method of addressing attack from subterranean termites are to be provided with the application for Construction Certificate.

PART C1 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.

Comment: *The buildings is required to comply with the requirements of Type A Construction. Appendix 1 is an extract from Table 3 in BCA Specification C1.1 for reference.*

Note, all external loadbearing walls and all columns within the external walls are required to achieve an FL of 90/90/90.

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.

Comment: *The buildings have a rise of storeys of three (3), noting that the vehicular entry of each carpark constitutes a rise in storeys.*

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.

Comment: *Type A Construction applies to the buildings regardless of the mixed classifications of Class 2, Class 7a.*

7. 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).

Comment: *Compliance is readily achievable.*

8. 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: *Compliance readily achievable. Details demonstrating specific compliance will need to be provided at the Construction Certificate stage particularly with regard to the proposed cladding.*

9. 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.

Comment: *Architect to note in design specification. AS 3786-1993 or AS ISO 9705 Test Reports will need to be submitted for further assessment to ensure compliance with the above (relevant to the Occupation Certificate Stage).*

10. Clause 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. Architectural statement is required to accompany the Construction Certificate application.*

PART C2 COMPARTMENTATION AND SEPARATION

11. 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 a 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.

Comment: *On the basis that the building is not sprinkler protected spandrel protection of the external wall is required and is achieved with a horizontal upturn of vertical projection which achieves an FRL of not less than 60/60/60 (refer to Appendix 2)*

12. Clause C2.7 – Separation by Fire Walls

Separation of building classifications for construction must be constructed in accordance with the following:

+ The fire wall has the relevant FRL prescribed by Specification C1.1 for each of the adjoining parts.
+ Any openings in a fire wall must not reduce the FRL, except where permitted by the Deemed-to-Satisfy Provisions of Part C3 (i.e. fire doors; protection of services).
+ Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire resisting performance of the fire wall is maintained.

Comment: *Not applicable. The communal areas are ancillary use areas of the Class 2 part which the bounding construction requirements of Clause C3.11 and Spec C1.1 apply.*

13. Clause C2.8 – Separation of Classifications in the Same Storey

If a building has parts of different classifications located alongside one another in the same storey, each element must have the required higher FRL for the classifications concerned.

Alternatively, the parts must be separated by a fire wall having the higher FRL for the classifications prescribed in Table 3 or 4 of BCA Specification C1.1 (for Type A or Type B Construction), or Table 5 for Type C Construction.

Comment: *Not applicable. See above.*

14. Clause C2.9 – Separation of Classification in Different Storeys

This clause specifies the required separation between parts of a building which are of a different classification, situated one above another, to minimise the risk of a fire in one classification causing the failure of building elements in another classification in a different storey.

Comment: *Not applicable. The carpark can remain as 90/90/90 as per the concessions in BCA Specification C1.1 (clause 2.8).*

15. Clause C2.10 – Separation of Lift Shafts

Applies to all classes of buildings and specifies the protection requirements for openings for lift shafts and lift landing doors.

Comment: *To be provided as per requirements for Type A Construction.*

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:

- 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.

Separation of on-site fire pumps must comply with the requirements of AS 2419.1.

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

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 a 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

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

18. Clause C2.14 – Public Corridors in Class 2 and Class 3 buildings

In a Class 2 or Class 3 building, a public corridor, if more than 40m in length, must be divided at intervals of not more than 40m with smoke proof walls complying with Clause 2 of Specification C2.5.

Comment: *Not Applicable. The building does not include enclosed corridors.*

PART C3 PROTECTION OF OPENINGS

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

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

- 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
- If required to be protected they must 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.

Comment: *None of the external walls of the subject buildings are exposed to a fire source feature (i.e. more than 3m from allotment boundaries and more than 6m from adjacent buildings).*

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

The distance between parts of external walls and any openings within them in different 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.

Comment: *There are no compartments exposed to each other for the purposes of applying Clause C3.3.*

21. Clause C3.4 – Acceptable Methods of Protection

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

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

Comment: *Compliance is readily achievable.*

22. Clause C3.5 – Doorways in Fire Walls

Openings in fire walls, that are not part of a horizontal exit, must be protected in accordance with one of the methods set out in this clause.

Fire shutters installed to openings in fire walls must be self-closing or automatic in accordance with the requirements set out in this clause.

Comment: *Not Applicable.*

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

C3.8 specifies 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. This does not apply to doors opening to a road or open space.

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.

Comment: *Not Applicable. The exits are all non-fire isolated.*

24. 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.

Comment: *Not Applicable.*

25. Clause C3.10 – Openings in fire isolated lift shafts

If lift shafts are required to be fire-isolated an entrance doorway must be protected by -/60/- fire doors and the lift indicator panels must backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm²

Comment: *Certification from the lift consultant to confirm compliance is to be provided at the Construction Certificate stage.*

26. Clause C3.11 – Bounding Construction: Class 2, 3 & 4 Buildings

Protection is required to the bounding walls of sole-occupancy units or public corridors in Class 2 & 3 buildings and Class 4 portions of buildings of Types A, B & C Construction. Namely:

- Doorways must be protected if providing access from an SOU to a
  - Public corridor;
  - A room not within an SOU; or
  - The landing of an internal non-fire isolated stairway that serves a required exit; or
  - Another SOU
- A doorway must be protected if it provides access from a room not within an SOU to a public corridor or the like; or to the landing on a non-fire isolated stairway that serves as a required exit.
- Protection of the doorway must be -/60/30 self-closing fire door in Type A Construction, and a self-closing tight fitting solid core door in Type B and Type C Construction.

Comment: *Compliance readily achievable.*

27. 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.

Comment: *Certification will be required at Occupation Certificate application stage.*

28. Clause C3.13 – Openings in Shafts

This clause specifies that in buildings of Type A Construction, openings in shafts must be protected (generally with 1 hour fire rated shafts and doors).

Comment: *Compliance to be demonstrated with the Construction Certificate application documentation.*

29. 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 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. Where the mechanical ventilation system penetrates floors or walls that require an FRL the installation is to comply with AS/NZS 1668.1.

Comment: *Compliance to be demonstrated with the Construction Certificate application documentation.*

SECTION C - SPECIFICATIONS

30. 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).

Comment: *Compliance is readily achievable for the requirements of Type A Construction. See Appendix 1 at the end of the report for the required FRLs applicable to the building.*

SECTION D – ACCESS & EGRESS

PART D1 PROVISION FOR ESCAPE

31. 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 (particularly in relation to Class 9 buildings).

Note 1: Not less than 2 exits must be provided from any storey that involves a vertical rise within the building of more than 1.5m unless the floor area of the storey is not more than 50m^2 and the distance of travel from any point on the floor to a single exit is not more than 20m.

Comment: *Compliance is achieved.*

32. 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. Particular exceptions apply to Class 9a patient care and also class 9c aged care buildings.

Class 2 – an exit stair must be fire isolated when it connects or passes by more than 3 consecutive stories. An extra storey of any classification can be included if it is only for the accommodation of motor vehicles, etc.; the building has a sprinkler system throughout; or if the stair is not providing access from or egress to the additional storey, and is separated by construction achieving an FRL of 60/60/60, and is smoke proof.

Class 5, 6, 7, 8 and 9 – every stairway must be fire isolated if it connects more than 2 consecutive storeys. Concessions apply to inclusion of an additional storey, or sprinklers, as per the above.

Comment: *Not Applicable. All stairs receive the concession for the stairs connecting no more than 2 storeys, and/or the stair connecting with a single level of dedicated basement carparking, when there are no more than 3 storeys above.*

33. Clause D1.4 – Exit Travel Distances

This clause specifies the permitted travel distances allowable from Class 2 to Class 9 buildings, specifying the maximum distances to be taken into account for the various uses in each Class of building.

The following applies:

- In a Class 2 or 3 building
  - The entrance of any SOU must be not more than:
    - 6m from an exit or from a point which travel in 2 different directions to 2 exits is available; or
    - 20m from a single exit serving the storey at the level of egress to a road or open space.
  - No point on the floor of a room which is not within a SOU must be more than 20m to an exit, or a point from which travel in different directions to 2 exits is available.
- In a class 5, 6, 7, 8 or 9 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;
  - For the class 5 and 6, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30m.

Comment: Exit travel distances to exits are satisfactory with the exception of the following:

- Carpark – exceeds the maximum 40m to the closest exit when 2 or more exits are required (45m).

The above instance can be readily addressed with a **Performance Solution** prepared by a Fire Engineer.

34. 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
  - not less than 9m apart; and
  - 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– 60m apart.
- Located so that the alternative paths of travel do not converge such that they become less than 6m apart.

Comment: Compliance is generally achieved with the exception of the following instances:

- Basement Level – The distance between alternative exits is in the order of 77m in lieu of the maximum permitted 60m.
- Ground Floor – The distance between alternative exits is in the order of 77m in lieu of the maximum permitted 45m.
- First Floor – The distance between alternative exits is in the order of 76m in lieu of the maximum permitted 45m.

Each of the above instances can be readily addressed with a **Performance Solution** prepared by a Fire Engineer.

35. Clause D1.6 – Dimensions of Exits

Sets out in detail 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.

Comment: *Exit corridors and stairs and other paths of travel are to be a minimum of 1m in width and 2m in height, this is generally achieved with the exception of between handrails within the corridor serving the Fire Pump Room.*

Note: See Clause F3.1 in relation to minimum ceiling heights for habitable and non-habitable spaces.

36. 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. A doorway from a room must not open directly into a fire isolated stairway, passageway or ramp unless it is from a public corridor, public lobby or the like; a SOU that occupies the whole storey; or a sanitary compartment, airlock or the like.

Each fire isolated exit must provide independent egress from each storey serviced and discharge directly, or by way of its own fire isolated passageway to:

- A road or open space;
- To a point in a storey, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and, from which unimpeded path of travel, not further than 20m is available to a road or open space.
- Into a covered area that adjoins a road or open space; and is open for at least 1/3 of its perimeter; and has an unobstructed height throughout of not less than 3m.

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.*

37. Clause D1.9 – Travel via Non-Fire Isolated Stairs

Sub-clauses (a) to (f) set out the prescribed travel distances to be provided in required exits of Class 2 to 9 buildings and Class 4 parts of buildings. The sub-clauses set out the maximum distances to be taken into account for the various uses in each Class of building. A non-fire isolated exit must discharge at the level of egress to a road or open space, and a maximum total of 80m can be travelled for a class 5 – 9 building.

Comment: *Compliance is readily achievable. Applies to the required exit stairs serving each building.*

38. Clause D1.10 – Discharge from Exits

Upon egress occupants must have suitable paths of travel including compliant stairways and ramps (where required) between the building and the Roadway. Graded surfaces such as the vehicular ramp must not be steeper than 1:8 and may require handrails.

Bollards are required to exit doors where they could be potentially blocked by vehicles. This will also include the discharge points of the stair to the carparking areas above to ensure that a clear 1 metre wide path of travel is provided to the public roadway. Bollards may also be required in front of the exits in the basement and in front of exits in the workshop.

Comment: *Compliance is readily achievable. External landscape areas will be designed to ensure pedestrian access is available to reach the public road.*

39. Clause D1.17 – Access to Lift Pits

This clause provides the requirements for access to lift pits not more than 3m deep and the requirements of construction of access for lift pits that are more than 3m deep. The requirement for signage to lift pits is also set out.

Comment: *Compliance is readily achievable. Details are to be provided at the Construction Certificate application stage.*

PART D2 CONSTRUCTION OF EXITS

40. 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.

Comment: *Not applicable. See additional comments under D1.3 above.*

41. Clause D2.3 – Non-fire-isolated Stairways & Ramps

In a building having a rise in storeys of more than 2, required stairs and ramps (including landings and any supporting building elements) which are not required to be within a fire resisting shaft, must be constructed in accordance with D2.2, or only of concrete, steel minimum 6mm in thickness, or timber that has a finished thickness of not less than 44mm and average density of not less than 800 kg/m3 that has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.

Comment: *Compliance is readily achievable. Details are to be provided 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 that the level of construction be some proof in accordance with BCA Specification C2.5.

Comment: *Not applicable. This relates to Fire Isolated Stairs only.*

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.

Comment: *Compliance is readily achievable. Details are to be provided with the Construction Certification documentation.*

44. Clause D2.8 – Enclosure of Space Under Stairs & Ramps

A space below a required fire-isolated stairway or ramp in a fire-isolated shaft must not be enclosed to form a cupboard or other enclosed space. If the required stairway or ramp is non-fire-isolated, (including an external stairway) any cupboard underneath must have an FRL of 60/60/60, with a self-closing -60/30 door.

Comment: *There are no enclosures shown beneath or within the proposed stairs.*

45. Clause D2.12 – Roof as Open Space

If an exit discharges to a roof of a building, the roof must;

(a) Have an FRL of not less than 120/120/120; and

(b) Not have any roof lights or other openings within 3m of the path of travel of persons using the exit to reach a road or open space.

Comment: *Not applicable to this development.*

46. 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.

Comment: *Compliance is readily achievable. All stairs are to have solid risers, and are to have contrast nosings throughout in accordance with Clause 11.1 of AS1428.1-2009 (see diagram in Part D3 below). Furthermore, the stairs are required to be slip resistant in accordance with the requirements specified under Clause D2.14.*

RISER AND GOING DIMENSIONS (MM)			
	RISER (R)	GOING (G)	QUANTITY (2R + G)
Maximum	190	355	700
Minimum	115	250	550

47. 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.

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

Table D2.14 - Slip-Resistance Classification

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

Comment: *Compliance is readily achievable. Details to be confirmed with the Occupation Certificate documentation.*

48. 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 the door opens to a road or open space, external stair landing or external balcony; and the door sill is not more than 190mm above the finished surface of the external level.

Comment: *Compliance is readily achievable.*

49. Clause D2.16 – Balustrades or Other Barriers

This clause details where balustrades are required to be provided and sets out in specific detail the construction requirements. Typically the following will apply to this class of building:

- Balustrades are required where the fall to the level below is more than 1m in height. The minimum height of a balustrade is 1m above the floor of the landing, walkway or the like; and 865mm above the floor of a stairway or a ramp.
- For a fall of more than 4m to the surface level below, a window sill must be a minimum of 865mm in height above the height of the floor surface.
- Where the floor is more than 4m above the surface beneath the balustrade, any horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing.
- Balustrades 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.

Comment: *Compliance is readily achievable. Details of proposed balustrades are to be provided with the application for Construction Certificate for assessment detailing the above, particularly in relation to balconies above 4m.*

50. 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 within stairs and ramps in the building. Handrails are also required to any stair or ramp located within a Class 2, 3 or Class 4 part SOU, located along at least one side.

Handrails are required to be not less than 865mm in height vertically above the nosings of the stair tread.

Handrails are required to be designed in accordance with Clause 12 of AS1428.1-2009.

Comment: *Compliance is readily achievable.*

51. 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 doorway in a required exit (e.g. the doors leading to a fire isolated exit, or the doors leading directly to open space) must not be fitted with a sliding door unless it leads to a road or open space; and the door is able to be opened manually under a force of not more than 110N. If the door is also power operated, it must be opened manually under a force of not more than 110N if there is a malfunction or failure to the power source; or upon the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.

Comment: *Compliance is readily achievable.*

52. 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). This clause does not apply to other doorways.

Comment: *Compliance is readily achievable.*

53. 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 the detection system, the above need not apply.

Comment: *Compliance is readily achievable – details are contained in AS1428.1 for the type of latching device required.*

54. 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.

Comment: *Not applicable. The development does not include any fire isolated stairs.*

55. 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.

Comment: *Compliance is readily achievable. Any self-closing fire and/or smoke doors leading into the fire stair or forming part of a Horizontal Exit or smoke compartment are to be provided with signage as follows*:

Any 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:

Comment: *These signs are not required for non-fire isolated exits.*

56. 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 more than 1.7m above the floor. Details for protection include the following:

- Openable portion of the window must have a device to restrict the window 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 not 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.

Comment: *Compliance is readily achievable. Details are to be resolved with the application for a Construction Certificate.*

PART D3 ACCESS FOR PEOPLE WITH A DISABILITY

57. 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.

In a building required to be accessible, access for persons with disabilities must be provided from a pedestrian entrance required to be accessible to a minimum of 1 floor and to the entrance doorway of each SOU on that level and any other common room used by the residents. Notwithstanding, where a passenger lift is installed, access must be provided to every level served by the lift. However, we note that access is not *required* to the ancillary carpark part of the residential building (i.e. this being a class 7a, which is not required in Table D3.5 to be accessible as it is ancillary to a class 2).

Comment: *Compliance is readily achievable. It is understood an Access Consultant will prepare a detailed compliance report prior to the issue of the Construction Certificate.*

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

Accessways are 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.

Access must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances (including the principal pedestrian entry).

In addition, as the building is greater than 500m^2, the non-accessible entrance must not be greater than 50m from an accessible entrance.

The minimum width of an accessible doorway must have a clear opening width of not less than 850mm in accordance with AS1428.1.

Comment: *See above Clause D3.1 comments.*

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

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

Comment: *The following is a summary of some of the key matters which will need to be considered:*

Access for persons with disabilities must be provided, at a minimum, to and within all areas normally used by the occupants. This includes to and within all parts of the common areas of the Class 2 residential parts and the Class 9b part.

The minimum width of an accessible doorway must have a clear opening width of not less than 850mm in accordance with AS1428.1.

All new doorways on a continuous path of travel (throughout the common areas of the Class 2 parts) 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.

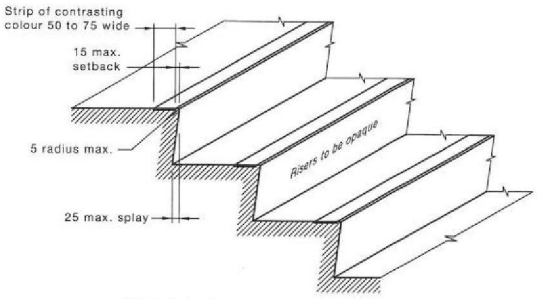
The minimum width of the area of luminance contrast shall be 50mm.

Circulation spaces to the new doorways that are required to be accessible are to comply with Section 13 of AS1428.1-2009, including as follows:

Stairways

+ *Every common area stairway must be constructed in accordance with Clause 11 of AS1428.1, except if they are within a fire isolated exit.*

- *Stairs shall have opaque risers (i.e. Solid)*
- *Stair nosing's shall comply with the following diagram, which achieve a colour contrast luminance of 30% to the background (tread):*



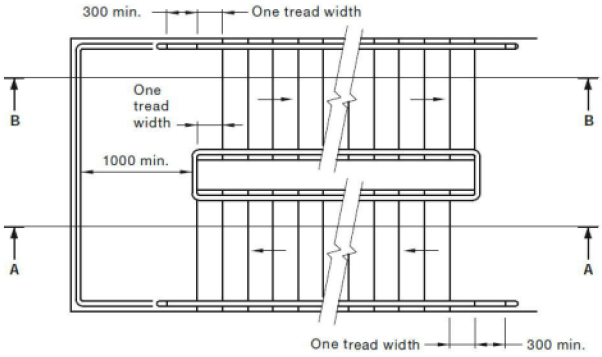
NOTE: A chamfered nosing 5 x 5 mm may be used.

DIMENSIONS IN MILLIMETRES

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

Stairway nosing requirements

- *Stairways are to be served by Tactile Ground Surface Indicators in accordance with AS1428.4.1, except if they are within a fire isolated exit.*
- *At the intermediate landings the last riser (when descending the stair) is required to be off-set by at least one-tread width.*



(a) Plan

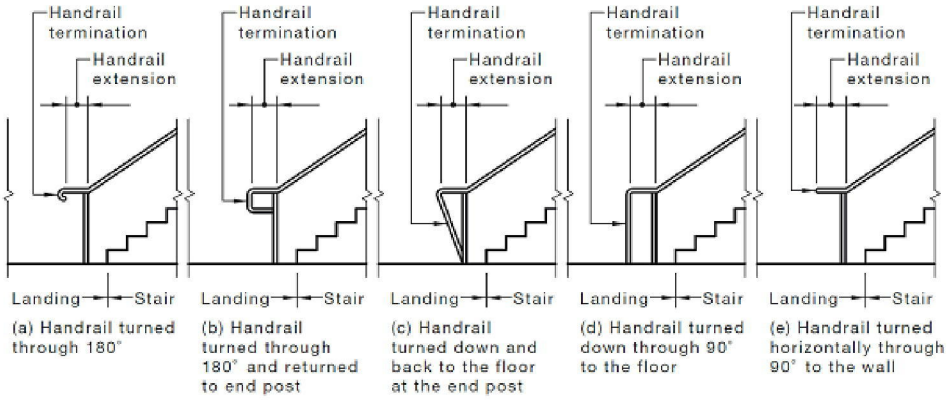
DIMENSIONS IN MILLIMETRES

FIGURE 28 (in part) HANDRAILS TO STAIRS WITH INTERMEDIATE LANDINGS

Handrails

- *Handrails shall be installed along stairways as follows:*
  - *Shall be continuous through the flight and where practicable, around landings and have no obstruction on or above up to a height of 600mm,*
  - *Shall be constructed to comply with Clause 12 of AS1428.1,*
  - *Installed along both sides of the stairway (giving consideration also to 1m unobstructed width) – Note: Not applicable to Fire Isolated Exits.*
  - *Handrails must not contain any vertical sections,*
  - *Handrails shall terminate in accordance with the following diagrams*

*Each of the stairs being non-fire isolated require the provision of handrails to **each side**. Accordingly the plans will require amendment to demonstrate compliance or alternatively if it is found to be more desirable a Performance Solution can be pursued to justify the omission of a second handrail on the basis that the stair construction is comparable to that of a fire isolated stair albeit not required.*



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

AS1428.1 defines an accessible ramp as an inclined surface on a continuous accessible path of travel between two landings with a gradient steeper than 1:20 but not steeper than 1:14.

Handrails are required both sides of all accessible ramps as follows:

- *Shall be continuous through the flight and where practicable, around landings and have no obstruction on or above up to a height of 600mm,*
- *Installed along both sides of the stairway (giving consideration also to the required 1m unobstructed width),*
- *Handrails must not contain any vertical sections.*

The above main entry of the building is to be subject to an assessment from an accredited accessibility consultant, particularly in relation to the location of handrails to the ramp and the steps.

Access ways / corridors must be constructed in accordance with the following:

- *Passing spaces complying with the following diagram at 20m intervals on those parts of the access way / corridor, where a direct line of sight is not available:*
- *Turning spaces provided within 2m of the end of an access way where it is not possible to continue travelling along the accessway, and*
- *At maximum 20m intervals along the accessway.*

***Comment:** Compliance is readily achievable. It is recommended that an Accredited Access Consultant review the building and provide a report confirming the building will comply with the requirements of BCA Part D3 and AS1428.1-2009.*

60. Clause D3.4 – Exemptions

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. Access need not be provided to:

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

***Comment:** With the exception of any maintenance areas, there are no parts of the building where this concession could readily be applied.*

61. Clause D3.5 – Accessible Carparking

This part provides details of the number of accessible carparking spaces required in a carpark depending on the classification of the building. In this regard the commercial and retail tenancies will require parking for people with disabilities.

***Comment:** Not applicable to the carpark associated with the Class 2 building (however it is understood that the consent authority will require such carparking spaces to be provided in order to address statutory planning requirements). Compliance is readily achievable.*

62. 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....**

Comment: *Compliance is readily achievable. Design certification is to be provided with the application for Construction Certificate.*

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.

Comment: *Stairways and ramps serving the building, except those enclosed fire isolated exits, will need to be provided with Tactile Ground Surface Indicators in accordance with AS1428.4. Details to be shown on the plans for Construction Certificate.*

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.

Comment: *Design details to note requirements for full height glass.*

PART E1 FIRE FIGHTING EQUIPMENT

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 AS2419.1-2005.

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 2m from the hydrant booster outlet.

Internal hydrants within fire-isolated stairways are required to have a minimum 1m clearance from the 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. Internal Hydrants are to be located within each required Fire Isolated Exit (or alternatively the external stairs in lieu of a fire isolated exit).

Note 1: Fire Hydrants located in the required exit stairs passageways must not encroach on the required 1 metre clear exit width.

Note 2: Hydrant booster assembly must be within site of the main entrance of the building.

Note 3: Hydrants are to be located on the level of the storey it serves, and not at mid landings.

Comment: *The building is required to be served by a hydrant system in accordance with AS2419.1-2005. The current plans indicate that the hydrant booster assembly will be located so that compliance is readily achievable.*

66. Clause E1.4 – Fire hose reels

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 and for the purposes of this clause, a sole-occupancy unit in a Class 2, 3 building or a Class 4 part is considered to be a fire compartment.

Fire Hose Reels are to be located within 4m of an exit, or located adjacent to an internal hydrant (other than one within a fire isolated exit). Where system coverage is not achieved by the above, additional FHR may be located in paths of travel to an exit.

Comment: *Compliance is readily achievable. Fire hose reels are not required to the Class 2 residential levels of each building (see below in relation to portable fire extinguishers); rather they are required to serve the carparking level only and also the class 9b Community.*

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.

A carpark that accommodates more than 40 vehicles is required to be provided with a sprinkler system. Sprinkler alarm valves must be located in a secure room or enclosure which has direct egress to a road or open space.

Comment: *In this instance sprinkler coverage is not required and is understood not to be provided.*

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.

Comment: *Compliance is readily achievable. For the residential parts of the building, a minimum 2.5kg ABE extinguisher is required outside of and within 10m of any sole occupancy unit entry door.*

69. Clause E1.9 – Fire precautions during construction

In buildings under construction at least one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to a required exit and if the building has reached an effective height of 12m the required hydrant and hose reel systems must be installed, as set out in (b)(ii) and be operational and any required booster connections must be installed.

Comment: *To be noted in design specification for the Head Contractor.*

PART E2 SMOKE HAZARD MANAGEMENT

70. 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.

The Class 2 residential part of the building is required to be provided with an automatic smoke detection and alarm system complying with Specification E2.2a. In this regard, as a minimum requirement smoke detectors complying with AS 3786 are to be provided throughout the residential levels within each sole occupancy units on or near the ceiling between the bedrooms and the remainder of the sole occupancy unit. In addition, smoke alarms must be installed in public corridors and other internal spaces, located in accordance with AS 1670.1, and connected to activate a building occupant warning system in accordance with Clause 6 of Specification E2.2a. Clause 6 requires the sound pressure level at the door providing access to the Sole Occupancy Unit to be not less than 85dB(A) and in built sounders of the smoke detectors may be used to wholly or partially meet the requirements.

The mechanical ventilation system in the basement carpark levels is required to comply with Clause 5.5 of AS/NZS 1668.1 except that fans with metal blades suitable for operation at normal temperatures may be used and electrical power and control cabling need not be fire rated.

Comment: *Further a smoke detection and alarm system or a smoke alarm system is to be provided throughout the building in accordance with Table E2.2a.*

The carparking area will require automatic exhaust to activate upon fire/smoke detection activation.

PART E3 LIFT INSTALLATIONS

71. Clause E3.2 – Stretcher Facility in Lifts

Stretcher facilities, complying with this clause, must be provided in lifts in at least one emergency lift as required by E3.4 or in a storey above an effective height of 12m.

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 2000mmm long x 1400mm high above the floor level.

Comment: *Not applicable. The building does not have an effective height less than 12m.*

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

A warning sign must be displayed near the call buttons for a passenger lift or a group of lifts on each storey of the building. The warning sign must state "Do not use lifts if there is a fire" in letting at least 8mm high or 10mm high if all capitals are used.

Comment: *Compliance readily achievable.*

73. 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: *Details for the proposed vertical passenger lifts are required confirming compliance with Table E3.6 and Specification E3.1 for all electric passenger lifts and electrohydraulic lifts installations.*

74. 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.

Comment: *Not applicable. The building does not exceed 12m in effective height.*

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.

Comment: *Not applicable. The building does not exceed 12m in effective height.*

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.

Comment: *Not applicable.*

77. Specification E3.1– Lift Installations

- A lift car exposed to solar radiation directly, or indirectly be re-radiation, must have:
  - Mechanical ventilation as a rate of one air change per minute; or
  - Mechanical cooling
- A 2 hour alternative power source for ventilation of mechanical cooling must be provided in the event of normal power loss
- A Lift car must have emergency lighting (automatic on power failure; 20lux minimum for 2 hours)
- Requirements for cooling of the shaft to not exceed 400 C
- Where there is a security foyer, access may be via locked doors, subject to:
  - Security doors revert to the unlocked state in the event of power failure, or fire alarm; and
  - Locked foyer areas are monitored by CCTV and Intercom to a 24 hour staffed location.
- Emergency access doors are to be provided in certain circumstances.

Comment: *Compliance is readily achievable.*

PART E4 EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS

78. 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.

Comment: *Compliance is assumed. Design details and statements to be provided for assessment with the Construction Certificate application.*

79. 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.

Comment: *Compliance is assumed. Design details and statements to be provided for assessment with the Construction Certificate application.*

Note: Exit signs will also be required at the ground floor where the paths of travel from within the courtyard reach the open space; and also the upper level at the top of each exit stair.

PART F1 DAMP AND WEATHERPROOFING

80. 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 (eg. CodeMark); or
- By way of Expert Judgement.

81. Clause F1.1 – Stormwater drainage

Stormwater drainage must comply with AS/NZ 3500.3.

***Comment:** Design statement to be provided with the Construction Certificate application.*

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 on the construction of rooms containing urinals and their installation.

***Comment:** Compliance is readily achievable.*

85. Clause F1.11 – Provision of Floor Wastes

In a Class 2 or 3 building or Class 4 part of a building, the floor of each bathroom and laundry located above a sole-occupancy unit or public space must be graded to permit drainage to a floor waste.

***Comment:** Compliance is readily achievable.*

86. Clause F1.13 – Glazed Assemblies

Glazed assemblies in an external wall must comply with AS2047 requirements for resistance to water penetration for windows, sliding doors with a frame, adjustable louvres, shop fronts and windows with one piece framing

***Comment:** Compliance is readily achievable.*

PART F2 SANITARY AND OTHER FACILITIES

87. Clause F2.1 – Facilities in Residential Buildings

Each residential sole occupancy unit is required to be provided with a kitchen sink with facilities for cooking, a bath or shower, a closet pan and washbasin, a washtub and a space for a washing machine and drier.

In a residential building containing more than 10 sole-occupancy units a closet pan and washbasin in a room at or near ground level must be provided and be accessible to employees without entering a sole-occupancy unit.

Comment: *Sanitary and other facilities are to be provided as per Table F2.1, where sole-occupancy units are required to have kitchen facilities, bath or shower, closet pan, washbasin and laundry facilities in accordance with this part.*

A sanitary facility is to be provided at Ground Level of each united building which can be used by employees, being owners, managers, workers and contractors. The Community Room facility results in this provision being achieved.

88. Clause F2.2 / F2.3 – 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 3 to 9 buildings.

Comment: *Compliance is achieved.*

89. Clause F2.4 – Accessible Sanitary Facilities

All Accessible WC's must be designed in accordance with the requirements of Section 15 of AS 1428.1-2009 and are to be located at each floor containing sanitary facilities to at least 50% of the banks. Additionally, ambulant facilities need to be provided at each bank of toilets where there is an accessible sanitary facility and are to comply with Section 16 of AS1428.1-2009.

Comment: *Compliance is required for the Community Room facility.*

Compliance is not required for the sole occupancy units, however it is understood that some apartments will be required to comply based on applicable planning provisions associated with the Development Application.

90. 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.

Comment: *Compliance is readily achievable.*

PART F3 ROOM HEIGHTS

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

The floor to ceiling heights in the Class 2 Residential part of the building must not be less than 2.4 metres in habitable rooms and 2.1 metres in kitchens, laundries, and bathrooms.

In addition, the floor to ceiling heights in the car parking areas must be not less than 2.1 metres.

Furthermore, in a Class 9b assembly building or part that accommodates not more than 100 persons, the floor to ceiling height must not be less than 2.4 m.

Comment: *Compliance is readily achievable. Confirmation is to be provided with the Construction Certificate application for the proposed ceiling heights.*

PART F4 LIGHT AND VENTILATION

92. Clause F4.1 – Provision of natural Light

Natural lighting must be provided in:

+ Class 2 buildings and Class 4 parts of buildings – to all habitable rooms.
+ Class 3 buildings – all bedrooms and dormitories.
+ Class 9a and 9c buildings – all rooms used for sleeping purposes.
+ 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.

Comment: *Compliance is readily achievable.*

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

This clause sets out the requirement that natural light must be provided by windows and the size and location of such windows (i.e. the glazed area of the window is to be no less than 10% of the floor area of the room). Natural light can also be provided by the use of rooflights.

Comment: *Compliance readily achievable.*

94. Clause F4.3 – Natural light borrowed from adjoining room

This clause sets out the requirement for natural light borrowed from an adjoining room within a Class 2 or Class 3 building or a Class 4 building part.

Comment: *Not applicable.*

95. Clause F4.4 – Artificial Lighting

Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. This Clause sets out the places where artificial lighting is always required in all classes of buildings and the standard to which it must be installed.

Comment: *Compliance is assumed. Design documentation to be provided with the Construction Certificate application.*

96. 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.

Comment: *Details are to be provided from the mechanical design consultant for all ventilation to the building with the Construction Certificate application.*

97. 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).

Comment: *Compliance is readily achievable via openable windows.*

98. Clause F4.7 – Ventilation Borrowed from adjoining Room

Natural ventilation to a room may come through a window, opening ventilating door or other device from an adjoining room (including an enclosed verandah) if both rooms are within a sole-occupancy unit or the enclosed verandah is common property and be carried out in accordance with the requirements of sub-clauses (a), (b) & (c).

Comment: *Compliance is readily achievable.*

99. Clause F4.8 – Restriction on Position of Water Closets & Urinals

A room containing a water closet pan or urinal must not open directly into a kitchen or pantry, public dining room or restaurant, a dormitory in a Class 3 building, a room used for public assembly (which is not an early childhood centre, primary school or open spectator stand) or a workplace normally occupied by more than 1 person.

Comment: *Complies.*

100. Clause F4.9 – Airlocks

If a room containing a closet pan or urinal is prohibited under F4.8 form opening directly into another room then the provisions of sub-clauses (a) & (b) apply relating to the requirements of airlocks and mechanical ventilation standards.

Comment: *Not applicable to this development.*

101. 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.

Comment: *Clarification and a design statement confirming compliance will be required at Construction Certificate stage.*

102. Clause F4.12 – Kitchen Local Exhaust Ventilation

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

Comment: *Not applicable to this development.*

PART F5 SOUND TRANSMISSION AND INSULATION

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

The walls within the Class 2 Residential part of the building that are required to have an impact sound insulation rating must be of discontinuous construction.

Note: Discontinuous construction means a wall having a minimum 20mm cavity between 2 separate leaves, and for masonry, wall ties are of a resilient type. For all other construction there is no mechanical link between leaves except at the periphery. It is recommended that the proposed design be reviewed from an acoustic consultant prior to the issue of the Construction Certificate to ensure that it can meet the requirements of Part F5.

Comment: *Details are to be provided with the application for Construction Certificate.*

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

The floors separating the sole occupancy units in the Class 2 part of the building are required to have an airborne sound insulation rating of not less than 50 and an impact sound pressure level of not more than 62.

Comment: *Details are to be provided with the application for Construction Certificate.*

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

A wall separating a sole occupancy unit from another part of the building must have an airborne sound insulation rating of not less than 50 and be provided with discontinuous construction if it separates a bathroom, sanitary compartment, laundry, kitchen in another sole occupancy unit or a plant room or lift shaft.

A door that separates a sole occupancy unit from a public corridor must have a weighted sound reduction index of not less than 30.

Comment: *Details are to be provided with the application for Construction Certificate.*

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

Where a duct, soil, waste or water supply pipe passes through more than one sole occupancy unit, the duct or pipe must be separated from the rooms of a sole occupancy unit by construction having an airborne sound insulation rating of not less than 40 if the adjoining room is habitable or 25 if it is a kitchen or non-habitable room.

Comment: *Details are to be provided with the application for Construction Certificate.*

107. 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.

Comment: *Details are to be provided with the application for Construction Certificate.*

SECTION G – ANCILLARY PROVISIONS

PART G1 MINOR STRUCTURES AND COMPONENTS

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.

The applicant is to understand their obligations in this regard.

SECTION J – ENERGY EFFICIENCY

Compliance with Section J is required to comply in the following manner:

Class 2 building part: The majority of the requirements under this Section are not required under the NSW variations for Class 2 buildings. Alternatively, a BASIX certificate is to be provided with the Construction Certificate application in which the requirements of the certificate are to be documented on the Construction Certificate drawings. However, the following will still apply:

NSW Part J (A)1 – Building Fabric - This part only applies where the development consent or an environmental planning instrument specifies that insulation is to be provided as part of the development consent.

NSW Part J (A)2 – Building Sealing - The following national provisions are applicable:

+ Clause J3.3 - Roof lights (we note that no roof lights are proposed to this development.
+ Clause J3.4 - External windows and doors
+ Clause J3.5 - Exhaust fans
+ Clause J3.6 - Construction of roofs, walls and floors

NSW Part J (A)3 – Air Conditioning and Ventilating Systems - The following national provisions are applicable:

+ Clause J5.2 - Air-conditioning and ventilating systems
+ Clause J5.3 - Time switch
+ Clause J5.4 - Heating and cooling systems
+ Clause J5.5 - Ancillary exhaust systems

NSW Part J (A)4 – Hot Water Supply

+ Clause J7.2 - Hot water supply

NSW Part J (A)5 – Access for Maintenance

+ Details and design certification are required

E. CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed Fresh Hope Care Penrith redevelopment against the Deemed-to-Satisfy Provisions of the BCA 2016, Amd 1 (*and references to BCA 2019)*

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: TABLE 4 – FRL OF BUILDING ELEMENTS

TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building — FRL: (in minutes)			
	Structural adequacy*/ *Integrity*/ *Insulation			
	2, 3 or 4	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

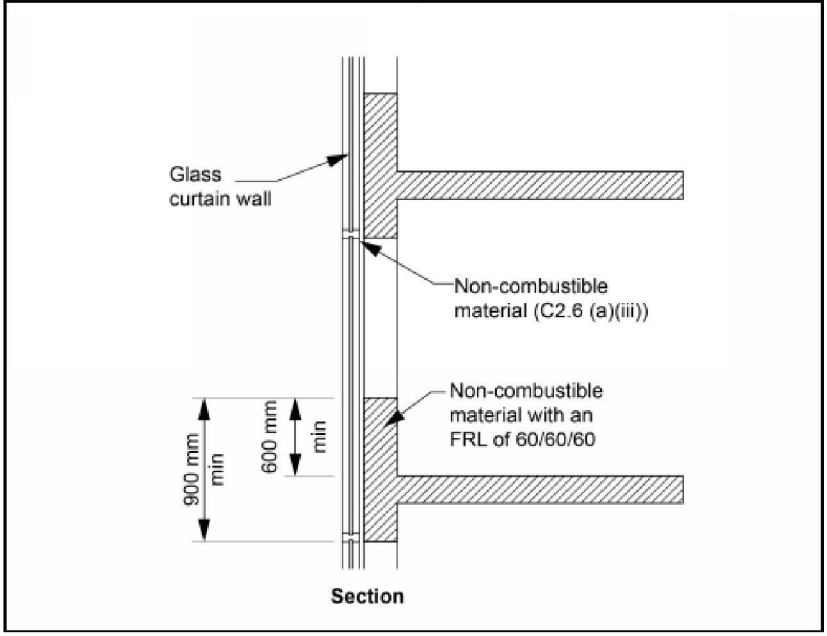
Notes:

1. Top storey construction is to allow for fire rated separating walls not to be passed by structure (unless by roof battens).
2. Lift shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL of 90/90/90.
3. A non-loadbearing wall that is required to be fire resisting must be non-combustible construction.
4. Any internal columns in this Class 2 building (being less than 25m in effective height) that are in the storey immediately below the roof, can be constructed of an FRL of 60/60/60.
5. The walls to fire rated shafts must achieve the fire rating from both directions i.e. from inside and outside the shaft. Services shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL similar to the shaft.
6. Any lintels within any walls required to be fire rated will achieve the same fire rating as the walls within which they are located. This is not applicable if the opening is less than 3m wide and the masonry is non-load bearing or less than 1.8m wide of the masonry is loadbearing.

APPENDIX 2 – VERTICAL SEPARATION OF OPENINGS IN EXTERNAL WALLS

Figure C2.6(3)

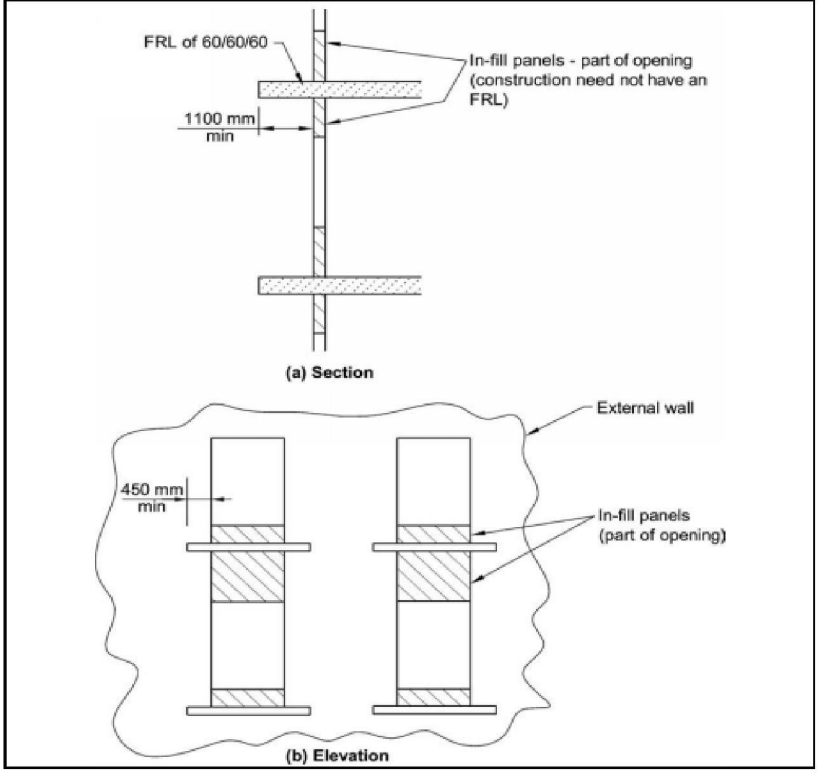
SECTION SHOWING SEPARATION OF EXTERNAL WINDOW OPENINGS IN A CURTAIN WALL



Section

Figure C2.6(2)

EXAMPLE SHOWING USE OF SLAB OR HORIZONTAL CONSTRUCTION TO SEPARATE EXTERNAL WINDOW OPENINGS

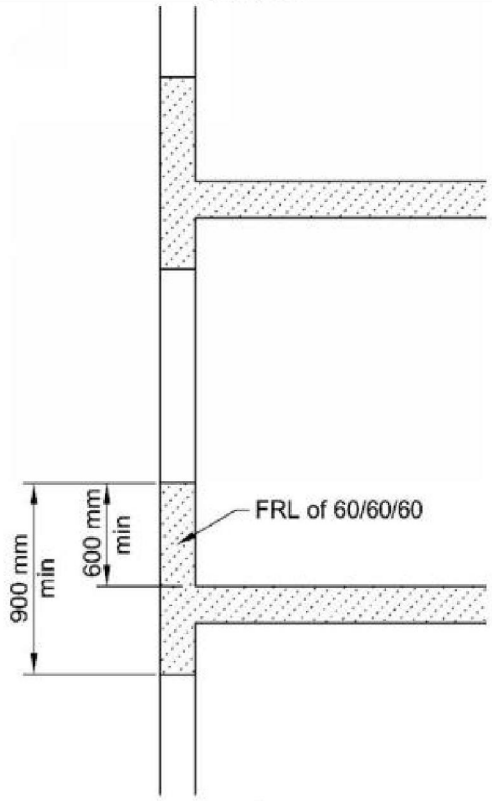


(a) Section

(b) Elevation

Figure C2.6(1)

SECTION SHOWING USE OF SPANDREL TO SEPARATE EXTERNAL WINDOW OPENINGS



Section