



**PRIVATE  
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AUSTRALIA**

Certainty through precision

**BUILDING CODE OF AUSTRALIA**

**DESIGN COMPLIANCE REPORT**

**Seniors Living Development**

**CLIENT –Barry Rush and Associates**

**PROJECT ADDRESS – 3 Birth Street Wheeler Heights**

**Revision History & Quality Management**

DATE	REVISION	STATUS	AUTHOR	SIGNATURE
4/9/2018	V1	draft	Grant harrington	

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## 1 INTRODUCTION

### 1.1 Background / Proposal

Private Certifiers Australia Pty Ltd (PCA) have been commissioned by Barry Rush and Associates Pty Ltd to provide a BCA compliance report. The proposal is for a 6 Seniors living apartments with basement carparking.

### 1.2 Aim

The purpose of this report is to provide a BCA compliance report for the submission of the Development Application.

### 1.3 The Project Team

The following PCA team members have contributed to this report:

- Grant Harrington, Director Grade A1 Unrestricted BPB 0170

### 1.4 Documentation

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

- BCA 2016
- Guide to the BCA 2016
- Architectural plans prepared by Barry Rush and Associates Pty Ltd A01 – A12

### 1.5 Regulatory Framework

Pursuant to clause 145 of the Environmental Planning and Assessment (EPA) Regulation 2000 all new building work must comply with the current BCA however the existing features of an existing building need not comply with the BCA unless upgrade is required by other clauses of the legislation.

Clause 143(3) of the EPA Regulation 2000 prevents a certifying authority from issuing a construction certificate if the proposed new work will result in a reduction to the fire protection and structural capacity of the building.

### 1.6 Limitation & 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 Action (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:

#### 1.6.1.1.1 Local Government Act and Regulations.

- a) NSW Public Health Act 1991 and Regulations
- b) Occupation Health and Safety (OH&S) Act and Regulations
- c) Work Cover Authority requirements.
- d) Water, drainage, gas, telecommunications and electricity supply authority requirements.

- PCA do not guarantee acceptance of this report by Local Council, NSW Fire Brigades or other approval authorities.
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## 1.7 Terminology

### Alternative Solution

A building solution which complies with the Performance Requirements other than by reason of satisfying the DtS Provisions.

### *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 NSW (NSW) under the provisions of the EPA Act and Regulation. Building regulatory legislation stipulates that compliance with the BCA Performance Requirements must be attained and hence this reveals BCA's performance based format.

## 1.8 Construction Certificate

Building Approval issued by the Certifying Authority pursuant to Part 4A of the EP&A Act 1979.

### 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 follows for:

- 1.8.1.1.1.1 certain Class 2, 3 or 9c buildings in C1.5; and
- 1.8.1.1.1.2 a Class 4 part of a building located on the top storey in C1.3(b); and
- 1.8.1.1.1.3 open spectator stands and indoor sports stadiums in C1.7.

Note: Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.

### Climatic Zone

Is an area defined in BCA Figure A1.1 and in Table A1.1 for specific locations, having energy efficiency provision 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 height to the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units) from the floor of the lowest storey providing direct egress to a road or open space.

### Fire Resistance Level (FRL)

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 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 1 May 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.

### Occupation Certificate

Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 4A of the EPA Act 1979.

### 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 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 an Alternative 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 roof 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.

## 2 BUILDING CHARACTERISTICS

### 2.1 Building Classification

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

• BCA Classification:	• Class 7a Carparking, Class 2 Office
• Proposed use	• Residential
• Rise in Storeys:	• Rise in storeys of two (2)
• Effective Height:	• less than 12m
• Type of Construction:	• Type B Construction
• Climate Zone:	• Zone 5
• Maximum Floor Area/Volume:	• Relevant only to the 7a & 5 parts. See below
• Planning Zoning	• Unknown

### 2.2 Floor Area / Volume

Maximum size of fire compartment is:

Classification		Type B
7a , 5	Max floor area	5,500m <sup>2</sup>
	Max volume	33,000m <sup>3</sup>

## 2.3 Fire Source Feature

The distances from the nearest Fire Source Features are:

Boundary	Distance to Fire Source Feature
North	2500mm
South	5045mm
East	2500mm
West Berith street	>6 m to opposite side of road

## 3 BCA ASSESSMENT

### 3.1 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 mixed use residential building.

#### 3.1.1 Section A – Classification of Building & Structures

##### 3.1.1.1 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.

##### 3.1.1.2 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 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.

**Comments:** The building results in a mixed classification as indicated in the table above, i.e. class 5, class 7a. All areas are sufficient in size to adopt an individual classification.

#### 3.1.2 Section B – Structure

##### 3.1.2.1 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 S109R Certification, inclusive of reference to the following Australian Standards (where relevant):

1. AS 1170.0-2002 General Principles
2. AS1170.1-2002, including certification for balustrading (dead and live loads)
3. AS1170.2-2002 Wind loads

4. AS1170.4-2007 Earthquake loads
5. AS3700-2001 Masonry code
6. AS3600-2009 Concrete code
7. AS4100-1998 Steel Structures and/or
8. AS4600-2005, Cold formed steel
9. AS2047-1999 Windows in buildings
10. AS1288-2006 Glass in buildings

### **3.1.3 Section C – Fire Resistance**

#### ***Part C1 Fire Resistance and Stability***

##### **3.1.3.1 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:** The building is required to comply with the requirements of Type B Construction. Appendix 1 is an extract from Table 4 in the BCA Specification C1.1.

##### **3.1.3.2 Clause C1.2 – Calculation of Rise in Storey**

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.

##### **3.1.3.3 Clause C1.3 – Building of Multiple Classifications**

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:** Type B construction applies to the building regardless of the mixed classifications.

##### **3.1.3.4 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 Provision of the Code.

**Comments:** Material test data sheets will need to be submitted for further assessment to ensure compliance with the above (relevant to the Construction Certificate Stage).

#### ***Part C2 Compartment and Separation***

##### **3.1.3.5 Clause C2.1 – Application of Part**

C2.2, C2.3 & C2.4 do not apply to a carpark provided with a sprinkler system complying with Specification E1.5, an open deck carpark or an open spectator stand.

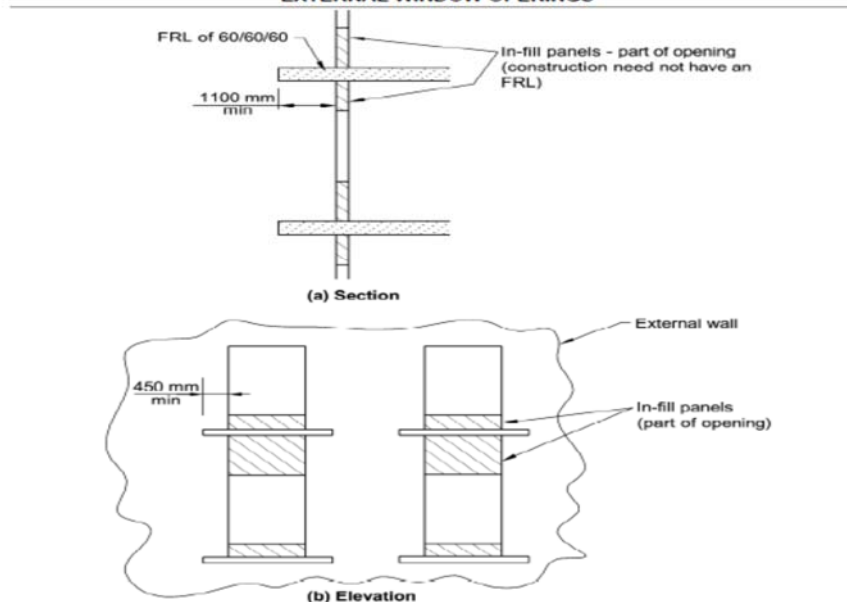
**Comments:** N/A

##### **3.1.3.6 Clause C2.6 – Vertical Separation of Openings in External Walls**

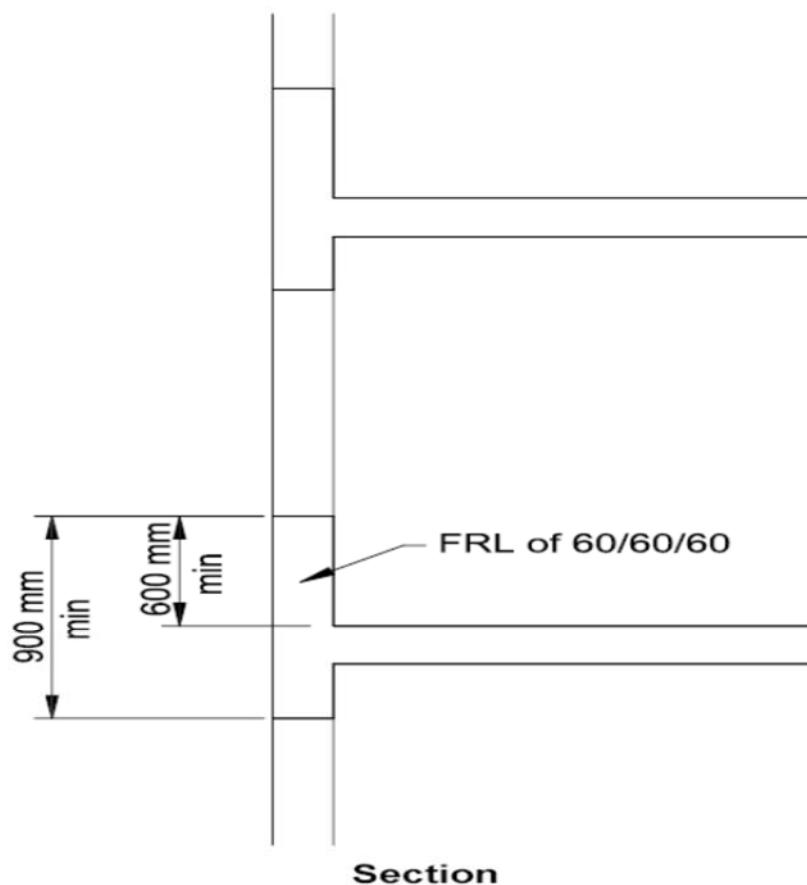
If in a building of Type A construction, any part of a window or other opening in an external wall is above another opening in the storey next below and its vertical projection falls no further than 450mm outside the lower opening (measured horizontally), the openings must be separated by a horizontal 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.

**Comments:** N/A

Figure C2.6(2)  
EXAMPLE SHOWING USE OF SLAB OR HORIZONTAL CONSTRUCTION TO SEPARATE  
EXTERNAL WINDOW OPENINGS



**DIAGRAM 1**



**DIAGRAM 2**

### 3.1.3.7 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.

Concessions are available for some carparks.

**Comments:** Separation of bounding construction is applicable as per Spec C1.1 Type B. No separation is required in the basement.

#### **3.1.3.8 Clause C2.9 – Separation of Classification in Different Storeys**

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.

**Comments:** The FRL's across the building are generally rationalised to be 120 minutes for carpark and 90 minutes for the residential portions. Details to be provided at the CC stage

#### **3.1.3.9 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.

**Comments:** To be provided as per requirements for Type B Construction.

#### **3.1.3.10 Clause C2.12 – Separation of Equipment**

**Comments:** 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.

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

**Comments:** Compliance is readily achievable, however further details are required for assessment at this stage there does not seem to be any plant and equipment shown on the drawings which would require separation.

#### **3.1.3.11 Clause C2.13 – Electricity Supply System**

Confirmation is to be provided for respective fire ratings, and also for the design of the required electrical services, as follows:

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, eg:
  - ▶ Fire hydrant booster pumps.
  - ▶ Pumps for automatic sprnkler 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 fo fire and smoke.
  - ▶ Emergency lifts.
  - ▶ Control and indicating equipment.
  - ▶ Sound systems and intercom systesm for emergency purposes.

*Comments:* N/A

### ***Part C3 Protection of Openings***

#### **3.1.3.12 Clause C3.2 – Protection of Opening 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 -
  - ▶ 3m from a side or rear boudary of the allotment; or
  - ▶ 6m 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
  - ▶ 6m 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 spetator stand.

*Comments:* It is note that the external walls of the Class 2 portions are within the 3m setbacks and the walls requie a rating the rating should be 90/90/90. The client has indicated that the protection will be compliance with either BCA C3.4 or a fire engineered solution will be developed.

#### **3.1.3.13 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/-.

*Comments:* Compliance is to be achieved for window and other openings that are exposed to boundaries other buildings or compartments as indicated above.

Protection will be compliant with BCA C3.4 or a fire engineered solution.

#### **3.1.3.14 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.

*Comments:* N/A

#### **3.1.3.15 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:* N/A

#### **3.1.3.16 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 a 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 and 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.  
Note: Concessions are available for some Class 3 building.

*Comments:* N/A

#### **3.1.3.17 Clause C3.13 – Openings in Shafts**

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

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

#### **3.1.3.18 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.

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

### 3.1.4 SECTION D – ACCESS & EGRESS

#### *Part D1 Provision for Escape*

##### 3.1.4.1 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 as sets out circumstances in which more than one exit may be required.

**Comments:** Designated Exits: The exits from the building are designated as follows:

Level	Designated Exits
Basement	Has 2 x direct egress to road or open space.
Ground floor + level 1	Has 1 egress to road or open space

##### 3.1.4.2 Clause D1.3 – When Fire-isolated Stirways & 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 5 – and exit stair must be fire isolated when it connects or passes by more than 2 consecutive stories. Whilst the plans show that the main stair is “broken “and not continuous, the BCA does not permit that this can occur.

I am of the view that this design will require either of the following;

- Redesigning to comply with the DTS provisions and provide a compliant fire isolated stair
- Seek an alternate building solution which addresses D1.3, DP4 and CP2.2

**Comments:** N/A

##### 3.1.4.3 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 not be 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 and 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 and 7a 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.

**Comments:** The building complies

##### 3.1.4.4 Clause D1.5 – Distances Between Alternative Exits

Exits required as alternative exits must be –

- ▶ Distributed 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.

*Comments:* The basement stairs are complaint.

#### 3.1.4.5 Clause D1.6 – Dimensions of Exits

Sets out in detail the minimum dimensions such as height and width of paths of travel for 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:* Exit corridors and stairs and other paths of travel are to be a minimum of 1m in width and 2m in height. The final plans are to show dimensioned widths of egress paths and this is to include handrails.

#### 3.1.4.6 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.

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 and below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser?

*Comments:* N/A.

#### 3.1.4.7 Clause D1.9 – Travel by Non-fire-isolated Stairways or Ramps

A non-fire isolated stairway or ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is available. This clause sets out the prescribed travel distances to be provided in required exits of Class 2 to 9 buildings and Class 4 parts of buildings, and also maximum total distances to be taken into account for the various uses in each Class of building.

Class 2 building – maximum total distance travelled in a Type a Construction building is 60m. Maximum distance to a door leading to open space from the stair is 15m (or 30m to one of 2 such doorways if travel to each of them from the stair or ramp is in opposite directions).

*Comments:* The building complies

#### **3.1.4.8 Clause D1.10 – Discharge From Exits**

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.

*Comments:* Compliance is readily achievable.

#### **3.1.4.9 Clause D1.11 – Horizontal Exits**

Horizontal exits must not be counted as an exit

*Comments:* N/A

#### **3.1.4.10 Clause D1.12 – Non-required stairways, ramps or escalators**

Requires that a non-required stairway not connect more than two stories, in a Class 5. It is noted that the BCA states that these stairs cannot be used as an exit stair.

*Comments:* It is noted that the top floor is reliant on this type of stair being “open” and not fire isolated. PCA has identified that this

#### **3.1.4.11 Clause D1.13 – Number of person accommodated**

PCA generally would not calculate this for a residential apartment.

*Comments:* Noted.

#### **3.1.4.12 Clause D1.14 – Measurement of distances**

*Comments:* Noted.

#### **3.1.4.13 Clause D1.15 – Method of Measurement**

*Comments:* Noted.

#### **3.1.4.14 Clause D1.16 – Plant rooms, Lift machine rooms and electricity network substations; Concessions**

*Comments:* Noted.

#### **3.1.4.15 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.

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

### **PART D2 CONSTRUCTION OF EXITS**

#### **3.1.4.16 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 material to protect the structural integrity of the shaft.

*Comments:* N/A.

#### **3.1.4.17 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. Details are to be provided with the Construction Certificate documentation.

#### **3.1.4.18 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 a FRL of 60/60/60, with self-closing -/60/30 door.

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

#### **3.1.4.19 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 Goings Dimensions.

*Comments:* Compliance is readily achievable. All stairs are to have solid risers, and area to have contrast nosing's throughout in accordance with Clause 11.1 of AS1428.1-2009.

#### **3.1.4.20 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.

*Comments:* compliance is readily achievable.

#### **3.1.4.21 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 on 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.

*Comments:* Compliance is readily achievable.

#### **3.1.4.22 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 a Class 3 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 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.



**Comments:** Compliance is readily achievable. Details of proposed balustrades are to be provided for assessment detailing the above.

Any balcony/ window louvered screens are to be designed so as not to facilitate climbing.

#### 3.1.4.23 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 Par 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.

**Comments:** Details of proposed handrails are to be provided for assessment detailing the above. Handrails are required to the stairways within the SOUs.

#### 3.1.4.24 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.

**Comments:** Compliance with this clause is readily achievable

#### 3.1.4.25 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<sup>2</sup>). This clause does not apply to other doorways – see notes in the Guide to the BCA.

**Comments:** The doors that lead to open space are to swing in the direction of egress.

#### 3.1.4.26 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 operate 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 – details below for the type of latching device.

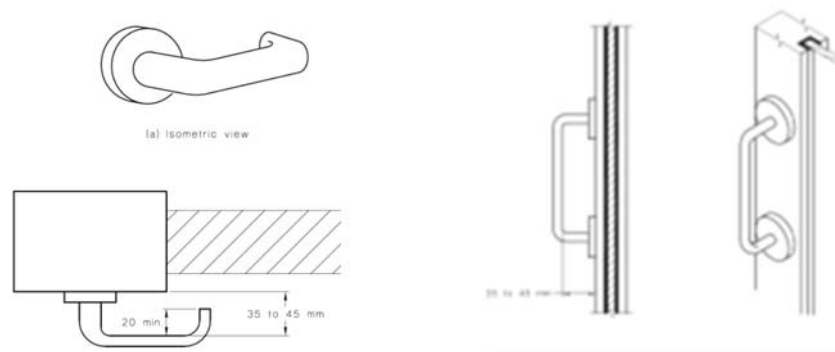


DIAGRAM 3 DIAGRAMS 4

### 3.1.4.27 Clause D2.2 – 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:** Not applicable. The building does not exceed 25m in effective height.

### 3.1.4.28 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 from 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 forming part of a Horizontal Exit or smoke compartment are to be provided with signage as follows:

FIRE SAFETY DOOR  
 DO NOT OBSTRUCT  
 DO NOT KEEP OPEN

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

FIRE SAFETY DOOR  
 DO NOT OBSTRUCT

#### OFFENCES RELATING TO FIRE EXITS

By virtue of the regulations under the Environmental Planning and Assessment Act 1979, it is an offence:

- (a) To place anything in this exit that may impede the free passage of persons, or
- (b) To interfere with or cause obstruction or impediment to, the operation of the doors providing access to this exit, or
- (c) To remove, damage or otherwise interfere with this notice.

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

#### PART D3 ACCESS FOR PEOPLE WITH A DISABILITY

##### 3.1.4.29 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

Residential parts. 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).

Retail parts. Access is required to and within all areas normally used by the occupants, including the ancillary Class 7a part.

**Comments:** Compliance is readily achievable through the main entry and via lift to each and every other floor. An access consultant should verify that the proposed entry and other parts of the building fully compliant with AS 1428.1 2009.

##### 3.1.4.30 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<sup>2</sup>, 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.

**Comments:** Compliance is readily achievable

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

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

**Comments:** 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 commercial tenancies, and to all common areas of the Class 5 parts.

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

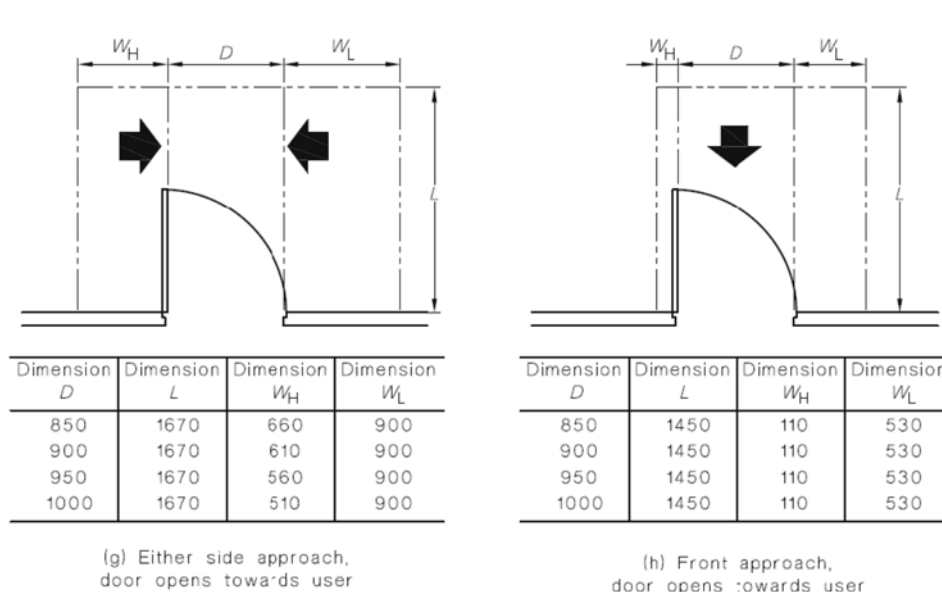
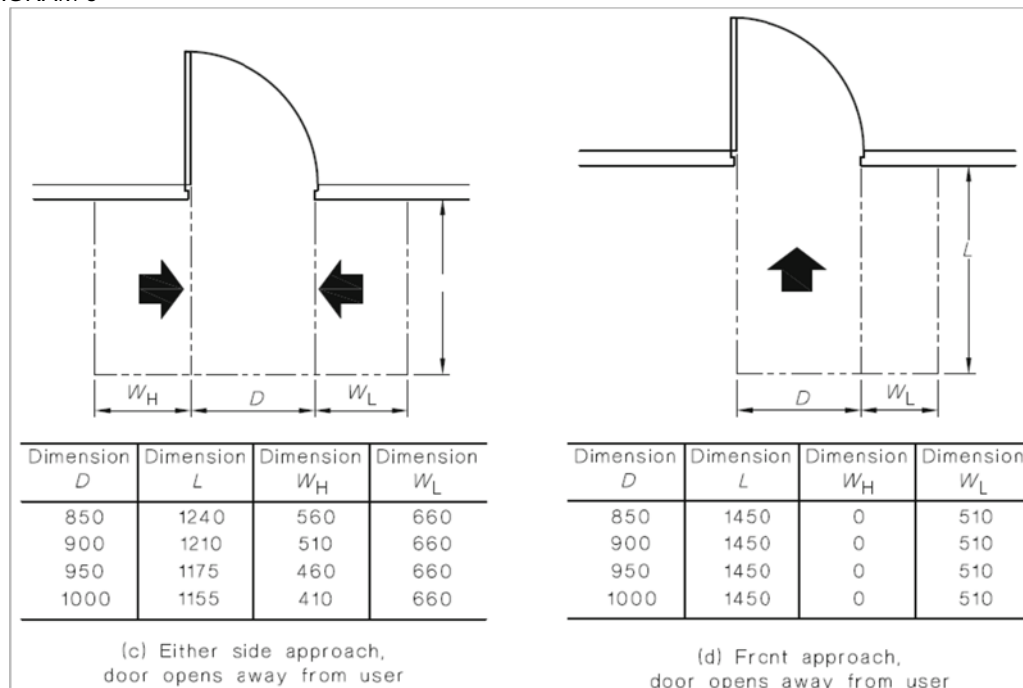


DIAGRAM 5

DIAGRAM 6



## Stairways

- Every common area stairway (excluding the fire isolated stairs of Building A) must be constructed in accordance with Clause 11 of AS1428.1.
- Where the stair is at an intersection of an internal corridor the stair shall be set back so that the handrails do not extend beyond the line of the intersecting corridor (as indicated below).

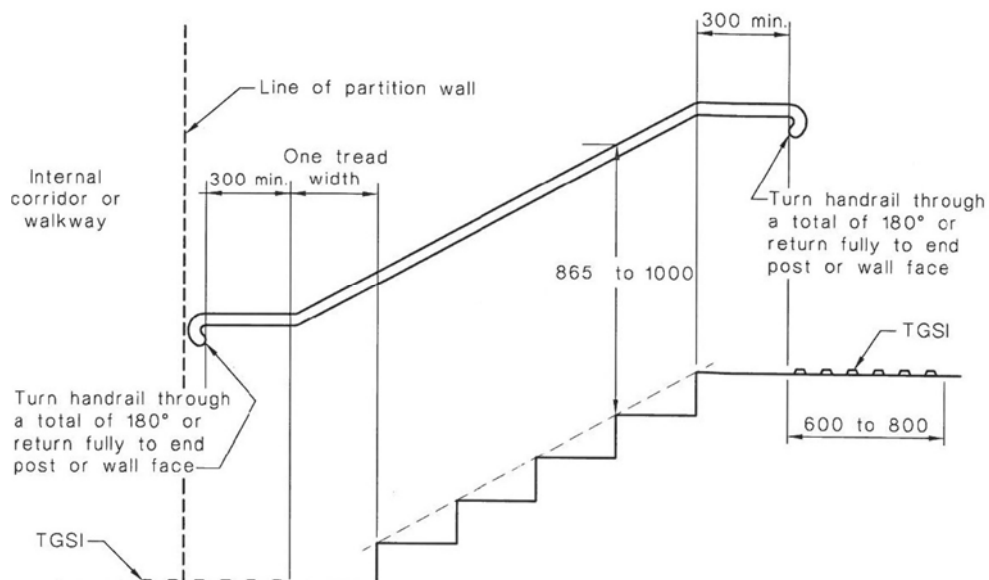
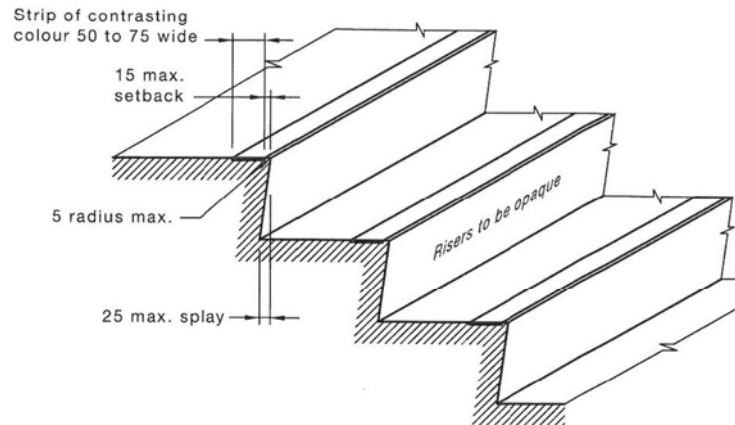


DIAGRAM 7

- 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 STI

#### DIAGRAM 8

- Stairways will need to be served by Tactile Ground Surface Indicators in accordance with AS1428.4.1.

#### Handrails

- Handrails shall be installed along stairways (excluding the enclosed fire isolated stairs to Building A) 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),
  - Handrails must not contain any vertical sections,
  - Handrails shall terminate in accordance with the following diagrams:

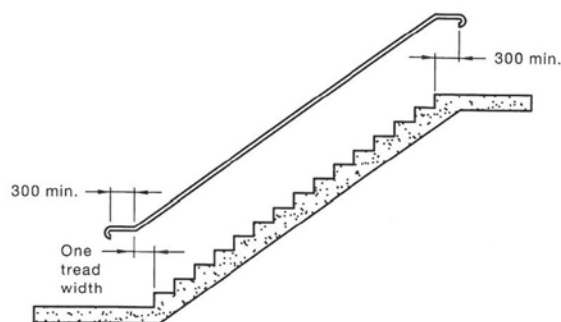


DIAGRAM 9

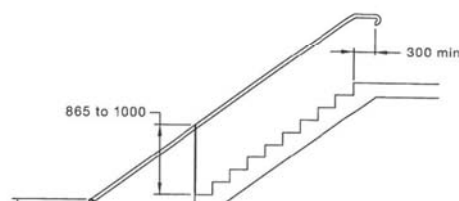


DIAGRAM 10

Accessible Ramps (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 10 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.

Accessways/corridors (including common area corridors in the Class 3 residential parts) must be constructed in accordance with the following:

- Passing spaces complying with the following diagram at 20m intervals on those parts of the accessway/corridor, where a direct line of sight is not available.

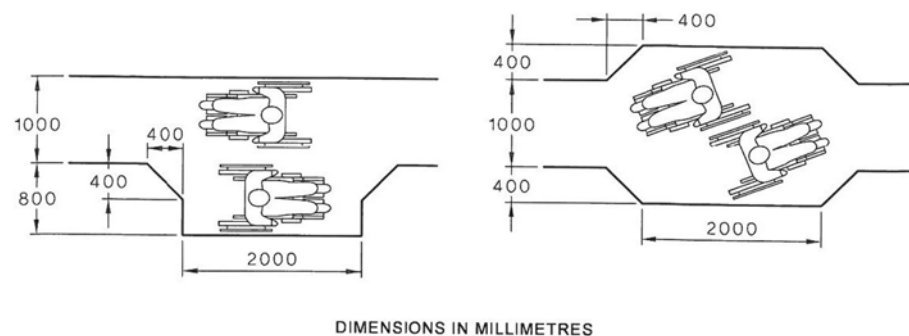


FIGURE 3 EXAMPLES FOR PASSING SPACE FOR WHEELCHAIRS

#### DIAGRAM 11

- Turning Spaces provided (in accordance with the following diagram) within 2m of the end of an accessway where it is not possible to continue travelling along the accessway.

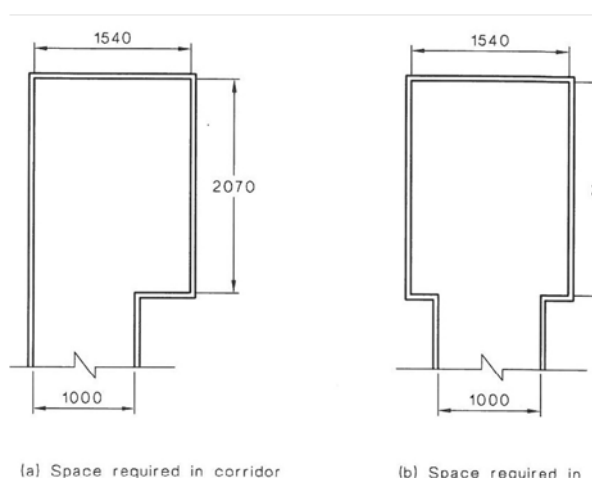
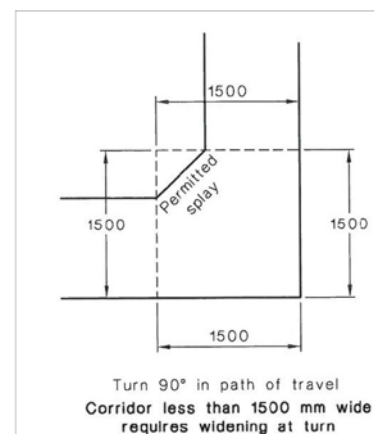


DIAGRAM 12

DIAGRAM 13



### 3.1.4.32 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).

*Comments:* There are no parts of the building where this concession could readily be applied.

### 3.1.4.33 Clause D3.5 – Assess 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.

*Comments:* N/A- no parking is provided onsite

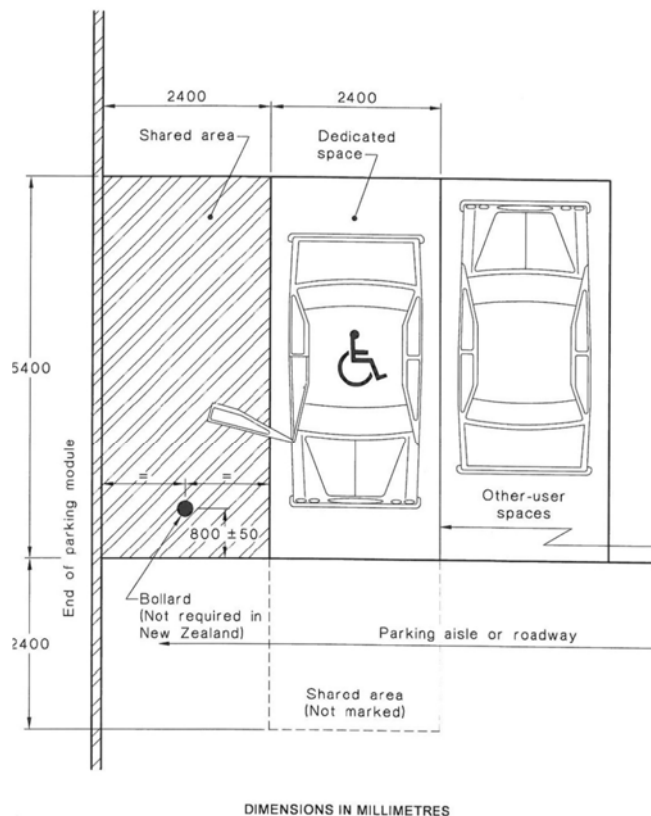


FIGURE 2.2 EXAMPLE OF AN ANGLE PARKING SPACE WITH SHARED ARE, ON ONE SIDE ONLY—DIMENSIONS FOR AUSTRALIA ONLY\*

### DIAGRAM 14

### 3.1.4.34 Clause D3.8 – Tactile Indicators

This clause provides for 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, except those enclosed fire isolated exits, will need to be provided with Tactile Ground Surface Indicators in accordance with AS1428.4.

#### **3.1.4.35 Clause D3.12 – Galzing 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:* Design details to note requirements for full height glass.

### **3.1.5 SECTION E – SERVICES AND EQUIPMENT**

#### **PART E1 FIRE FIGHTING EQUIPMENT**

##### **3.1.5.1 Clause E1.3 – Fire hydrants**

A fire hydrant system must be provided to serve a building having a total floor area greater than 500m<sup>2</sup> and where a fire brigade is available to attend a building fire, installed in accordance with the provision of AS2419.1-2005. In the regard, a single hydrant booster assembly can serve both buildings if they are on the same allotment.

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 a 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. 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 sight of the main entrance of buildings, otherwise an application to FR NSW can be made in order to receive an exemption from this requirement in the circumstances.

*Comments:* The architects has provided a total Building floor area of greater than 500sqm. At the construction certificate stage the plans must be checked for compliance prior to the issue of the CC.

##### **3.1.5.2 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 500m<sup>2</sup> 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.

*Comments:* Fire hose reels are required to the class 7a portion only

##### **3.1.5.3 Clauses E1.6 – Portable fire extinguishers**

Portable fire extinguishers must be provided as listed in Table E1.6 and must be selected, located and disturbed in accordance with Sections 1, 2, 3 and 4 of AS2444.

*Comments:* Compliance is readily achievable and must be positioned within 10m of the Class 2 units doors and on the applicable floor



#### **3.1.5.4 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.

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

### **PART E2 SMOKE HAZARD MANAGEMENT**

#### **3.1.5.5 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 5 part of the building is required to be provided with an automatic smoke detection and alarm system complying with Specification E2.2a.

*Comments:* A smoke alarm system is to be provided throughout the building in accordance with Table E2.2a. Spec E 2.2a clause 3 AS 3786

### **PART E3 LIFT INSTALLATIONS**

#### **3.1.5.6 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:* Confirmation is to be provided for the relevant details for the proposed lifts. Compliance with AS1735.2 and AS1735.12 is required for this building.

#### **3.1.5.7 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: N/A

### **PART 4 EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS**

#### **3.1.5.8 Clause E4.2 – Emergency Lighting Requirements**

This clause details when emergency lighting must be installed in Class 2 to 9 buildings. The requirements for building 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.

*Comments:* Compliance is assumed. Design details and statements to be provided for assessment.

#### **3.1.5.9 Clause E4.5 / 4.6 – 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 from a building.

*Comments:* Compliance is assumed. Design details and statements to be provided for assessment.

### **3.1.6 SECTION F – HEALTH & AMENITY**

## PART F1 DAMP AND WEATHERPROOFING

### 3.1.6.1 Clause F1.1 – Stormwater drainage

Stormwater drainage must comply with AS/NZS 3500.3.

*Comments:* Design statement to be provided with the S109R application

### 3.1.6.2 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.

*Comments:* Compliance is readily achievable.

### 3.1.6.3 Clause F1.1 – Provision of Floor Wastes

In a Class 2 or 3 building or Class 4 part of 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.

*Comments:* Compliance is readily achievable

### 3.1.6.4 Clause F1.13 – Glazed Assemblies

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

*Comments:* Compliance is readily achievable.

## PART F2 SANITARY AND OTTHER FACILITIES

### 3.1.6.5 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.

Given each building (A and B) contains more than 10 sole occupancy unit5s, a closet pan and washbasin is required to be provided at or near Ground level for employees.

*Comments:* Compliance is readily achievable

### 3.1.6.6 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 2 to 9 buildings.

*Comments:* N/A

### 3.1.6.7 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 building or parts that are required to be accessible.

*Comments:* N/A.

### 3.1.6.8 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:* N/A

## PART F3 ROOM HEIGHTS

### 3.1.6.9 Clause F3.1 Height of Rooms and Other Spaces

The floor to ceiling heights in the Class 3 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 car parking areas must be not less than 2.1 metres. Having regards to the Sections provided compliance can be achieved.

*Comments:* Confirmation is to be provided for proposed ceiling heights.

## PART F4 LIGHT AND VENTILATION

### 3.1.6.10 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.

*Comments:* Compliance is readily achievable.

### 3.1.6.11 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 roof lights.

*Comments:* Compliance is readily achievable.

### 3.1.6.12 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.

*Comments:* compliance is assumed.

### 3.1.6.13 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

**Comments:** Details are to be provided from the mechanical design consultants for all ventilation to the building.

## PART F5 SOUND TRANSMISSION AND INSULATION

### 3.1.6.14 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.

### 3.1.6.15 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.

Comments: Compliance is readily achievable

### 3.1.6.16 Clause F5.4 – Sound Insulation Rating of Floors

The floors separating the sole occupancy unit in the Class 3 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.

Comments: Compliance is readily achievable

### 3.1.6.17 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.

Comments: Compliance is readily achievable

### 3.1.6.18 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.

Comments: Compliance is readily achievable

### 3.1.6.19 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

#### 3.1.6.20 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 & Safety Act 2000 and regulation made under the Act.

Comments: N/A

## SECTION J – ENERGY EFFICIENCY

NSW Part J (A) 1 – Building Fabric – This part only applies where the development consent or an environmental planning instruments 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 nation 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.

For 6 parts of the building the following energy efficiency design measures will be implemented into the 'new' building design to satisfy the requirements under BCA Parts J1, J2, J3, J5, J6, J7 and J8 for Climate Zone 5 as follows;

- Building fabric
- External glazing
- Building sealing to doors, exhaust vents and windows
- Efficiency of the running of air conditioning systems and mechanical ventilation systems with respect to insulation of ductwork, timer switches, etc.
- Performance of glazing
- Artificial lighting and power controls (interior and exterior lighting)

- Hot water systems
- Access and maintenance of energy efficiency systems.

It is understood that the services of an ESD consultant may be engaged to provide specialist advice and cost effective recommendations for compliance, together with a report which will be required to be submitted prior to issue of the Construction Certificate, which details how compliance is to be achieved.

## 4 CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed new building containing commercial tenancies at the subject address.

Various issues pertaining to egress arrangements and protection of openings will need to be further assessed by the fire safety engineer at Constructin Certificate stage or amend the design to comply with the DTS . Likewise the access consultant will need to prepare alternative solutions as required.

Arising from the review, it is considered that the proposed development can readily achieve compliance with the relevant Performance Provisions of the BCA with any design changes being of a nature that will not reslt in the need to modify the development consent.

## 5 APPENDIX 1

The following fire safety measures are required for the main building:

Essential Fire and Other Safety Measures	Standard of Performance
Automatic Fire Detection & Alarm System	BCA Spec E2.2a & Clause 3 AS3786
Emergency Lighting	BCA Clause E4.4 & AS 2293.1-2005
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS2293.1-2005
Fire Seals	BCA Clause C3.15 & AS1530.4-2005 and AS 4072.1-2005
Solid Core Doors	C3.11
Paths of Travel	EP&A Regulation Clause 186
Portable Fire Extinguishers	BC Clause E1.6 & AS2444-2001
Warning & Operational Signs	Section 183 of the EP&A Regulations 2000, AS 1905.1-2005, BCA Clause C3.6, D2.23, E3.3.
Protection of openings – windows off side boundaries	BCA C3.4- subject to proposed alternate solution
Hydrant	BCA E1.3 AS 2419 2005
Hose Reels	BCA E1.4 AS2441 2005

Notes:

The measures included and the stands of performance nominated above may vary as a result of any proposed fire engineered alternative solution.

## 6 APPENDIX 2

Building element	Class of building – FRL : (in minutes)			
	Structural adequacy / Integrity / Insulation			
	2 part	7a	6	7b
<b>EXTERNAL WALL</b> (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 <i>loadbearing</i> parts -				
Less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/60	120/90/90	180/180/120	240/240/180
3m or more	90/60/30	120/60/30	180/120/90	240/180/90
For non-loadbearing parts -				
Less than 1.5m	-/90/90	-/120/120	-/180/180	-/240/240
1.5 to less than 3m	-/50/60	-/90/90	-/180/120	-/240/180
3m or more	-/-/-	-/-/-	-/-/-	-/-/-
<b>EXTERNAL COLUMN</b> not incorporated in an external wall -				
For loadbearing columns -				
	90/-/-	120/-/-	180/-/-	240/-/-
For non-loadbearing columns -				
	-/-/-	-/-/-	-/-/-	-/-/-
<b>COMMON WALLS and FIRE WALLS</b>	90/90/90	120/120/120	180/180/180	240/240/240
<b>INTERNAL WALLS -</b>				
Fire-resisting lift and stair shafts -				
Loadbearing	90/90/90	120/120/120	120/120/120	240/120/120
Non-loadbearing	-/90/90	-/120/120	-/120/120	-/120/120
Bounding <i>public corridors</i> , 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 <i>shafts</i> not used for the discharge of hot products or combustion				
Loadbearing	90/90/90	120/90/90	180/120/120	240/120/120
Non-loadbearing	-/90/90	-/90/90	-/120/120	-/120/120



Notes:

- 6.1.1.1.1.1.1 *The concession granted under clause 3.5 of Specification C1.1 results in the roof of the building not being required to be fire rated if the building is a class 2 and less than 25m in effective height, or if the building is provided throughout with sprinklers). The roof must be non-combustible covering.*
- 6.1.1.1.1.1.2 *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.*
- 6.1.1.1.1.1.3 *Lift shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL of 90/90/90.*
- 6.1.1.1.1.1.4 *Fire isolated exits are to be provided with a fire rated "lid" that achieves an FRL of 90/90/90.*
- 6.1.1.1.1.1.5 *Where roof lights are proposed they are required to be located not less than 3 metres from a rooflight in an adjoining fire separated part; and must not be more than 20% of the area of the roof.*

Note: the location of the roof lights is not to be less than 3m apart.

- 6.1.1.1.1.1.6 *Any loadbearing internal wall or loadbearing fire walls are to be masonry or concrete.*
- 6.1.1.1.1.1.7 *A non-loading wall that is required to be fire resisting must be non-combustible construction.*
- 6.1.1.1.1.1.8 *External walls must be non-combustible construction (i.e. no timber frame). Non-loadbearing parts of an external wall that are more than 3m from a fire source feature need not be fire rated.*
- 6.1.1.1.1.1.9 *Internal columns in this building (being less than 25m in effective height) that are in the storey immediately below the roof can be constructed of an FRL of 60/60/60.*
- 6.1.1.1.1.1.10 *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.*
- 6.1.1.1.1.1.11 *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-loadbearing or less than 1.8m wide of the masonry is loadbearing.*

\*\*\* END OF REPORT \*\*\*