BCA ASSESSMENT REPORT

2 WEST PROMENADE, MANLY NSW

Mijollo International

Prepared by: Josh Harvey

REPORT STATUS			
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Table of Contents

A. INTRODUCTION

A.1 BACKGROUND/PROPOSAL

Private Certifiers Australia Pty Ltd (PCA) have been commissioned by Eastview Australia to provide a Building Code of Australia (BCA) 2016 assessment for the proposed Construction of mixed Residential & Commerical Building.

A.2 AIM

The purpose of this report is to to give preliminary compliance advice relating to
Provide a BCA compliance check for Delevopment Application submision prior to approval of DA consent.

A.3 THE PROJECT TEAM

The following PCA team members have contributed to this report:

- Josh Harvey BPB 0260
- Grant Harrington, Director BPB0170

A.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
- NCC 2016 – State and Territories, Variations and Additions
- Architectural Drawings – Mijollo International A100-A620 REV A 20FEB17

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 BCA however the 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 structrual capacity of the building.

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.

  The report does not address matters in relation to the following:
  a) Local Government Act and Rgulations.
  b) NSW Public Health Act 1991 and Regulations
  c) Occupation Health and Safety (OH&S) Act and Regulations
  d) Work Cover Authority requirements.
  e) Water, drainage, gas, telecommunications and electricity supply authority requirements.

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A.7 TERMINOLOGY

Alternative Solution

A building solution which complies with the Performance Requirments other than by reason of staisfying 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 (1979) and Regulations (2000).Building regulatory legislation stipulates that compliance with the BCA Performance Requirements must be attaind and hence this reveals BCA's performance based format.

Construction Certificate

Building Approval issued by the Certifiying 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 –

(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.

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 providison 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 sotrey (excluding the topmost sotrey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units) from the floor of the lowest sotrey 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) Integirty; and
c) Insulation,
and expressed in that order.

Fire Souce 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 refereenced as the National Construction Code Series Volume One – BCA Volume1.

Occupation Certifiate
Building Occupation Approval issued by the Principal Certifying Authority
pursuant5 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 Requirments 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 equialent 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 occuation by one or joint owner, lessee, tenant, or other occupier to the exlusion of any other owner, lessee, tenant, or other occcupier and includes a dwelling.

B. Executive Summary

The report will assess the Construction Certificate drawings for compliance with the building code of Australia 2016.

The summary will provide an assessment of the applicable sections of the BCA and identify areas of non-compliance which will require a Building Solution.

The following Non-Compliant Areas will require an Alternate Solution:

a) BCA Clause D1.4 Exit travel distances

b) BCA Clause D1.7 Travel via fire-isolated exits (b) & (c)

c) BCA Clause C3.2 – Protection of Opening in External Walls

C. BUILDING CHARACTERISTICS

B.1 BUILDING CLASSIFICATION

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

• **BCA Classification:**	2,7a & 9b
• **Rise in Storeys:**	6
• **Effective Height:**	17.45
• **Type of Construction:**	A
• **Climate Zone:**	Zone 6
• **Maximum Floor Area/Volume:**	See below

B.2 FLOOR AREA/VOLUME

Note: Maximum Floor Area/Volume does not apply to Class 2 compartments
Maximum size of fire compartment is:

Classification		**Type A**
9b	Max floor area	8 000 m^2
	Max volume	48 000 m^3
7a – Not Applicable (building sprinkler protected)	Max floor area	5,000 m^2
	Max volume	30,000 m^3

B.3 FIRE SOURCE FEATURE

The distances from the nearest Fire Source Features are:

Boundary	**Distance to Fire Source Feature**
North	>6m to opposite side of road (West Promandae)
East	>6m to opposite side of road (gilbert Street)
South	>6m to opposite side of road Eustache Street

West	Built to Boundary

BCA ASSESSMENT

C.4 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 commercial building.

SECTION A – CLASSIFICATION OF BUILDING & STRUCTURES

1. **Clause A2.1 – Evidence of Suitability**
   Every part of the building must be constructed in an appropriate manner to achieve the requirements of the BCA and using materials fit for purpose and for which they were intended

2. **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. **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 purose which is a different classification applying to the major use, the major use will 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 is defined a mixed classification. All areas are sufficent in size to adopt individual classification.
   - Class 2: (Residential)
   - Class 9b (assembly building)
   - Class 7a (carpark)

4. **Clause-A4- United Buildings**

Two or more buildings adjoining each other form one united building if they—
(a) are connected through openings in the walls dividing them; and
(b) together comply with all the requirements of the BCA as though they are a single building.

Comments: N/A

SECTION B – STRUCTURE

5. **Part B1 – Strtuctural 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 structral elements of the building.

Comments: Details are to be provided confirming that the design achieves compliance with the following is requied 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 Structural Design Action: Wind - including design for balustrading (dead and live loads)
3. AS1170.4-2007 Earthquake loads
4. AS3700-2001 Masonry code
5. AS3600-2009 Concrete code
6. AS4100-1998 Steel Structures and/or
7. AS4600-2005, Cold formed steel
8. AS2047-1999 Windows in buildings
9. AS1288-2006 Glass and glazed assemblies – B1.4 (h) (ii B) hinged doors including french doors and bi fold doors.

SECTION C – FIRE RESISTANCE

PART C1 FIRE RESISTANCE AND STABILITY

6. **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 A** Construction. Appendix 2 is an extract from Table 3 in the BCA Specification C1.1.

Comments: Each building element must not have an FRL less than that prescribed in the table. The Building is considered Type A Construction.

7. **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.

Comments: Rise in storey of 6

8. **Clause C1.3**
In a building of multiple classifications, the type of construction required for the building is the most fire resisting construction type resulting from the application of Table C1.1 on that basis the classification that applies to the top storey applies to all stories. The clause contains exemptions to class 4 parts of a building.

Comments: All buildings and classification will be constructed in type A construction.

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 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 COMPARMENTATION AND SEPARATION

10. **Clause C2.1 Application of Part**

C2.2, C2.3 and C2.4 do not apply to a carpark provided with a sprinkler system complying with Specification E1.5.

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 450mm outside the lower opening (measured horizontally), the openings must be separated by and horizontal or vertical spandrel with an FRL of 60/60/60, and for the purposes of C2.6, window or other opening means that part of the external wall of a building that does not have an FRL of 60/60/60 or greater.

Comments: The Building Generally complies. But details of spandrel separation are provided below for the purpose of the construction phase if further detail review of the plans shows up any non -compliances.

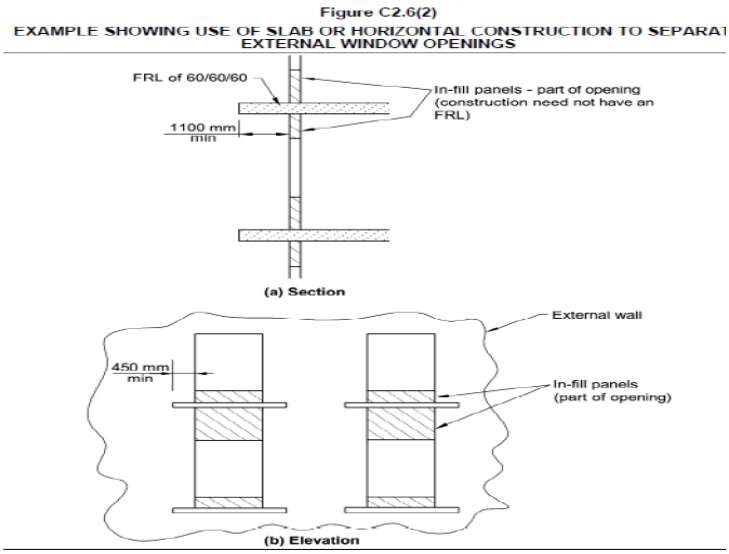


DIAGRAM 1

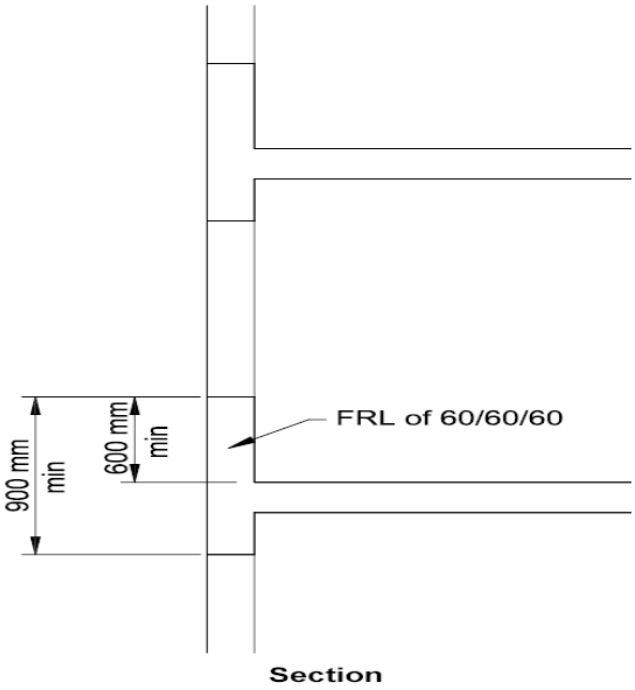


DIAGRAM 2

12. **Clause C2.8 – Separation of Classifictions 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: Compliance is readily achievable, however further details are required for assessment. It should be noted that separation should be providedthe remainder of the building and the garbage room.

The Construction Certificate plans are to show compliance with FRL'S.

13. **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 carpark slab is to achieve 120/120/120 in order to separate the class 7a & 9b. The slab between each storey of the residential accommodation is to provide a minimum FRL of 90/90/90.

14. **Clause C 2.10 – 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 A Construction. A minimum FRL of 120/120/120. Further Details to be provide at construction Certificate stage.

15. **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 fire separated from the remainder of the building by construction that achieves a 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 bulding) 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 equpment switchgear by metal paritions 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 buildsing.
  - 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: Noted. Further assessment will be required at Construction Certificate stage to ensure compliance

PART C3 PROTECTION OF OPENINGS

16. **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 alloltment**; 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: Non- Compliance Numerous windows within the development are within 3m of the boundary. A compliant solution is to be provided or a fire engineer will be engaged a Construction Certificate stage to produce a building solution which satifies the performace requirements of CP2.

17. **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 not be less than that set out in Table C3.3, unless—

(a) those parts of each wall have an FRL not less than 60/60/60; and

(b) any openings protected in accordance with C3.4.

Comment: Windows located of the external wall of the class 2 Sole Occupancy Units require protection due to the proximity of the class 9b building. A compliant solution is to be provided in accordance with C3.4 or a fire engineer will be engaged a Construction Certificate stage to produce a building solution which satifies the performace requirements of CP2.

18. **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 austomatic 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: Noted. The building will provide a compliant solution or a fire engineer will be engaged a Construction Certificate stage to produce a building solution which satifies the performace requirements of CP2.

. Further details to be provided at Construction Certificate.

19. **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: Readily achievable. Door specification to be provided during Construction Certificate Stage process

20. **Clause C3.9 – Service Penetrations in Fire-isolated Exits**
Fire isolated exists 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: Compliance is readily achievable. Further details to be provided a construction certificate and stage co –ordination with services consultants to confirm compliance.

21. **Clause C3.10- Openings in fire –isolated lift shafts**

Doorways if a lift shaft is required to be fire isolated, an entrance doorway to that shaft must be protected by -/60/- fire door that-
Comply with AS1735.11; and are set to remain closed except when discharging or receiving passengers, goods or vehicles.
Also lift indicator panels must have an FRL of not less than -/60/60

Comments: Readily achievable. Currently no details have been submitted as part of the BCA report. Door specification to be provided during Construction Certificate Stage.

22. **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 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
  Note: Concessions are available for some Class 3 building.

Comments: Readily achievable. Currently no details have been submitted as part of the BCA report. Door specification to be provided during Construction Certificate Stage.

23. **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).

Comments: Compliance is readily achievable. Compliance is to be demonstrated with the Construction Certificate application documentation.

24. **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: Comments: Compliance is readily achievable. Co-ordination with services consultants to ensure compliance at construction certificate stage.

At construction stage the following details are to be provided:

1) Location of any shafts
2) Hot and cold water services
3) Electrical penetrations
4) Power point details
5) Mechanical ventilation

SECTION D – ACCESS & EGRESS

PART D1 PROVISION FOR ESCAPE

25. **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: The current configuration of the exits is such that it satisfies the requirements of D1.2

Required Exits: The exits from the building are designated as follows:

Level	Required Exits
Carpark(Basement)	not less than 2 exits must be provided from any storey if egress from that storey involves a vertical rise within the building of more than 1.5 m.
Ground Floor	1 required exits
Level 1-level 5	1 Exit Required

26. **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.

Comments: The current configuration of the stairs is such that they are intended to be fire isolated. Further details to be provide a construction certificate stage.

27. **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:

- Class 5,6,7,8 or 9 buildings- subject to (d), (e) and (f) Basement Levels & Ground Floor level)

(i) No point on a floor must be more than 20m away from an exit or a point from which travel ion different direction to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40m

The following applies to Class 2 buildings(Ground Floor to Roof Common Area)

- The entrance doorway of any sole-occupancy unit must be not more than—
- 6m from an exit or from a point from which travel in different directions to 2 exits is available; or
- (B) 20 m from a single exit serving the storey at the level of egress to a road or open space; and

- no point on the floor of a room which is not in a sole-occupancy unit must be more than 20 m from an exit or from a point at which travel in different directions to 2 exits is available.

Comments: Non-Compliance. The entrance doorway is greater 6m from an exit or from a point from which travel in different directions to 2 exits is available.

In the civic club the single exit is greater than 20m. An addition exit should be constructed to provide an alternate exit.

a) Manly Civic Club- Ground Floor
b) Residential- Level 1 to Level 5

A fire engineer is to be engaged to address the non-compliance and meet the performance requirements of DP4

28. **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 layout of the alternative exit is such that it complies with the provisions of D1.5.

29. **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. Building generally complies.

30. **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: The fire isolated stair way construction is generally in compliance with the provisions of Clause D1.7. However, the Fire isolated stair & passageway discharges to a covered area and within 3m of an opening this is deemed a noncompliance. At this point it is advised that a fire engineer be engaged to develop a building solution to deal with the non-compliance in part of Clause D1.7

31. **Clause D1.8 – External Stairways or ramps in lieu of fire – isolated exits**

(a) An external stairway or ramp may serve as a *required exit* in lieu of a fire-isolated *exit* serving a *storey* below an *effective height* of 25 m, if the stairway or ramp is—(i) *non-combustible* throughout; and (ii) protected in accordance with (c) if it is within 6 m of, and exposed to any part of the *external wall* of the building it serves.
(b) For the purposes of this clause—
(i) exposure under (a)(ii), is measured in accordance with Clause 2.1 of Specification C1.1, as if the *exit* was a building element and the *external wall* of the building was a *fire-source feature* to the *exit*, except that the FRL *required* in Clause 2.1(a)(i) must not be less than 60/60/60; and
(ii) the plane formed at the construction edge or perimeter of an unenclosed building or part such as an *open-deck carpark*, *open spectator stand* or the like, is deemed to be an *external wall*; and
(iii) openings in an *external wall* and openings under (c) and (d), are determined in accordance with C3.1.
(c) The protection referred to in (a)(ii), must adequately protect occupants using the *exit* from exposure to a fire within the building, in accordance with one of the following methods:
(i) The part of the *external wall* of the building to which the *exit* is exposed must have—
(A) an FRL of not less than 60/60/60; and (B) no openings less than 3 m from the *exit* (except a doorway serving the *exit* protected by a –/60/30 fire door in accordance with C3.8(a)); and
(C) any opening 3 m or more but less than 6 m from the *exit*, protected in accordance with C3.4 and if wall wetting sprinklers are used, they are located internally.
(ii) The *exit* must be protected from—
(A) any part of the *external wall* of the building having an FRL of less than 60/60/60; *a*nd(B) any openings in the *external wall*, by the construction of a wall, roof, floor or other shielding element as appropriate in accordance with (d).(d) The wall, roof, floor or other shielding element *required* by (c)(ii) must—(i) have an FRL of not less than 60/60/60; and
(ii) have no openings less than 3 m from the *external wall* of the building (except a doorway serving the *exit* protected by a –/60/30 fire door in accordance with C3.8(a)); and
(iii) have any opening 3 m or more but less than 6 m from any part of the *external wall* of the building protected in accordance with C3.4 and if wall wetting sprinklers are used, they are located on the side exposed to the *external wall*.

Comments: N/A

32. **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 form 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: N/A

33. **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: See D1.6 Notes. Further details to be provided a construction certificate stage to assess compliance.

34. **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

35. **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: Readily achievable. Details to be provided at construction certificate application stage.

36. **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.

37. **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.

38. **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.

39. **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. Specific consideration should be giving to AS1428: Design for Access & Mobility.

40. **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.

41. **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 2 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.

42. **Clause D2.17 – Handrails**
This clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings.

Measured above the nosing's of stair treads and the floor surface of the ramp, landing or the like.

Comments: Details of proposed handrails are to be provided for assessment detailing the above. Proposed handrails are to comply with the provisions of AS1428.1

43. **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: Note

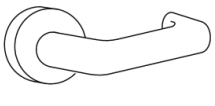
44. **Clause D2.20 – Swinging Doors**
A swinging door *in a required exit* or *forming part of a required exit* must swing in the direction of egress and must not otherwise impede egress. In addition, the door must not encroach at any part of its swing by more than 500mm on the required width of the 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 – see notes in the Guide to the BCA.

Comments: Compliance readily achievable all doors open in direction of egress.

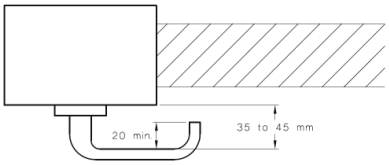
45. **Clause D2.21 – Operation of Latch**
A door in a required exit or forming part of a required exit and in a path of travel to a required exit must be readily operate without a key from the side that faces a person seeking egress, by a single downward action or pushing action on a single device which is located between 900m & 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.



(a) Isometric view



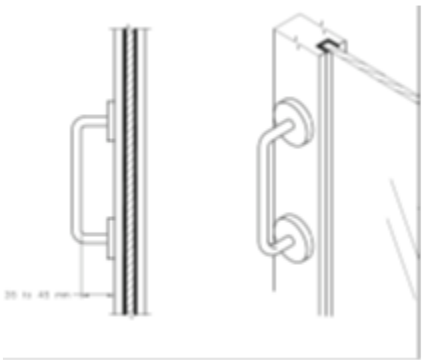


DIAGRAM 3 **DIAGRAMS 4**

46. **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 met5hod of operation.

Comments: Not applicable.

47. **Clause D2.23 – Signs on Doors**
This clause requires the use of signs to alert persons that the operation of smoke doors and dire doors and doors discharging form fire isolated exits, must not be impaired and must be installed where they can be readily seen.

Comments: Compliance is readily achievable.

Any new <u>self-closing</u> 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 <u>automatic closing</u> fire and/or smoke doors which are held on hold open devise 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

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):

OFFENCES
RELATING TO
FIRE EXITS

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

(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.

PART D3 ACCESS FOR PEOPLE WITH A DISABILITY

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

Comments: Compliance is readily achievable.

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

Access ways 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.

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. Accessible car parking spaces provided.

Clause D3.3 – Parts fo the Buildign to be Accessible

The extent of access required depends on the classification of the building. Building and parts of the building must be accessible as set out in table D3.1 unless exempted by clause D3.4

Class 2: 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 the entrance doorway to each SOU on that level and any common area used by the residents. Notwithstanding where a passenger lift is installed access must be provided to every level served by the lift.

Class 9b: To and within all areas normally used by the occupants. To wheelchair seating spaces provided in accordance with D3.9. To and within all other areas normally used by the occupants, except that access need not be provided to tiers or platforms of seating areas that do not contain wheelchair seating spaces.

Comments: Compliance is readily achievable.

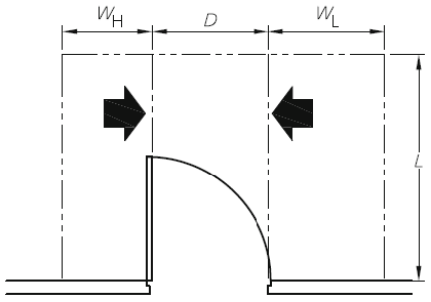
The following is a summary of some of the key matters which will need to be considered:

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 and retail tenancies, and to all common areas of the Class 2 residential parts. (Lift to provide access to common open space on roof)

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

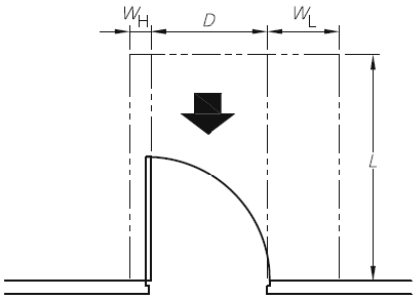
All new doorways on a continuous path of travel (i.e. including class 9 and 6 parts and throughout the common areas of the Class 2 parts) shall have a minimum luminance contrast of 30% provided between: door leaf and door jamb; or door leaf and adjacent wall; or architrave and wall; or door leaf and architrave; or door jamb and adjacent wall.

The minimum width of the area of luminance contrast shall be 50mm.
Circulation space to the new doorways that are required to be accessible are to comply with Section 13 of AS1428.1-2009, including as follows:



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

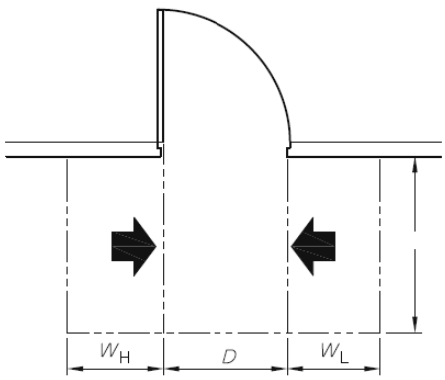
(g) Either side approach, door opens towards user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

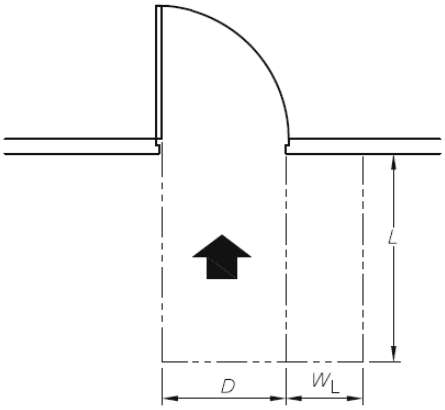
(h) Front approach, door opens towards user

DIAGRAM 5



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	560	660
900	1210	510	660
950	1175	460	660
1000	1155	410	660

(c) Either side approach, door opens away from user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

(d) Front approach, door opens away from user

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.

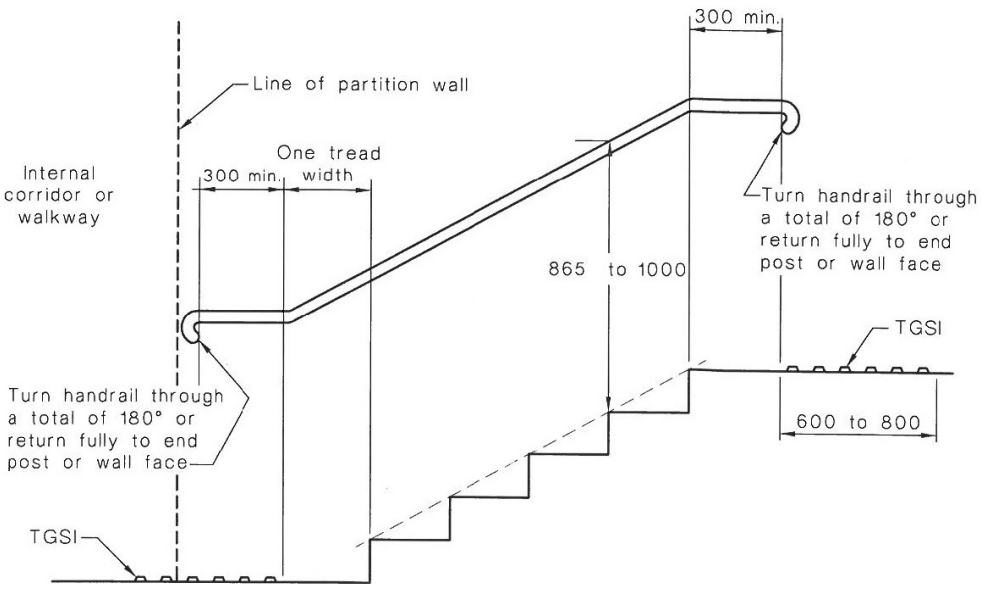
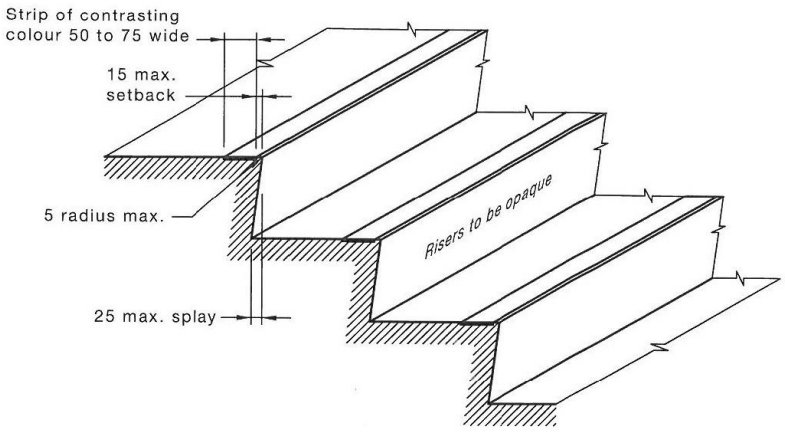


DIAGRAM 7

- 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 × 5 mm may be used.

DIMENSIONS IN MILLIMETRES

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

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

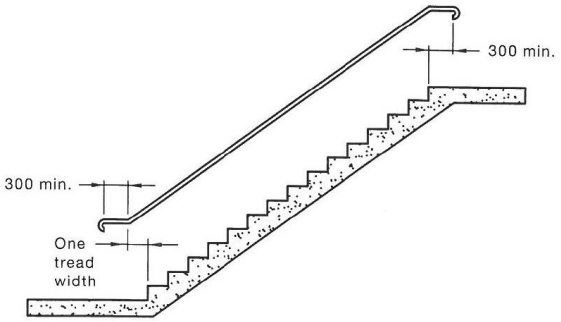
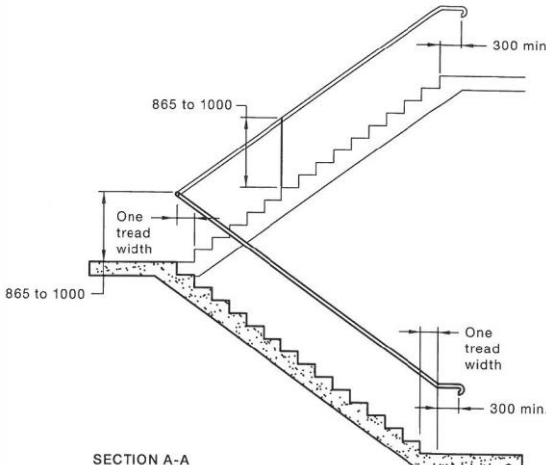


DIAGRAM 10



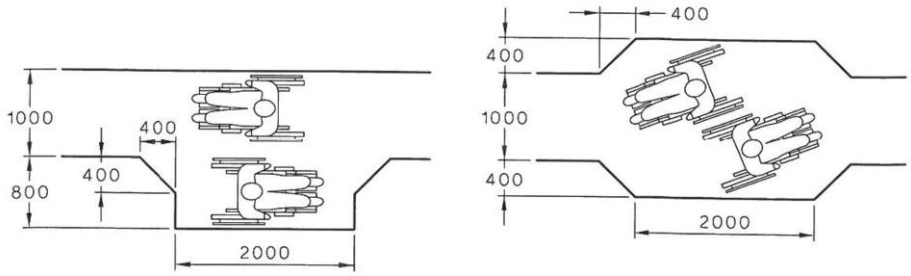
Accessible Ramps (AS1428.1-2009 Section 10.3):
AS1428.1 defines an accessible ramp as an inclined surface on a continuous accessible path of travel between two landings with a gradient steeper than 10 but not steeper than 1:14.

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 also9 to the required 1m unobstructed width).
- Handrails must not contain any vertical sections.

Accessways/corridors (including common area corridors in the Class 2 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.

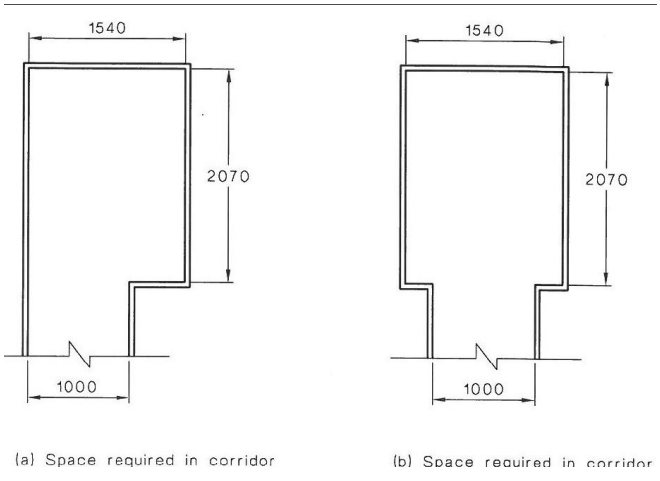


DIMENSIONS IN MILLIMETRES

FIGURE 3 EXAMPLES FOR PASSING SPACE FOR WHEELCHAIRS

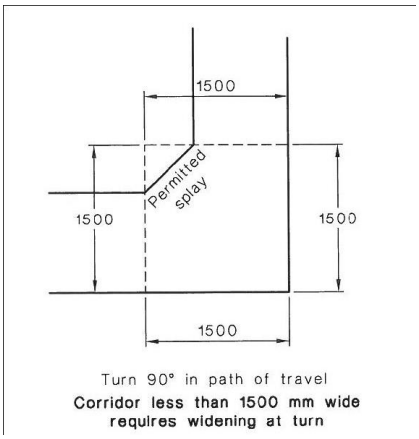
DIAGRAM 11

- 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.



(a) Space required in corridor (b) Space required in corridor

DIAGRAM 12



Turn 90° in path of travel
Corridor less than 1500 mm wide requires widening at turn

DIAGRAM 13

53. **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:

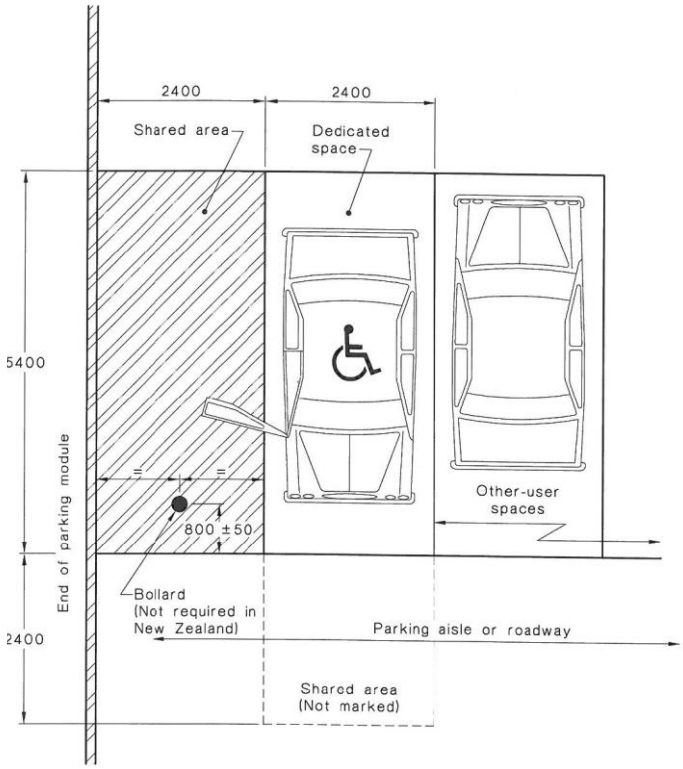
- An area where access would be inappropriate because of the particular purpose for which the area is used.
- An area that would pose a health or safety risk for people with a disability.
- Any path of travel providing access only to an area exempted by (a) or (b).

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

54. **Clause D3.5 – Assess Carparking**

This part provides details of the number of accessible car parking spaces required in a carpark depending on the classification of the building.
Required Spaces: 1 space for every 100 car parking spaces or part thereof.

Comments: Compliance is readily achievable



DIMENSIONS IN MILLIMETRES

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

DIAGRAM 14

55. **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.

56. **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.

SECTION E – SERVICES AND EQUIPMENT

PART E1 FIRE FIGHTING EQUIPMENT

57. **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 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: Compliance is readily achievable.
Provide details of location of fire hydrant and coverage.

58. **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^2.

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: Compliance is readily achievable currently the plans do not have any allowance made for hose reels. Details are to be provided for assessment, particularly the location of the fire hydrant booster assembly. Hose reels are only required in the basement levels and ground floor if required.

59. **Clause E1.5 – Sprinklers**
Sprinklers must be installed in a building where required by Table E1.5 and comply with Specification E1.5.

Occupancy	When sprinklers are required
All classes— (a) including an *open-deck carpark* within a multi-classified building; but (b) excluding— (i) an *open-deck carpark* being a separate building; and (ii) a Class 8 *electricity network substation,* with a *floor area* not more than 200 m2, located within a multi-classified building.	Carpark & Throughout the Class part of building.

Comments: Compliance is readily achievable. Further details to be provided and construction certificate application stage.

60. **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

61. **E1.8 Fire control centres**
A fire control centre facility in accordance with Specification E1.8 must be provided for—
(a)a building with an effective height of more than 25 m; and
(b) a Class 6, 7, 8 or 9 building with a total floor area of more than 18 000 m2.

Comments: N/A.

62. **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

63. **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.

Fire Isolated Stair Way & passageways: an automatic air pressurisation system for fire-isolated exits in accordance with AS/NZS 1668.1.

A Class 2 and 3 building or part of a building and Class 4 part of a building must be provided with an automatic smoke detection and alarm system complying with Specification E2.2a Part 4, 5, 6 & 7.

Smoke detectors required to activate air pressurisation systems for fire-isolated exits and zone smoke control systems must—

(i) be installed in accordance with AS 1670.1; and

(ii) have additional smoke detectors installed adjacent to each bank of lift landing doors set back horizontally from the door openings by a distance of not more than 3 m

Smoke detectors or sprinklers required to activate automatic shutdown of air-handling systems in accordance with Table E2.2b;

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.

Comments: A smoke hazard management system must be provided in accordance with the above parameters, throughout the building in accordance with Table E2.2a.

D. PART E3 LIFT INSTALLATIONS

64. **Clause 3.2 Stretcher lift**

Where an Emergency lift is not installed a stretcher lift is required to serve a floor with an effective height of 12m. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing clear space not less than 600mm wide X 2000 mm long x 1400mmhigh above the floor.

(a) A stretcher facility in accordance with (b) must be provided—
(i) in at least one emergency lift required by E3.4; or
(ii) where an emergency lift is not required, if passenger lifts are installed to serve any storey above an effective height of 12 m, in at least one of those lifts to serve each floor served by the lifts.

Comment: N/A

65. **E3.4 Emergency lifts**

At least one emergency lift complying with (d) must be installed in a building which has an effective height of more than 25 m.

Comment: N/A

66. **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. Please provide details of the lift.

67. **E3.7 Fire service controls**

Where lifts serve any storey above an effective height of 12m, the following must be provided:
(a)A fire service recall control switch complying with E3.9 for—
(i)a group of lifts; or
(ii)a single lift not in a group that serves the storey.
(b) A lift car fire service drive control switch complying with E3.10 for every lift.

Comments: Building generally complies more information to be provided at construction certificate stage.

PART 4 EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS

68. **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.

69. **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.

SECTION F – HEALTH & AMENITY

PART F1 DAMP AND WEATHERPROOFING

70. **Clause F1.1 – Stormwater drainage**
Stormwater drainage must comply with AS/NZS 3500.3.

Comments: Design statement to be provided with the S109R application

71. **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.

72. **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.

73. **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 OTHER FACILITIES

74. **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.

If the building contains more than 10 sole-occupancy units, or a group of Class 2 buildings on the one allotment contains, in total, more than 10 sole occupancy units — provide a closet pan and washbasin in a compartment or room at or near ground level and accessible to employees without entering a sole-occupancy unit.

Comments: Compliance is readily achievable. Further details to be provided a construction certificate

75. **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: Compliance is readily achievable.

76. **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: Compliance is readily achievable for the building further details to be provided at construction certificate stage.

PART F3 ROOM HEIGHTS

77. **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 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

78. **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 readily achievable

79. **Clause F4.2 – Methods & Extent of Natrual 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 readily achievable

80. **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.

81. **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

82. **Clause F5.1 – Application of Part**
The Deemed-to-Satisfy Provisions of this Part apply to Class 2 buildings

83. **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. Specification and design details to be provided at construction certificate stage.

84. **Clause F5.4 – Sound Insulatioln Rating of Floors**
The floors separating the sole occupancy unit 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.

Comments: Compliance is readily achievable. Specification and design details to be provided at construction certificate stage.

85. **Clause F5.5 – Sound Insurlation 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 form a public corridor must have a weighted sound reduction index of not less than 30.

Comments: Compliance is readily achievable. Specification and design details to be provided at construction certificate stage.

86. **Clause F5.6 – Sound Insultation 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. Specification and design details to be provided at construction certificate stage.

87. **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. Design specification to be provided at construction certificate stage.

SECTION G – ANCILLARY PROVISIONS

PART G1 MINOR STRUCTURES AND COMPONENTS

88. **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: Compliance is readily achievable. Information to be provided at construction certificate stage.

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.

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.

E. CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed mixed use commercial & Residential development 2 West Promenade, Manly, NSW
After review of the subject plans prepared by Mijollo Internationalit can be said that all of the plans are generally complaint with the principals of the DTS provisions of the BCA 2016 however some items will need futher investgastion and consultation from a Fire Engineer to provide resloutions.

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 result in the need to modify the development consent.

F. APPENDIX 1

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

Essential Fire and Other Safety Measures	Standard of Performance
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS2293.1-2005
Fire Hose Reels	BCA Clause E1.4 & AS2441-2005
Fire Hydrant Systems- coverage	Clause E1.3 and AS2419.1-2005
Portable Fire Extinguishers	BCA Clause E1.6 & AS2444-2001
Sprinkler System	Specification E1.5.
an automatic air pressurisation system for fire-isolated exits	BCA Specification E2.2a, AS/NZS 1668.1;
zone smoke control system (car park & Commercial Premises)	BCA Specification E2.2a .AS/NZS 1668.1
Automatic shutdown of air-handling systems	BCA E2.2 & AS1668.1
Smoke Detection & Alarm System	BCA Specification E2.2a, Clause 3 AS3786 (SOU'S),Clause 4 AS 1670.1 (Common Areas) and connected to activate a building occupant warning system in accordance with Clause 6 of Specification E2.2a. Class 9b- AS1670 & BCA Spec E2.2a Clause 5
Fire seals protecting openings in fire resisting components of the building	BCA clause 3.15, A2.4, Spec C3.15, AS 1530.4, AS4072.1 and installed in accordance with tested prototype and manufacturer's recommendations
Lightweight Construction	BCA C1.8
Warning & Operational Signs	BCA D2.23, E3.3 & C3.6
Bounding Construction: SOU's	a self-closing –/60/30 fire door
Openings in Fire Isolated Exits	–/60/30 fire doors that are self-closing

Notes:

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

G. APPENDIX 2

Table 4 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building — FRL: (in minutes) *Structural adequacy*/*Integrity*/*Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*—				
For *loadbearing* columns—	90/–/–	120/–/–	180/–/–	240/–/–
For non-*loadbearing* columns—	–/–/–	–/–/–	–/–/–	–/–/–
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

Building element	Class of building — FRL: (in minutes) *Structural adequacy*/*Integrity*/*Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
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

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