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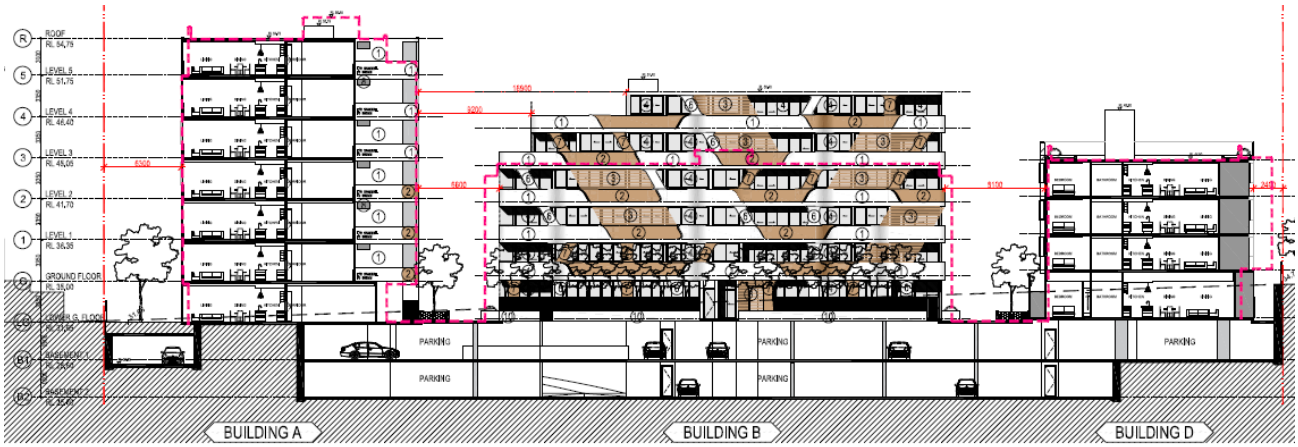
BCA 2016 - INDICATIVE COMPLIANCE REPORT FOR DA ASSESSMENT

134 – 144 Pitt Street, REDFERN, NSW 2016



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Document History

Date	Issue	Status	Prepared by	Reviewed by
10.01.11	Final v1.1	Issued to client	Alastair Visch	Peter Antcliffe
03.07.16	Issue v2.0	Issued to client for comments	Peter Antcliffe	Peter Antcliffe
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REVIEWED BY:

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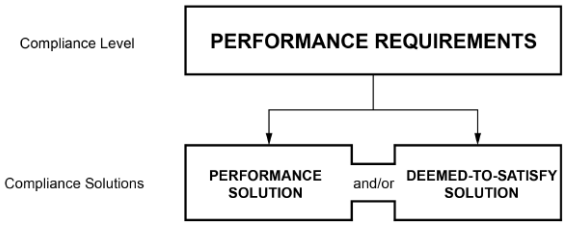
EXECUTIVE SUMMARY

As Building Surveyors we have reviewed the proposed Development Application architectural drawings presented to this office against the National Construction Code Series (NCC) concentrating on Building Code of Australia (BCA) 2016 Volume 1 –Class 2-9 buildings.

Our assessment reviled that the following BCA demand-to-satisfy departures are present and prior to the Construction Certificate (CC), a Performance based solution would be needed to confirm compliance with the Building Code of Australia.



Currently items within in this report requiring a performance solution:

DTS Clause	Description of Departure
D1.4	1. Distance to an exit from residential SOU's exceed 6m (max 13m) 2. Distance form lower ground plant room in Building D is more than 20m (28m)
D1.7	Discharged from Isolated Stairs from buildings A, B, exit to open space is via paths <6m from the building they area discharging.

1.0 INTRODUCTION

1.1 Location and Description

This report is prepared for second DA lodgement and assessment purposes and comprises a Building Code of Australia 2016 (BCA) assessment of the proposed new residential development at 134-144 Pitt Street, Redfern.

The proposal consists of a new multi-unit residential development comprising of four buildings that contain 218 residential units and commercial units above two levels of basement car parking and public open space. * *Final number of units to be confirmed by Architect.*

1.2 Report Purpose

The purpose of this report is to provide an indicative compliance assessment of the DA design documentation for the proposal, against the current requirements of the BCA.

Demonstrating compliance with the BCA is not a prescribed head of consideration under Section 79C of the Environmental Planning & Assessment Act 1979. It is noted however that Council has an obligation to consider whether the DA proposal, as lodged, is indicatively capable of complying with the BCA - without significant modification to those plans for which approval is sought.

This report will demonstrate that there will be no additional requirements, resulting from prescribed application of the BCA, for any significant design changes that would necessitate the submission of an application under Section 96 of the Environmental Planning and Assessment Act 1979.

As such, and to pre-empt the Certifying Authority's role under clause 145 of the Environmental Planning & Assessment Regulation 2000, we have undertaken a preliminary assessment of the proposed residential development at 134-144 Pitt Street, Redfern, against the provisions of the BCA.

1.3 Basis of Report

This report is based upon and limited to:

- An assessment of design documentation referenced in Appendix B of this report.
- The Deemed-to-Satisfy provisions of the Building Code of Australia 2016 including the NSW variations where applicable.

1.4 Referenced Documents

The following documentation was relied upon when preparing this report:

- Assessment of design documentation referenced in Appendix B of this report.

- The performance and deemed-to-satisfy provisions of the Building Code of Australia 2016 incorporating the NSW Appendices where applicable.
- Guide to the Building Code of Australia.
- Environmental Planning & Assessment Act 1979.
- Environmental Planning & Assessment Regulation 2000.

1.5 Limitations and Exclusions

The limitations and exclusions of this report are as follows:

- The plans are assessed indicatively to the extent necessary to proceed to construction certificate stage whereby assessment will be undertaken pursuant to Part 4A of the Environmental Planning and Assessment Act 1979. This means that the design has been assessed to be able to comply with the BCA (i.e. the submitted plans are consistent with the BCA but certain design details may not be specified at this stage due to the plans and specifications being at DA stage).
- Details in regard to access for people with disabilities have been assessed to the extent of the deemed-to-satisfy provisions of the BCA only. An assessment against AS 1428.1 is outside the scope of this report. A detailed report prepared by a suitably qualified access consultant will need to be prepared to verify compliance with AS 1428 prior to the issue of a construction certificate.

  Please note that whilst the BCA specifies a minimum standard of compliance with AS1428.1 and Part D3 of the BCA for access and facilities for people with disabilities, compliance with such requirements may not necessarily preclude the possibility of a future complaint made under the Disability Discrimination Act 1992 (DDA). The DDA is a complaint based legislation and is presently not identified by the State Building Codes and Regulations. In this regard the client should be satisfied that their obligations under the DDA have been addressed

- This Report does not address issues in relation to the following:
  a) The structural adequacy of the building including the Fire Resistance Levels (FRL's) of any building elements (unless specifically referred to).
  b) The design, maintenance or operation electrical, mechanical, hydraulic or fire protection services.
  c) Environmental Planning and Assessment Act and Regulations (unless specifically referred to).
  d) Local Government Act and Regulations.
  e) Occupational Health and Safety Act and Regulations.
  f) WorkCover Authority requirements.
  g) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, RTA, Council and the like.
  h) Disability Discrimination Act.
  i) Construction Safety Act.
  j) Conditions of Development Consent issued by the relevant Local Council.
- This assessment does not incorporate the detailed requirements of the Australian Standards.

- Building Certificates Australia Pty Ltd cannot guarantee acceptance of this report by the Local Council, NSW Fire Brigades or other approval authorities.

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1.6 Legislative Framework

Section 79C of the Environmental Planning and Assessment Act provides the matters of consideration that the consent authority must take into account in the determination of a development application.

Once development consent is granted, and pursuant to Clause 145 of the Environmental Planning and Assessment Regulations 2000, a certifying authority must not issue a construction certificate for building work unless:

(a1) the plans and specifications for the building include such matters as each relevant BASIX certificate requires, and

(a) the design and construction of the building (as depicted in the plans and specifications and as described in any other information furnished to the certifying authority under clause 140) are not inconsistent with the development consent, and

(b) the proposed building (not being a temporary building) will comply with the relevant requirements of the Building Code of Australia (as in force at the time the application for the construction certificate was made).

Compliance with the Building Code of Australia

The BCA is a performance based document whereby compliance can be achieved by satisfying the deemed to satisfy requirements or by formulating a performance solution to address the relevant performance requirements.

As indicated above, the requirements of the Environmental Planning and Assessment Regulations 2000 requires all new building works to comply with the relevant requirements of the BCA (as in force at the time the application for the construction certificate was made).

This means that the plans and documentation submitted with the *construction certificate* application must demonstrate full compliance with the relevant provisions of the Building Code of Australia.

Fulfilment of BASIX Commitments

Clause 154A of the Environmental Planning and Assessment Regulations 2000 requires a certifying authority to monitor fulfilment of any commitments listed on the BASIX certificate, where the BASIX requires the certifying authority to monitor those commitments.

A certifying authority must not issue an occupation certificate (whether interim or final) for any building resulting from, or any building that becomes a BASIX affected building because of, BASIX affected development or BASIX optional development to which this clause applies, or for any part of such a building, unless each of the commitments whose fulfilment it is required to monitor in relation to the building or part has been fulfilled.

For the purpose of satisfying itself as to the fulfilment of any such commitment, a certifying authority may rely on the advice of any properly qualified person (i.e. Energy Efficiency Consultant).

Special Requirements for Residential Flat Developments

Clause 143A of the Environmental Planning and Assessment Regulations 2000 requires a qualified designer to provide a statement that verifies that the plans and specifications that form part of construction certificate application achieve or improve the design quality of the development having regard to the design quality principles set out in Part 2 of the State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development prior to the issue of a Construction Certificate.

Clause 154A of the Environmental Planning and Assessment Regulations 2000 requires a qualified designer to provide a statement that verifies that the residential flat development achieves the design quality of the development as shown in the plans and specifications having regard to the design quality principles set out in Part 2 of the State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development prior to the issue of an Occupation Certificate.

1.7 Terminology

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

- *Fire Resistance Level (FRL)* - means the grading periods in minutes for the following criteria -
  (a) structural adequacy; and
  (b) integrity; and
  (c) insulation,
  and expressed in that order.

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

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

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

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

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

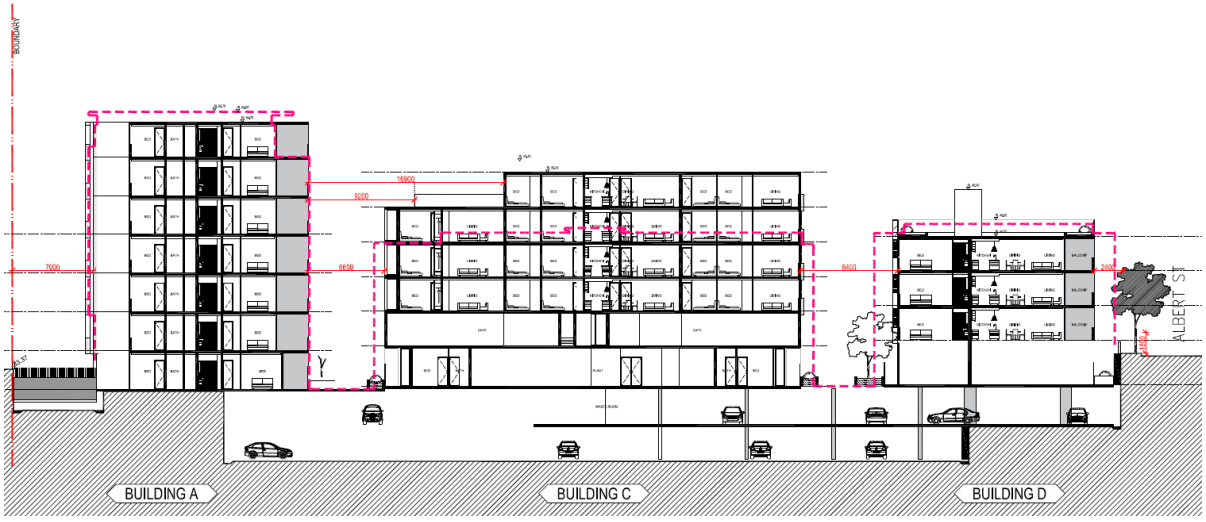
2.0 BUILDING DESCRIPTION – PROPOSED DEVELOPMENT

2.1 Building Code of Australia Description

For the purposes of the Building Code of Australia 2016 (BCA) the proposed development may be described as follows.

2.2 Rise in Storeys (Clause C1.2)

As the basement car park connects all 4 buildings, the overall building has a rise in storeys of seven (RIS = 7). (Building A) Storeys contained = 9.



2.3 Building Classifications (Clause A3.2)

The proposed building has been classified as follows.

BUILDING LEVELS	CLASSIFICATION	USE
Lower Basement Level	Class 7a	Carpark
Upper Basement Level	Class 7a	Carpark
Lower Ground	Class 2, Class 6	Residential Commercial (Building A)*
Ground	Class 2, Class 6	Residential Commercial (Building A, C and D)*
Level 1 to Level 5	Class 2	Residential

- Architect to confirm if Retail parts are <10% of total floor area of Lower and Ground floors, if so, Class 6 is a minor use.

2.4 Effective Height (Clause A1.1)

The building has an effective height of less than 25 metres.

Highest RL taken from Level 5 (Building A)	RL51.75
Lowest RL taken from Lower Ground (Building A)	RL31.65
	EH = 21.1m

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

2.5 Type of Construction (Table C1.1)

The building is required to be of 'Type A' Construction.

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

The building is subject to maximum floor area and volume limits under Type 'A' Construction of:

▪ Proposed Class 7a	-	Maximum Floor Area	5,000m^2
		Maximum Volume	30,000 m^3

Note: Provision of sprinklers in the carpark allow for compartment sizes greater than above.

The Class 2 portions of the building are not subject to any floor area and volume limitations of C2.2 of the BCA. Table 3 of Specification C1.1 and C3.11 of the BCA regulate compartmentation and separation provisions applicable to Class 2 buildings or building portions.

Class 6 parts also comply with maximum compartments sizes.

3.0 BCA REQUIREMENTS

Noting that the level of documentation at this stage is for Development Application assessment purposes, an indicative compliance assessment of the referenced documents identified in Appendix B of this report has been undertaken against the Deemed-to-Satisfy Provisions of the Building Code of Australia 2016 (BCA).

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

It must be noted that compliance with the Deemed to Satisfy Provisions is not mandatory where an performance solution is formulated in accordance with BCA requirements.

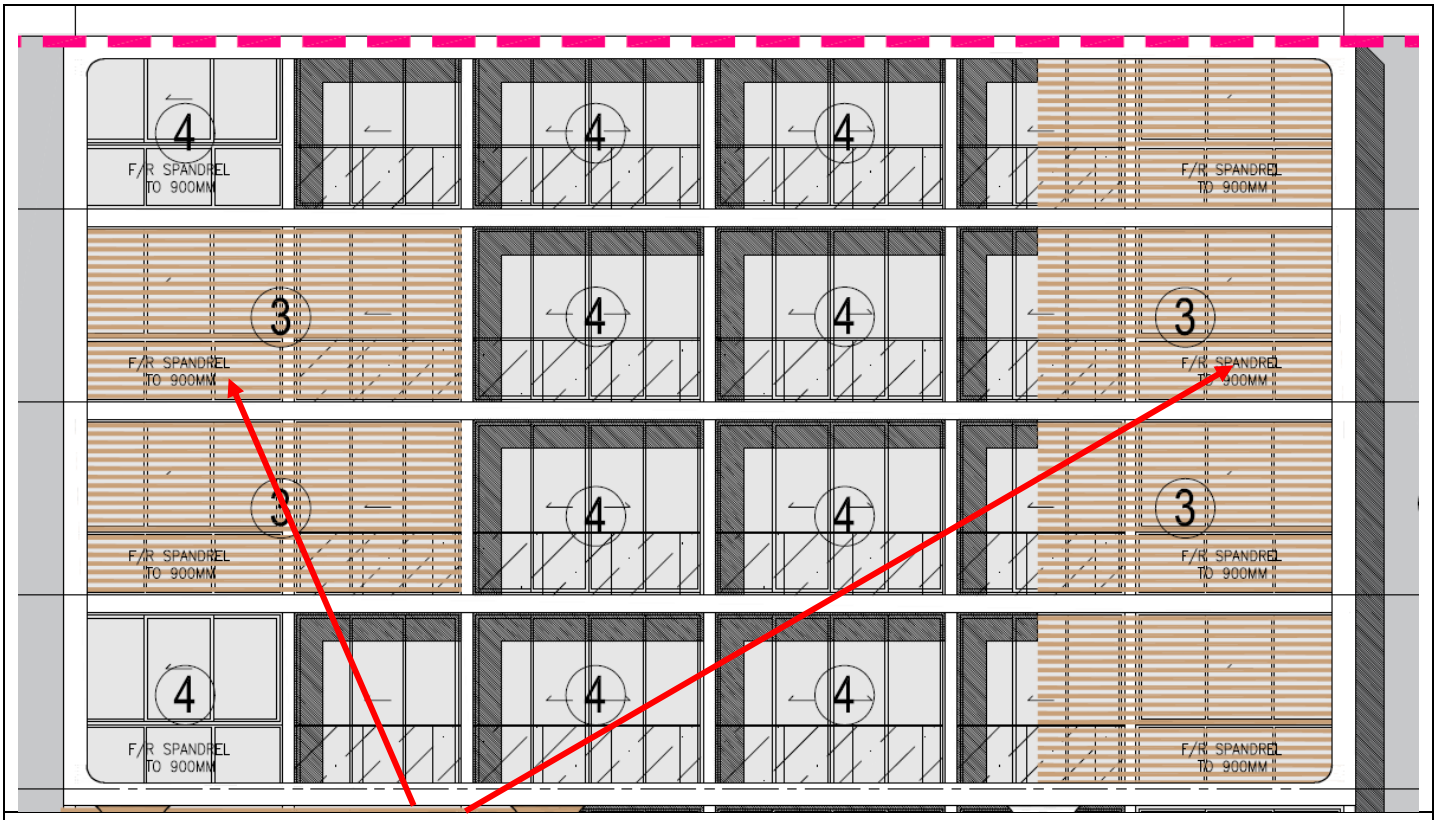
The abbreviations outlined below have been used in the following tables:

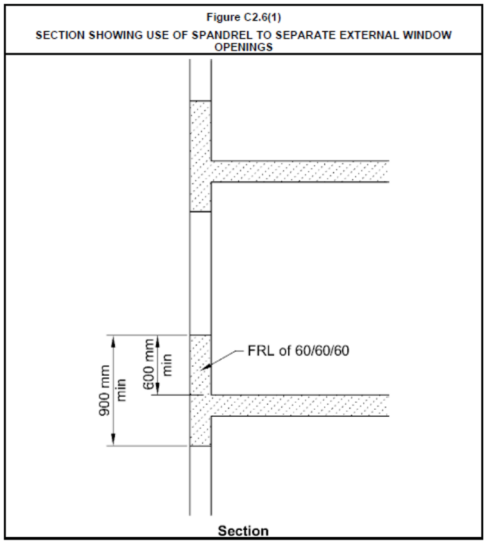
N/A	The Deemed-to-Satisfy clause does not apply to the subject Building.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been demonstrated by the proposed design and existing building features, notwithstanding it is at DA documentation stage.
CRA	'Compliance Readily Achievable'. It is considered that the level of detail included in the DA documentation will not determine strict compliance with the individual BCA clause requirements. However, subject to noting the requirements of each clause, it is considered BCA compliance can be readily demonstrated without significant implication to the approved design. This will occur through progression of documentation at the Construction Certificate stage of the development.
FI	Further information is necessary to determine the compliance potential of the building design.
PS	Performance Solution with respect to a non-compliance with the Deemed-to-Satisfy Provision can be considered to satisfy the relevant BCA Performance Requirements.
DNC	Does Not Comply with Deemed-to-Satisfy Clause.
DTS	Deemed-To-Satisfy provisions as defined by the Building Code of Australia 2016.

SECTION B – STRUCTURE			
Part B1 – Structural Provisions			
Clause	**Description**	**Status**	**Comments**
B1.1	Resistance to actions	CRA	The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions. Structural details and a design certificate will be obtained from a qualified structural engineer prior to the issue of a Construction Certificate.
B1.2	Determination of individual actions	CRA	The magnitude of individual actions must be determined in accordance with Clause B1.2 of the BCA. Structural details and a design certificate will be obtained from a qualified structural engineer prior to the issue of a Construction Certificate.
B1.3	-	-	No provisions
B1.4	Determination of structural resistance of materials and forms of construction	CRA	The structural resistance of materials and forms of construction must be determined in accordance with the relevant Australian Standards in accordance with Clause B1.4 of the BCA. Structural details and a design certificate will be required by a qualified structural engineer prior to the issue of a Construction Certificate.

SECTION C – FIRE RESISTANCE			
Part C1 – Fire Resistance and Stability			
Clause	**Description**	**Status**	**Comments**
C1.1	Type of construction required	CRA	The building is to be erected in Type A fire resisting construction in accordance with Specification C1.1 of the BCA. Refer to Appendix A for the relevant fire resisting requirements. Plans to reflect required FRLs prior to the issue of a Construction Certificate.
C1.2	Calculation of rise in storeys	Noted	The building has an overall rise in storeys of seven (7).
C1.3	Buildings of multiple classification	Noted	The building is required to be constructed of Type A fire resisting construction as the classification of the top storey is Class 2.
C1.4	Mixed types of Construction	N / A	If a fire wall divides the building in accordance with Clause C2.7, the building portions are able to be constructed in differing levels of fire-resistance determined in accordance with Clause C1.1 and C1.3.
C1.5	Two storey Class 2, 3 or 9c buildings	N / A	
C1.6	Class 4 parts of buildings	N / A	
C1.7	Open spectator stands and indoor sports stadiums	N / A	

C1.8	Lightweight construction	CRA	Lightweight construction used in a wall system must comply with Specification C1.8. Lightweight construction used as a fire-resisting covering of a steel column or the like, and where the covering is not in continuous contact with the column must have the voids filled to a height of not less than 1.2m above the floor and where the column is liable to be damaged must be protected by steel or other suitable material. If lightweight construction is used in the proposed development, then details demonstrating required FRL and compliance with this clause must be provided prior to the issue of a Construction Certificate.
C1.9	-	-	No provisions
C1.10	Fire hazard properties	CRA	The fire hazard properties of all floor materials, floor coverings, wall and ceiling lining materials must comply with Specification C1.10a. The fire hazard properties of all other materials must comply with Specification C1.10. Design certification will be required verifying compliance prior to the issue of a Construction Certificate.
C1.11	Performance of external walls in fire	N / A	Concrete external walls that could collapse as complete panels (e.g. tilt-up and pre-cast concrete), in a building having a rise in storeys of not more than 2, must comply with Specification C1.11.
C1.12	Non-combustible materials	Noted	Gypsum, metal and laminated non-combustible materials containing combustible components are deemed to be non-combustible.
Part C2 – Compartmentation and Separation			
C2.1	Application of Part	Noted	Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand.
C2.2	General floor area limitations	N / A	Not applicable to Class 2 portion of building or Class 7a (carpark) portion provided with a sprinkler system. Note: Sprinkler areas must be separated via 120/120/120 FRLs.
C2.3	Large isolated buildings	N / A	
C2.4	Requirements for open spaces and vehicular access	N / A	
C2.5	Class 9a and 9c buildings	N / A	
C2.6	Vertical separation of Openings in external walls	CRA	In a building of Type A construction that is not sprinkler protected, a spandrel must be provided. The spandrel must be not less than 900mm in height, extended not less than 600mm above the upper surface of the intervening floor and be of non-combustible material having an FRL of not less than 60/60/60. Alternatively, a slab or other horizontal construction that projects outwards not less than 1100mm and extends 450mm beyond the opening and be of non-combustible material having an FRL of not less than 60/60/60. Details demonstrating compliance must be provided on plans, elevations and sections prior to the issue of a Construction Certificate.



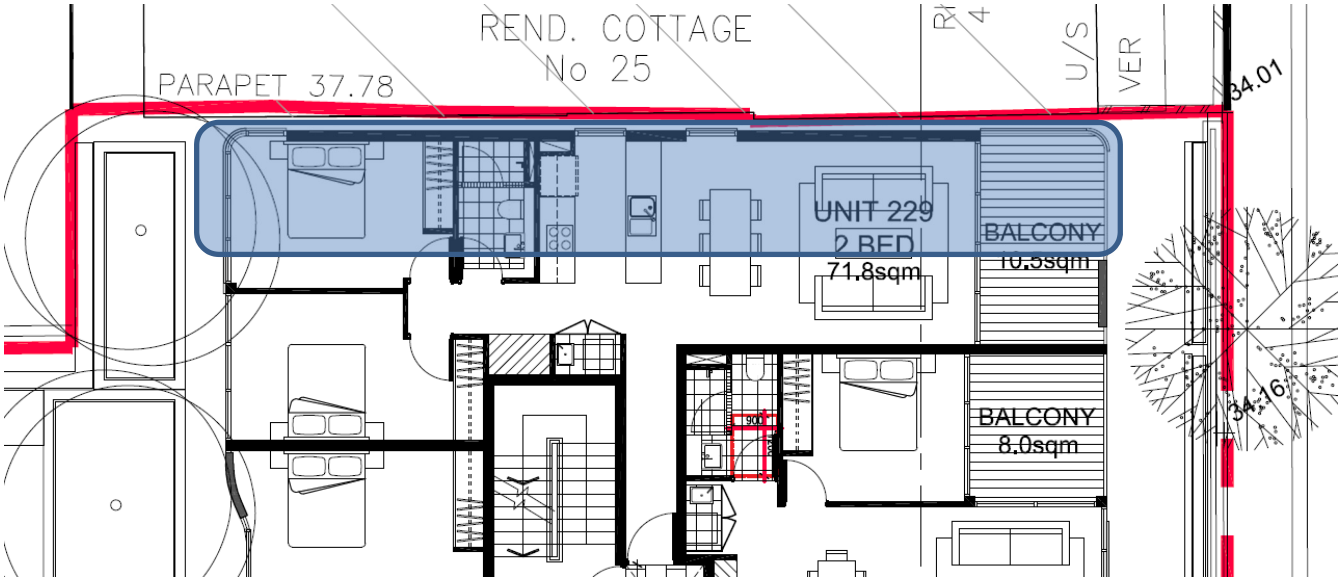


Plans do not indicate clearly if a spandrel is provided within elavtions, all elavations are to be confirmend by the architect as to the construction type of spandrel be fore CC, yet looks compliant.

C2.7	Separation by fire walls	CRA	It is noted that Fire Walls are not indicated on the plans separating commercial areas from the adjoining residential. If fire walls are not proposed, the whole storey must achieve the FRL for the Commercial 180/180/180 FRL.
C2.8	Separation of classifications in the	CRA	Design details and prescribed FRL's shall be indicated on the documentation to be assessed for the Construction Certificate.

	same storey		
C2.9	Separation of classifications in different storeys	CRA	The floor slab immediately separating the residential portions of the building above and the carpark below is required to achieve an FRL not less than 120/120/120. The slab between respective residential floor levels must achieve a minimum FRL of 90/90/90. The slab between respective carparking floor levels must achieve a minimum FRL of 120/120/120. Design details and prescribed FRL's shall be indicated on the documentation to be assessed for the Construction Certificate.
C2.10	Separation of lift shafts	CRA	Any lift connecting more than 2 storeys must be separated from the remainder of the building with material that achieves an FRL complying with C1.1. The lift shaft within the residential part must achieve a minimum FRL of 90/90/90. The shaft within the carparking floor levels must achieve a minimum FRL of 120/120/120. Openings for lift landing doors and services must be protected in accordance with the DTS provisions of Part C3 of the BCA. Design details and prescribed FRL's shall be indicated on the documentation to be assessed for the Construction Certificate.
C2.11	Stairways and lifts in one shaft	CRA	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft. Both the stairway & lift appear to be in separate shafts.
C2.12	Separation of equipment	CRA	Equipment that comprises lift motors, lift control panels, central smoke control plant, boilers or batteries must be separated from the remainder of the building by construction with an FRL as required under Specification C1.1 but not less than 120/120/120 and any doorways in that construction protected with a self-closing --/120/30 fire door. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate. Note: No fire hydrant / Sprinkler Pump room are indicated on the plans. Room dedicated to fire services are common in these buildings.
C2.13	Electricity supply system	CRA	The following electricity supply equipment: • electrical substation • main switchboard which sustains emergency equipment operating in emergency mode • electricity conductors which supply substation or main switchboard must be separated from the remainder of the building by construction with an FRL of not less than 120/120/120 and any doorways in that construction protected with a self-closing --/120/30 fire door. Details verifying compliance can be provided on plans prior to the issue of a Construction Certificate.
C2.14	Public corridors in Class 2 and 3 buildings	N / A	Public corridors must be divided at intervals of not more than 40m by smoke-proof walls complying with Clause 2 of Specification C2.5.

			There does not appear to be any corridors within the Class 2 portions that exceed 40m.
Part C3 – Protection of Openings			
C3.1	Application of Part	Noted	Concessions and definition of certain openings.
C3.2	Protection of openings in external walls	CRA	Openings less than 3m from a side or rear boundary or 6m from the far boundary of a road or 6m from another building must be protected, and such openings must not exceed 1/3 of wall area. Several openings appear to required protection in accordance with C3.4. Details verifying compliance can be provided on plans prior to the issue of a Construction Certificate.



West Elevation of building D appear to be <3m from a Fire Source Feature (FSF)

Fire-source feature means—

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

C3.3	Separation of external walls and associated openings in different fire compartments	N / A	
C3.4	Acceptable method of protection	Noted	Window openings that are required to be protected are to be protected by wall wetting sprinklers with windows that are automatic closing or permanently fixed in the closed position, --/60/-- fire windows or --/60/60 automatic fire shutters.

			Other openings that required to be protected are to be protected by internal or external wall-wetting sprinklers or have construction with an FRL not less than --/60/--.
C3.5	Doorways in fire walls	N / A	
C3.6	Sliding fire doors	N / A	
C3.7	Protection of doorways in horizontal exits	N / A	
C3.8	Openings in fire isolated exits	CRA	--/60/30 self-closing fire doors are required to doorways providing access to fire isolated passageways and exits. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.9	Service penetrations in fire isolated exits	CRA	Fire-isolated exits must not be penetrated by any services other than electrical wiring for essential fire service installations, pressurisation ducts with an FRL of -/120/60, or water pipes for fire services are not permissible. Due care to be taken by services consultants to ensure compliance.
C3.10	Openings in fire isolated lift shafts	CRA	Openings in lift shafts are to be protected by --/60/-- fire doors complying with AS1735.11. Lift indicator panels are to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm^2 (175mm X 200 mm). Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.11	Bounding construction: Class 2, 3, 4 and 9 buildings	CRA	Doorways which open into a public corridor, public lobby or the like are to have self-closing --/60/30 fire doors fitted in accordance with AS 1905.1-1997. In this regard, all entrance doorways to residential SOUs and any other room which open onto the common corridor must comply with this clause. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.12	Openings in floors for services	CRA	Services passing through floors are to be placed within fire resisting shafts or in accordance with Clause C3.15. Loadbearing shafts passing through the carparking portions are required to have an FRL not less than 120/90/90, and for non-loadbearing shafts an FRL not less than --/90/90. Loadbearing shafts passing through the residential portion are required to have an FRL of not less than 90/90/90, and for non-loadbearing shafts an FRL of not less than --/90/90. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.13	Openings in shafts	CRA	In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by:

			• If it is a sanitary compartment - a door or panel which together with its frame, is non combustible or has an FRL of not less than --/30/30, or • A self closing --/60/30 fire door or hopper, or • An access panel with an FRL of not less than --/60/30, or • If the shaft is a garbage shaft - a door or hopper of non-combustible construction. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.14	-	-	No provisions
C3.15	Openings for service installation	CRA	Where services (e.g. hydraulic, mechanical, plumbing, electrical) penetrate a building element that is required to achieve an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire then that installation must be protected / sealed (e.g. fire collars, fire dampers etc) by material that is identical to tested prototypes and in accordance with AS4072.1 and AS1530.4, and having achieved the required FRL or resistance to the incipient spread of fire or other specified method. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.16	Construction Joints	CRA	Construction joints are to be installed in accordance with a tested prototype in accordance with AS1530.4. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
C3.17	Columns protected with lightweight construction	CRA	Columns must be protected in accordance with the identical tested prototype. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.

Specification C1.1–Fire-Resisting Construction			
Spec C1.1	Requirements for Type A construction	CRA	Clause C1.1 requires the building to be constructed as Type A construction in accordance with Part 2, Part 3, Table 3 or Table 3.9 (if applicable) of Specification C1.1 of the BCA. **Garbage Room** The garbage rooms contained the two (2) garbage shoots serving the residential parts of the building are to be separated from the carpark area via construction achieving an FRL of not less than 120/90/90 or --/90/90 as required by Table 3 of Specification C1.1 of the BCA. The shaft serving the residential storeys must achieve an FRL of not less than 90/90/90 or --/90/90 as required by Table 3 of Specification C1.1 of the BCA. Note if elephant feet will be installed over the hopper. **Note: Internal Columns and Walls** The concession provided by Clause 3.7 of Specification C1.1 of the BCA cannot be applied for buildings with an effective height exceeding 25m. **Ground Floor:**

			All FRLs are to be in as per Table 3 of Specification C1.1 of the BCA. For Class 6 parts, Shafts, and other elements need to achieve a Higher FRL have the residential Levels. I.e.: Ground Floor 180/120/120, Residential Levels, 90/90/60 Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.

Table 3 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

SECTION D – ACCESS AND EGRESS			
Part D1 – Provision for Escape			
Clause	Description	Status	Comments
D1.1	Application of Part	Noted	Does not apply to the internal parts of a sole occupancy unit in a Class 2, 3 or 4 building.
D1.2	Number of exits required	Complies	No less than 2 exits are provided from the upper and lower basement levels
		Complies	1 exit is provided from each residential storey. 2 exits provided from Building C lower storey
D1.3	When fire isolated exits are required	CRA	All required stairways servicing the residential blocks that connect, pass through or pass by more than three consecutive storeys must be fire-isolated and for the car parking levels stairways that connect, pass through or pass by more than two consecutive storeys must be fire-isolated. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.

Note: All Stairs to residential parts are Isolated except for 'Building D'

The Eastern Stair to building D it is noted that adjoining is a commercial Part, yet the commercial part does not connect or relies upon this stair in any way, thus within reason, the extra storey should be applied to this stair keeping it non-isolated.

D1.3 When fire-isolated stairways and ramps are required

(a) **Class 2 and 3 buildings** — Every stairway or ramp serving as a *required exit* must be fire-isolated unless it connects, passes through or passes by not more than—

(i) 3 consecutive *storeys* in a Class 2 building; or

(ii) 2 consecutive *storeys* in a Class 3 building,

and one extra *storey* of any classification may be included if—

(iii) it is only for the accommodation of motor vehicles or for other ancillary purposes; or

(iv) the building has a sprinkler system complying with **Specification E1.5** installed throughout; or

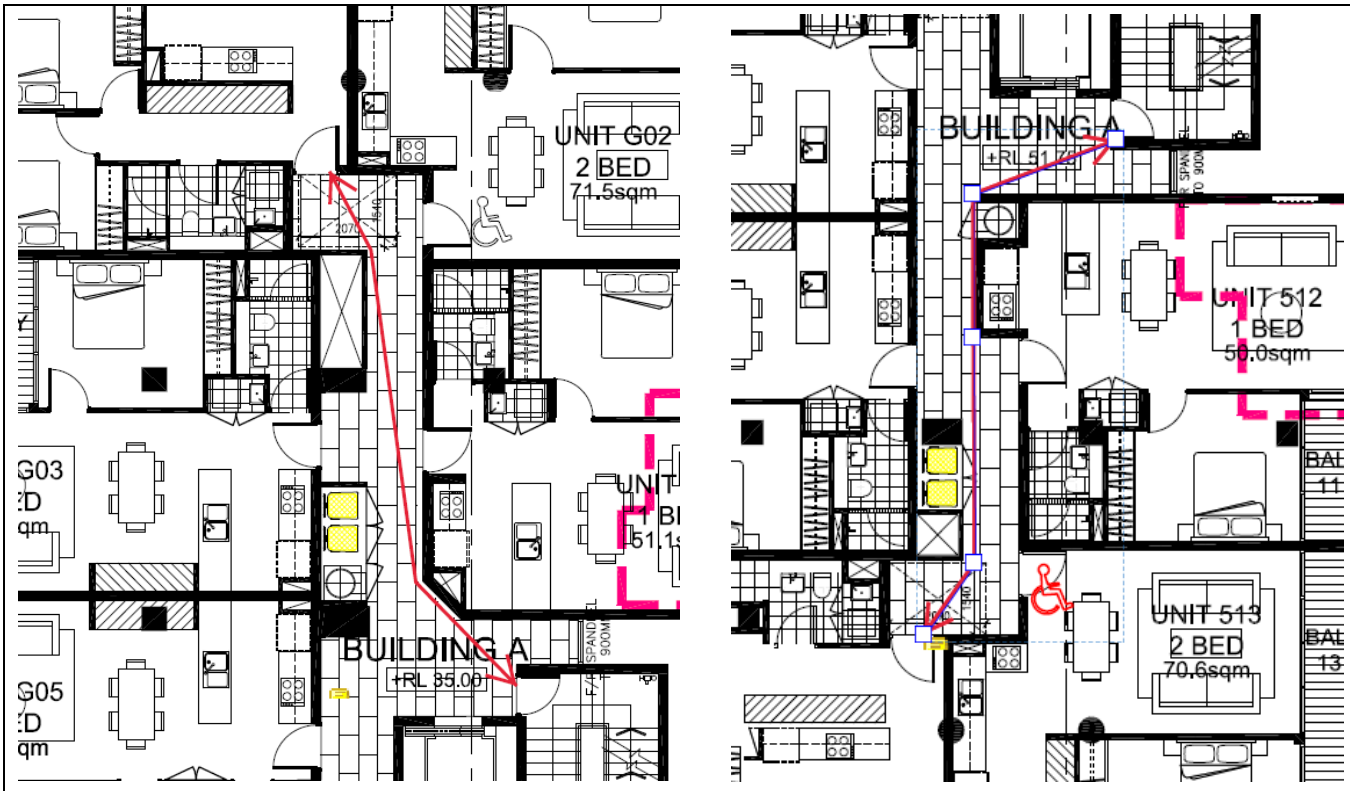
(v) the *required exit* does not provide access to or egress for, and is separated from, the extra *storey* by construction having—

(A) an FRL of –/60/60, if non-*loadbearing;* and

(B) an FRL of 90/90/90, if *loadbearing*; and

(C) no opening that could permit the passage of fire or smoke.

D1.4	Exit travel distances	PS	In some locations within the proposed residential portions of the building travel distances exceed the DTS travel distance provisions. In this respect an performance solution may be obtained to justify extended travel distances and be provided for assessment by the Certifying Authority at Construction Certificate stage.

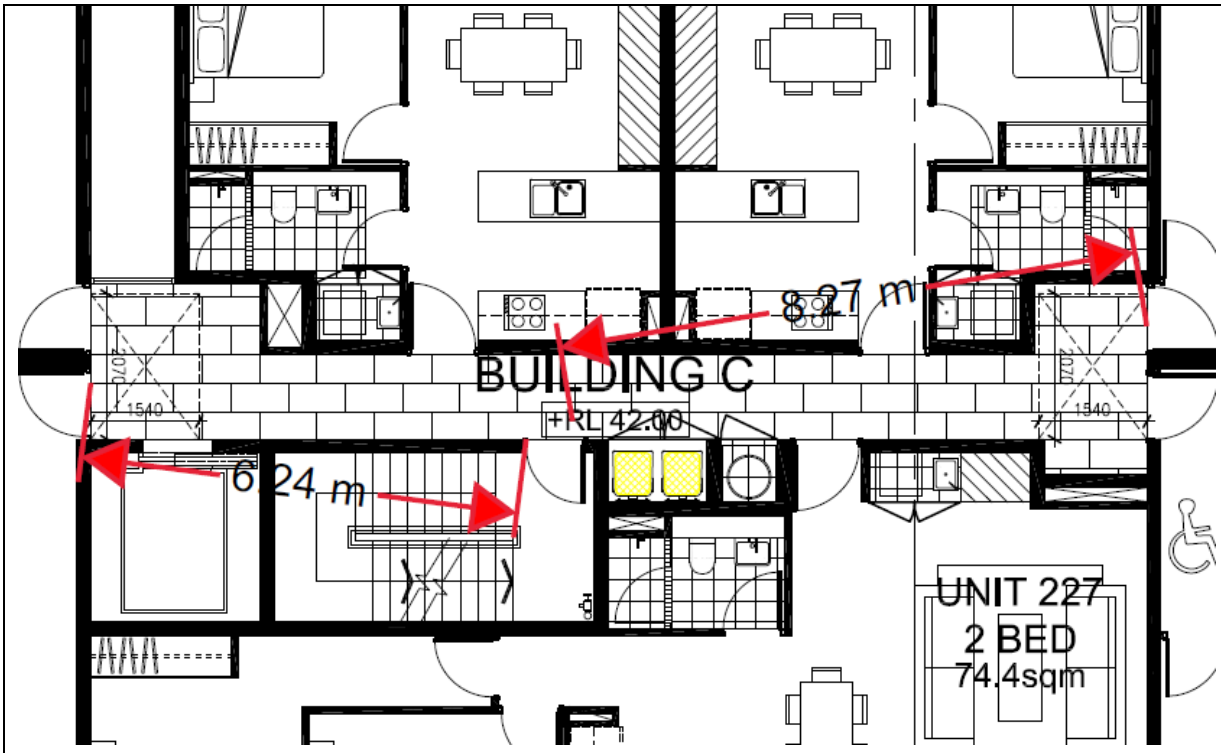


Building A – Western and Eastern Isolated Stair:

- Approximately 13m to an exit Ground to Level 5 (DTS = 6m) PS required.

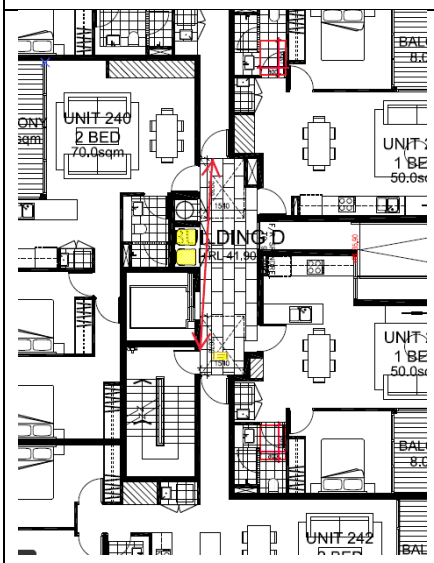
Building B – Isolated Stair:

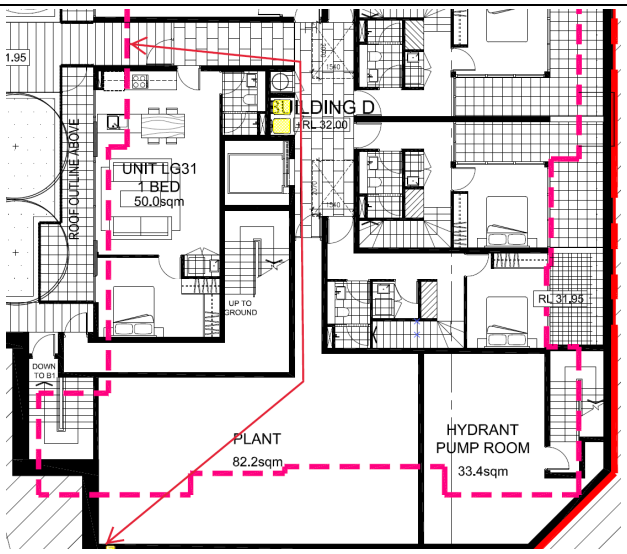
- Approximately 7m to an exit Ground to Level 4 (DTS = 6m) PS required.



Building C – Isolated Stair:

- Approximately 9m to an exit Level 1 to Level 4 (DTS = 6m) PS required.





Building D – Western and Eastern non - Isolated Stair:

- Approximately 7m to an exit Ground to Level 5 (DTS = 6m) PS required.
- The plant area on lower ground no longer connects to the egress stair, keeping the stair non-isolated yet travel distances from within the plant area exceed 20m to an exit. (28m)

D1.5	Distances between alternative exits	Complies	The alternative exits within the basement carpark are not more than 60m apart, and not more than 45m within the residential portion of the building.
D1.6	Dimensions of exits	CRA	In a required exit or path of travel, the unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway

			must be reduced to not less than 1980mm. The unobstructed width of each exit or path of travel to an exit except a doorway must not be less than 1m. The unobstructed width must be measured clear of all obstructions such as handrails, projecting parts of balustrades or other barriers and the like. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
D1.7	Travel via fire-isolated exits	AS	Occupants exiting isolated stairs pass by the building within 6m when traveling to 'open space'. In this respect an performance solution may be obtained to justify exposure distances and be provided for assessment by the Certifying Authority at Construction Certificate stage.

The building is served via several Fire Isolated Exits:

Building A:
Eastern Isolated Stair = A/S Needed
Western Isolated Stair = A/S Needed

Building B:
Eastern Isolated Stair = A/S Needed

Building C:
Eastern Isolated Stair = A/S Needed

Building D:
Eastern and Western Non-Isolated Stair = DTS

(Building D is 4 storeys, egress stairs connect 3 storeys (Ground, 1 and 2, yet do not connect to the 4th being lower ground, and is to be fire rated in accordance with D1.3)

Confirmation is needed to confirm if the egress path occupants use to reach open spaces does not pass within 6m horizontally and x 3m vertically of unprotected openings from the same building that is serving the Isolated Exit.

Where a choice of alternate direction in opposite direction pass different fire compartments is not possible, internal drenchers would be required in accordance with C3.4 if not part of a performance solution itself.

(c) Where a path of travel from the point of discharge of a fire-isolated *exit* necessitates passing within 6 m of any part of an *external wall* of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have—

(i) an FRL of not less than 60/60/60; and

(ii) any openings protected internally in accordance with C3.4,

for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

D1.8	External stairways in lieu of fire-isolated exits	N / A	
D1.9	Travel by Non-fire-isolated Stairways or ramps	Complies	Where non-fire-isolated stairways are provided, the distance between the doorway of a sole-occupancy unit to the point of egress to the road or open space, by way of a non fire-isolated exit, must not exceed 60m.

			Where non-fire-isolated stairways are provided to the carparking levels, the distance from any point on the floor to the point of egress to the road or open space, by way of a non fire-isolated exit, must not exceed 80m.
D1.10	Discharge from exits	CRA	Suitable barriers such as bollards are to be provided to prevent the blockage of exits by vehicles, etc. All external ramps that are used as a path from an exit to a road must have a gradient not steeper than 1:8 at any part. Details verifying compliance must be provided on plans prior to the issue of a Construction Certificate.
D1.11	Horizontal exits	N / A	
D1.12	Non-required stairs, ramps or escalators	N / A	
D1.13	Number of persons accommodated	Noted	
D1.14	Measurement of distance	Noted	
D1.15	Method of measurement	Noted	
D1.16	Plant rooms and lift machine rooms: Concession	N / A	
D1.17	Access to lift pits	CRA	Access to lift pits where the pit depth is not more than 3m must be through the lowest landing doors. Lift pits with a depth of more than 3m must have an access doorway that is level with the pit floor and not be less than 600mm wide by 1980mm high. Access to the doorway must be by a stairway complying with AS 1657. Doors must be horizontal sliding or outward opening and be self-closing and self-locking from the outside and be provided with signage on the landing side in letters not less than 35mm high stating: **"DANGER LIFTWELL- ENTRY OF UNAUTHORISED PERSON PROHIBITED – KEEP CLEAR AT ALL TIMES"** Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.
Part D2 – Construction of Exits			
D2.1	Application of Part	Noted	
D2.2	Fire isolated stairs or ramps	CRA	A stairway or ramp (including any landings) that is required to be within a fire-resisting shaft must be constructed— a) of non-combustible materials; and b) so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of, the shaft. Details verifying compliance must be provided on plans and specifications prior to the issue of a Construction Certificate.
D2.3	Non-fire-isolated stairways and ramps	CRA	Required stairs that are not required to be within a fire-resting shaft are to be constructed of concrete, steel, or timber of specified minimum dimensions.

			Details verifying compliance must be provided on plans and specifications prior to the issue of a Construction Certificate.
D2.4	Separation of rising and descending stair flights	Complies	It appears that the ascending and descending fire isolated stairways are separated as required.
D2.5	Open access ramps and balconies	N / A	
D2.6	Smoke lobbies	N / A	
D2.7	Installations in exits and paths of travel	CRA	Electrical boards and the like are to be located within and enclosed by non-combustible construction or have a fire-protective covering with the doorway suitably sealed against smoke spreading from the enclosure. Details verifying compliance must be provided on plans and specifications prior to the issue of a Construction Certificate.
D2.8	Enclosure of space under stairs and ramps	CRA	The space below non fire-isolated stairs must not be enclosed to form a cupboard or similar enclosed space unless the enclosing walls have an FRL of not less than 60/60/60 and any doorway to the enclosed space is fitted with a self closing --/60/30 fire door. There is to be no form of cupboard or similar enclosed space within any of the fire-isolated stairways. Details verifying compliance must be provided on plans and specifications prior to the issue of a Construction Certificate.
D2.9	Width of stairways	Noted	Stairway width is to be measured clear of obstructions such as handrails, projecting parts of balustrades or other barriers and the like and extend to a height of not less than 2m.
D2.10	Pedestrian ramps	Noted	Ramps serving as a required exit must not have a gradient steeper than 1:8. If the ramp is required for disabled access under Part D3 it must comply with AS1428.1. The surface of the ramp must have a non-slip finish.
D2.11	Fire-isolated passageways	N / A	
D2.12	Roof as open space	CRA	Where exits discharges over the upper level basement roof slab, the slab must— a) have an FRL of not less than 120/120/120; and b) not have any rooflights or other openings within 3 m of the path of travel of persons using the exit to reach a road or open space. Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.
D2.13	Goings and risers	CRA	Stairs are to have risers measuring between 115-190mm and goings between 250-355. Goings and Risers are to satisfy the equation of 2R+G=700(max) and 550(min). Goings and risers are to be consistent throughout in one flight. Any gap between risers must not permit a 125mm sphere to pass through it. All treads to be fitted with non-slip finish or non-skid strips.

<table>
<tr><td>D2.14</td><td>Landings</td><td>CRA</td><td>Landings must comply with the requirements of Clause D2.14 of the BCA. Landings must be not less than 750mm long and have a slip-resistance strip near the edge of the landing where it leads to a flight below.</td></tr>
<tr><td colspan="4">Table D2.14 SLIP-RESISTANCE CLASSIFICATION
<table>
<tr><th rowspan="2">Application</th><th colspan="2">Surface conditions</th></tr>
<tr><th>Dry</th><th>Wet</th></tr>
<tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr>
</table></td></tr>
<tr><td>D2.15</td><td>Thresholds</td><td>CRA</td><td>A threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless:
The door opens to a road or open space, external stair landing or external balcony and the doorsill is not more than 190mm above the finished surface of the ground balcony or the like to which the door opens.
Note: all common stairs must have no step in the threshold, including stairs off isolated stairs.</td></tr>
<tr><td>D2.16</td><td>Balustrades</td><td>CRA</td><td>Balustrades complying with Deemed-to-Satisfy provisions of the BCA are to be provided to where the level of the surface below is 1m or more. Balustrades must also be provided where the level of the surface beneath is more than 4m where it is possible for a person to fall through an openable window.

Where the level of the surface below is 4m or more, a balustrade or other barrier must not facilitate climbing of horizontal elements between 150mm and 760mm above the floor.

Any opening in the balustrade must not permit a 125mm sphere to pass through the balusters.

Wire balustrades must be constructed to comply with Clause D2.16(h) and Tables D2.16a and D2.16b.

Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.</td></tr>
<tr><td>D2.17</td><td>Handrails</td><td>CRA</td><td>Handrails are to be provided to at least one side of stair flights and located not less than 865mm above the nosings of stair treads and the floor surfaces of landings.

Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.</td></tr>
<tr><td>D2.18</td><td>Fixed platforms walkways, stairways and ladders</td><td>CRA</td><td>Fixed platforms, walkways, stairways, ladders, landings, handrails, balustrades and any tread or riser in a plant room, lift motor room or the like is to comply with AS1657.

Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.</td></tr>
</table>

D2.19	Doorways and doors	Complies	Swinging doors are proposed throughout the building.
D2.20	Swinging doors	CRA	All exit doors are to swing in the direction of egress as required and are not to encroach more than 500mm of the required width in the fire-isolated and non fire-isolated stairways. Details verifying compliance must be provided on plans and specifications prior to the issue of a Construction Certificate.
D2.21	Operation of latch	CRA	The latch of a door in a required exit, forming part of a required exit or in the path of travel is to be readily openable without a key from the side of that faces a person seeking egress. It is to have a single downward action or pushing action and to be located between 900mm and 1100mm from the floor. Details verifying compliance must be provided on plans and specifications prior to the issue of a Construction Certificate.
D2.22	Re-entry fire-isolated exits	N / A	
D2.23	Signs on doors	CRA	Fire Door and Smoke Door signage is required to be provided to all doors giving access to and egress from the fire isolated stairways. Also, Offences signage is to be installed adjacent to the fire isolated stair doors in accordance with Clause 183 of the *Environmental Planning and Assessment Regulation 2000*.
D2.14	Protection of Openable Windows	CRA	All window openings throughout the development must be provided with protection, if the floor below the window is 2m or more above the surface beneath is a Class 2 building. Where the lowest level of the window opening is less than 1.7m above the floor, the operable portion of the window must be protected with a device capable of restricting the window opening or a screen with secure fittings. **A device or screen must:** Not permit a 125mm sphere to pass through the window opening or screen; Resist an outward horizontal action of 250N against the window restraining device or screen protecting the opening; and Have a child restraint release mechanism if the screen or device is able to be removed, unlocked or overridden. A barrier with a height not less than 865mm above the floor is required to an openable window in addition to window protection, when a child resistant release mechanism is required and where the floor below the window is 4m or more above the surface beneath if the window is not provided with protection. The barrier must not permit a 125mm sphere to pass through it and must not contain any horizontal or near horizontal elements between 15mm and 760mm above the floor that facilitate climbing. Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.

SECTION D3 – ACCESS FOR PEOPLE WITH DISABILITIES			
D3.0	Deemed-to-Satisfy Provisions	Note	Disability (Access to Premises — Buildings) Standards 2010 is to be read in conjunction with the BCA. Compliance with the Access Codes appears to be achieved.
D3.1	General Building Access Requirements	CRA	Buildings and parts of buildings must be accessible as required by Table D3.1, unless exempted by D3.4 Compliance with Part D3 of the BCA is applicable to this building. All common areas are also to facilitate access in accordance with AS1428.1. From a **pedestrian entrance** required to be accessible, at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level and to and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, swimming pool, common laundry, games room, individual shop, eating area, or the like. Where a ramp complying with AS 1428.1 or a passenger lift is installed— **(a) to the entrance doorway of each sole-occupancy unit; and** (b) to and within rooms or spaces for use in common by the residents, located on the levels served by the lift or ramp. **Areas required to be accessible:** Access to the buildings garbage room is a common facility and is required to be accessible. Access to the storage areas throughout the ground floor carpark is required and appears not have been proved. Access into the commercial tenancy is required to be 100% wheelchair accessible. Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate alternatively an access Performance Solution can be undertaken.

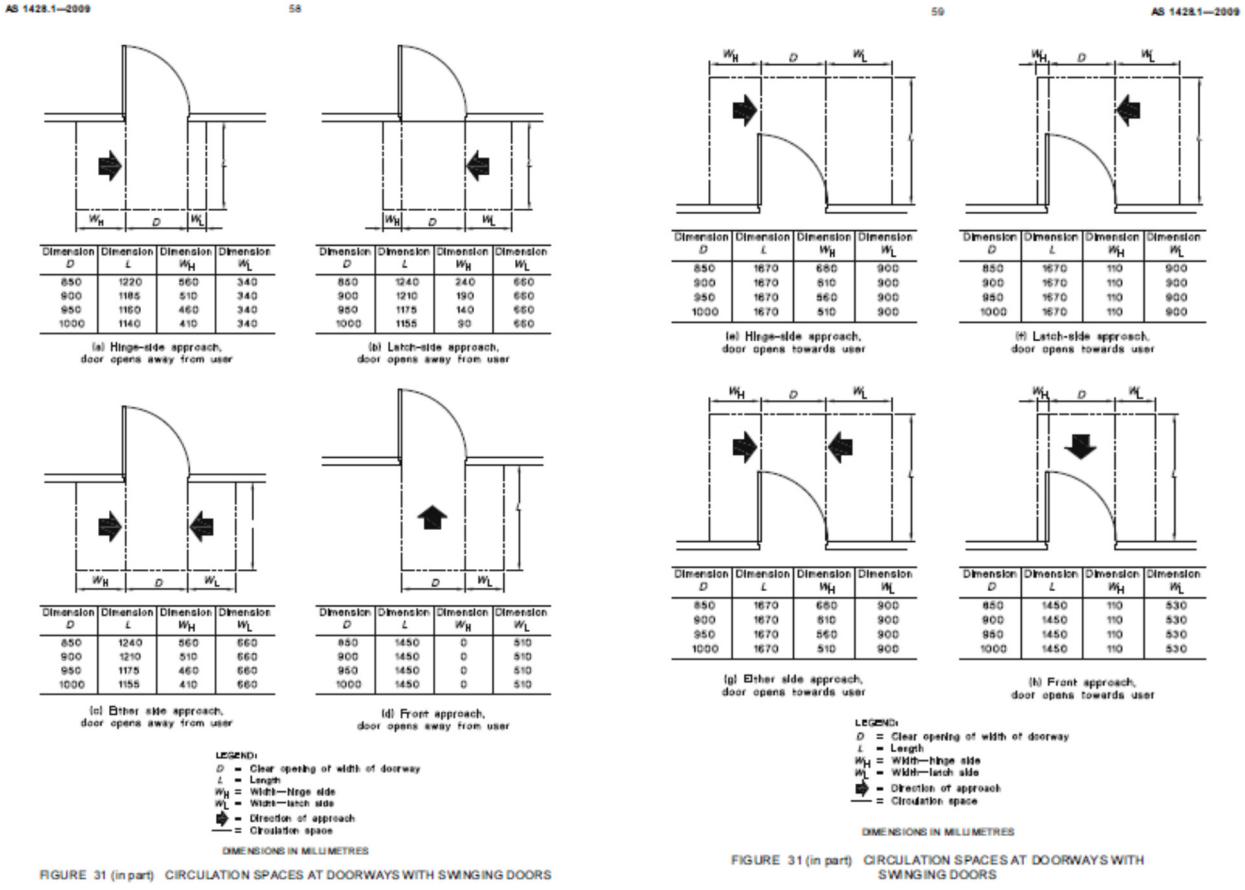
Architects/Designers Note: AS1428.1 is very detailed, please ensure that your design has been checked and rechecked as to full compliance .I.e.:

- *All doors are to be a minimum of a clear opening width of not less than 850 mm and the required circulation spaces around doors to be accessible in accordance with AS 1428.1*
- *Door hardware is to a 'D' grasping style, 20N force to open and close all doors.*
- *Walkways, corridors also must be compliant for dead areas, wheelchair passing and splayed corners.*
- *Doors and doorways need to have 30% luminance contrasting to distinguish door locations,*

- *All Glazing other than windows needs 30% luminance contrasting, The contrasting line shall be not less than 75 mm wide and shall extend across the full width of the glazing panel. The lower edge of the contrasting line shall be located between 900 mm and 1000 mm above the plane of the finished floor level. Any contrasting line on the glazing shall provide a minimum of 30% luminance contrast when viewed against the floor surface or surfaces within 2 m of the glazing on the opposite side.*
- *All stairs excluding the fire isolated stair are to incorporate the required double handrail, downturns, solid treads, colour contrast nosing strips and TGSI's.*

Floor surfaces and junction points are all smooth and comply with slip resistant levels.

Please note: D3 requires access just to the SOU door, not within the unit unless the unit is Adaptable, where passing through is also required. (850mm clear min)



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Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1220	560	340
900	1185	510	340
950	1160	460	340
1000	1140	410	340

(a) Hinge-side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	240	660
900	1210	190	660
950	1175	140	660
1000	1155	90	660

(b) Latch-side approach, door opens away from user

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

LEGEND:
D = Clear opening of width of doorway
L = Length
W_H = Width—hinge side
W_L = Width—latch side
= Direction of approach
= Circulation space

DIMENSIONS IN MILLIMETRES

FIGURE 31 (in part) CIRCULATION SPACES AT DOORWAYS WITH SWINGING DOORS

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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

(e) Hinge-side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	110	900
900	1670	110	900
950	1670	110	900
1000	1670	110	900

(f) Latch-side approach, door opens towards user

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

LEGEND:
D = Clear opening of width of doorway
L = Length
W_H = Width—hinge side
W_L = Width—latch side
= Direction of approach
= Circulation space

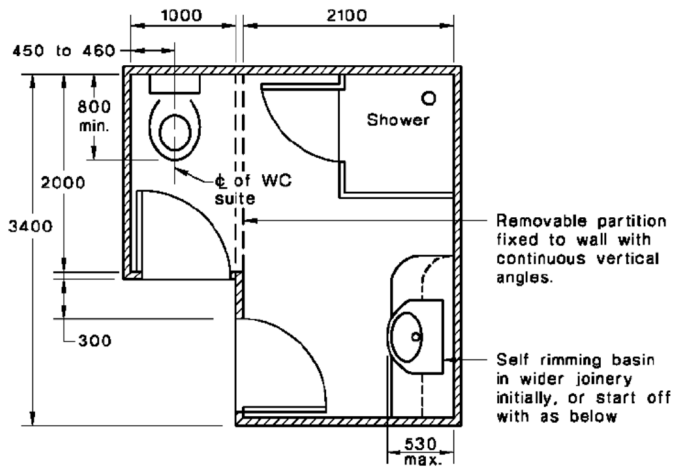
DIMENSIONS IN MILLIMETRES

FIGURE 31 (in part) CIRCULATION SPACES AT DOORWAYS WITH SWINGING DOORS

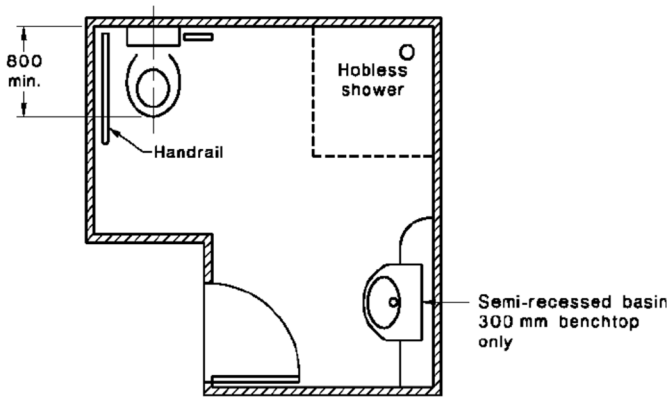
As this building is to incorporate adaptable units under Councils DCP, each adaptable unit is to incorporate two set of plans, one showing the general layout and the other showing the adaptable layout. This is a requirement of AS4299-1995.

Design notes:

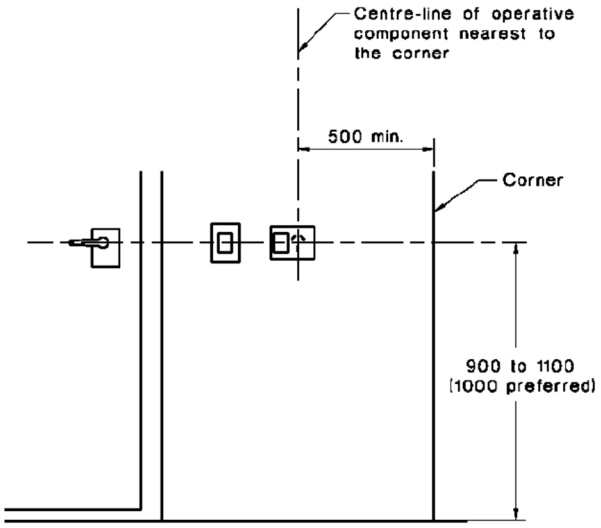
- All window sills to adaptable should try to be 600 - 730mm from the finished floor level.
  Note spandrel protection if windows are below and 1m balustrade matters.
- Power outlets and telephone sockets shall be also adjustable.
- There is a checklist under the Appendix of AS4299-1995

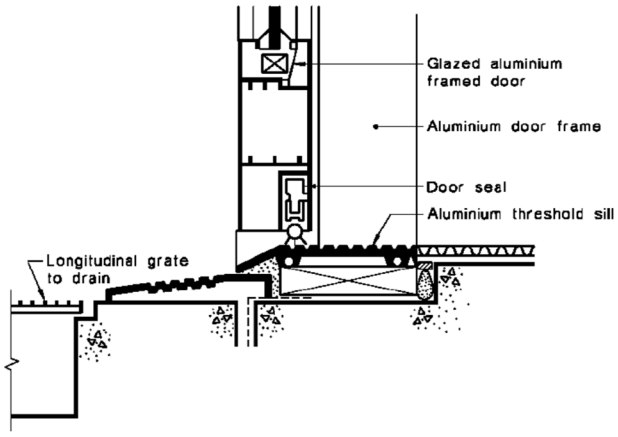


(a) Before adaptation



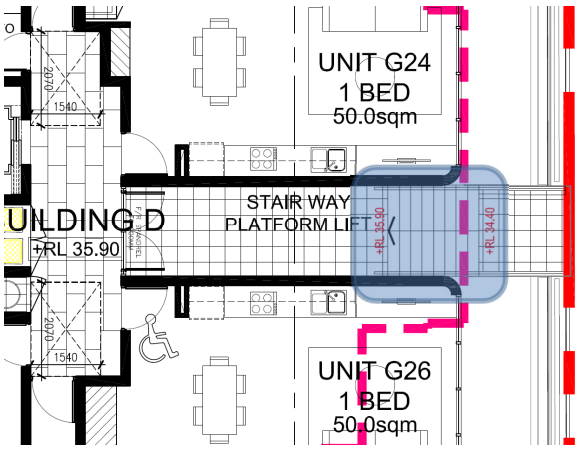
(b) After adaptation





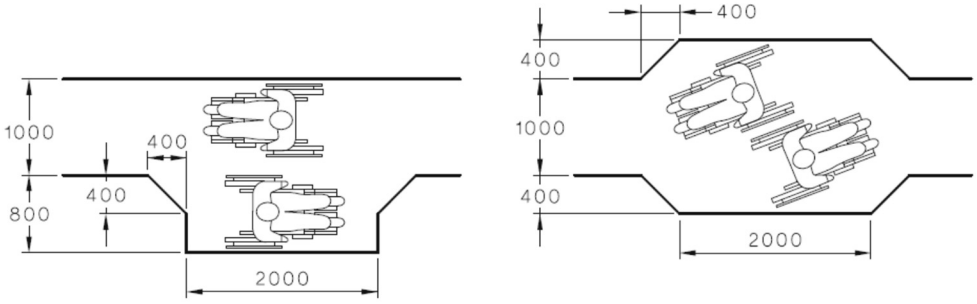
(b) Aluminium-framed door

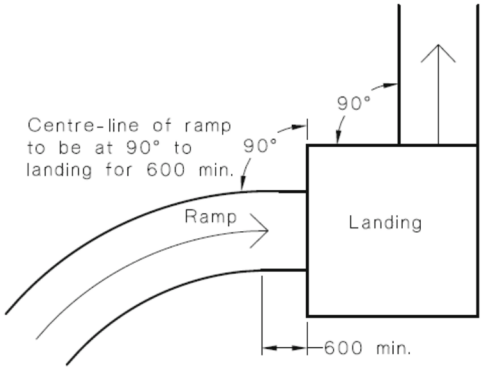
D3.2	Access to Buildings	CRA	An accessway/s has been provided from Principal Pedestrian Entry (PPE) areas. The use of a platform lift in accordance with AS 1735.14 Low-rise platform lift is allowed for this building and is limited to 1m. The residential parts of the building are deemed to have only one entry, the fire isolated exits are for egress purposes only. All doors are to be a minimum of a clear opening width of not less than 850 mm and the required circulation spaces around doors to be accessible in accordance with AS 1428.1 including SOU doors to storey serviced via a lift. All stairs excluding fire isolated stair are to incorporate the required double handrail, downturns, colour contrast nosing strips and TGSI's. Nosing to stairs within the fire isolated passage are to have a colour contrasting strip.

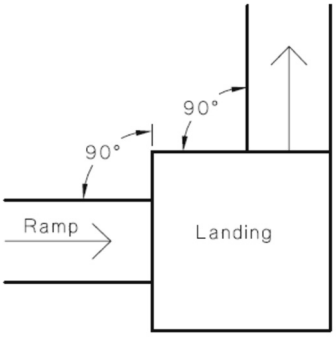
			Final design details of wheelchair access to this part are to be provided at the final Construction Certificate stage.
			
D3.3	Parts of Buildings to be accessible	CRA	Final details to be provided detailing floor services and materials are to be provided at the Construction Certificate stage or noted on the plans.

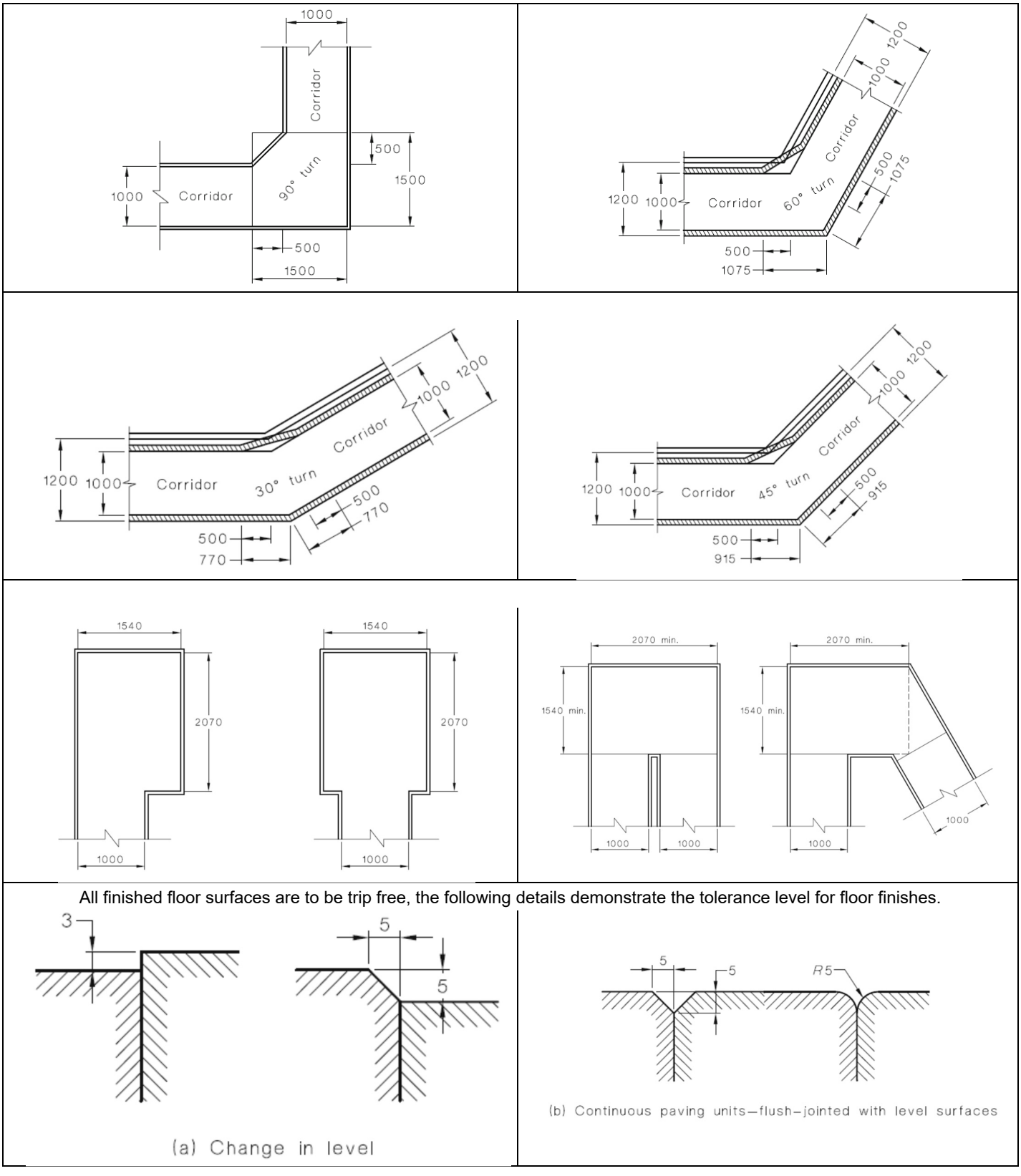
Stairway platform lift	Must not— (a) be used to serve a space in a building accommodating more than 100 persons calculated according to **D1.13**; or (b) be used in a high traffic public use area such as a theatre, cinema, auditorium, transport interchange, shopping centre or the like; or (c) be used where it is possible to install another type of passenger lift; or (d) connect more than 2 *storeys*; or (e) where more than 1 stairway lift is installed, serve more than 2 consecutive *storeys*; or (f) when in the folded position, encroach on the minimum width of a stairway *required* by **D1.6**.

Passing Spaces for Wheelchairs are to be provided in corridors longer than





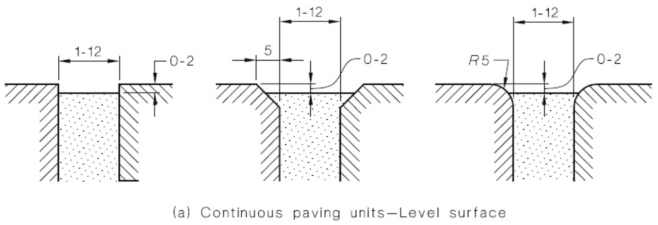




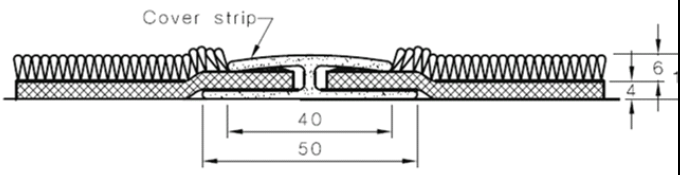
All finished floor surfaces are to be trip free, the following details demonstrate the tolerance level for floor finishes.

(a) Change in level

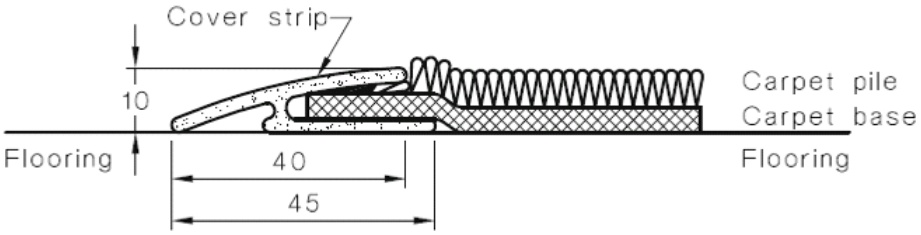
(b) Continuous paving units—flush-jointed with level surfaces



(a) Continuous paving units—Level surface



Note: BCA Clause D3.3 changes the above to 11mm, 4mm and 15mm respectively.



Note: BCA Clause D3.3 changes the above to 11mm, 4mm and 15mm respectively.

As Occupants may pass under these stairs, they must be obstructed or have TGSI's installed to warn of overhead obstructions.

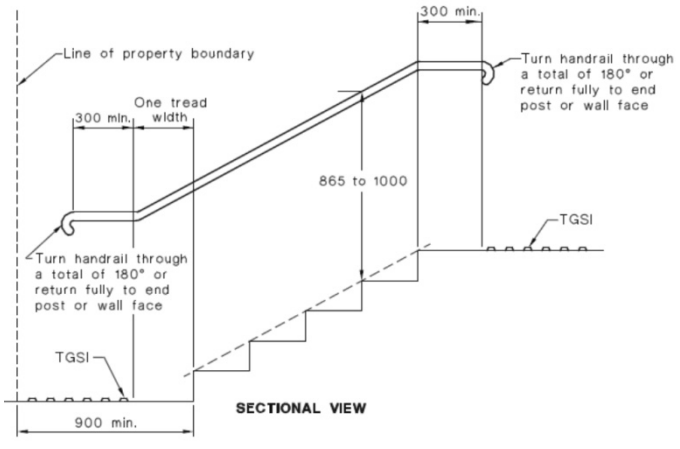
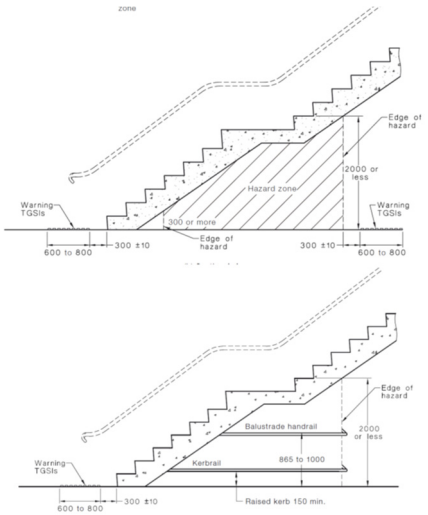
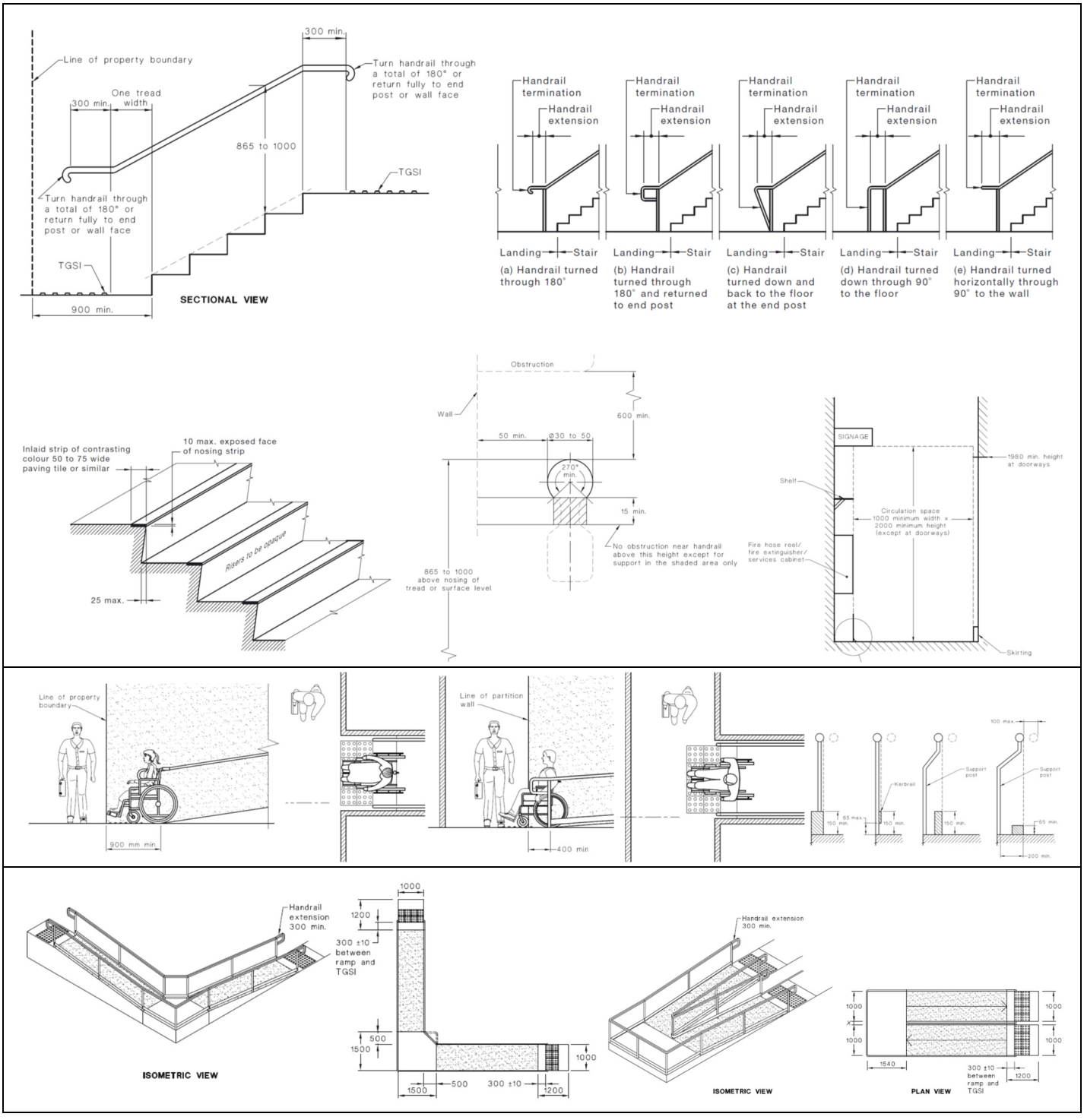


FIGURE 26(A) STAIRWAY LOCATION AND HANDRAIL EXTENSIONS AT BOUNDARY



Tactile or TGSI's are to be installed correctly to all stairs and ramps. These TGSI's are to be re-installed to the correct distance from the noseing and the height from the FFL.

The floor surface is to be cut to allow the TGSI mat to be fixed to the slab and provide the correct height.


300 min.
Line of property boundary
One tread width
300 min.
Turn handrail through a total of 180° or return fully to end post or wall face
865 to 1000
TGSI
Turn handrail through a total of 180° or return fully to end post or wall face
TGSI
900 min.
SECTIONAL VIEW
Handrail termination
Handrail extension
Landing
Stair
(a) Handrail turned through 180°
(b) Handrail turned through 180° and returned to end post
(c) Handrail turned down and back to the floor at the end post
(d) Handrail turned down through 90° to the floor
(e) Handrail turned horizontally through 90° to the wall
Inlaid strip of contrasting colour 50 to 75 wide paving tile or similar
10 max. exposed face of nosing strip
Risers to be opaque
25 max.
Obstruction
Wall
600 min.
50 min.
Ø30 to 50
270° min.
15 min.
No obstruction near handrail above this height except for support in the shaded area only
865 to 1000 above nosing of tread or surface level
SIGNAGE
1980 min. height at doorways
Shelf
Circulation space 1000 minimum width x 2000 minimum height (except at doorways)
Fire hose reel/ fire extinguisher/ services cabinet
Skirting
Line of property boundary
900 mm min.
Line of partition wall
400 min
100 max.
Kerbrail
Support post
65 min.
150 min.
200 min.
Handrail extension 300 min.
1000
1200
300 ±10 between ramp and TGSI
500
1500
ISOMETRIC VIEW
Handrail extension 300 min.
ISOMETRIC VIEW
1540
PLAN VIEW

Extraction from Standards Australia Handbook 197:1999

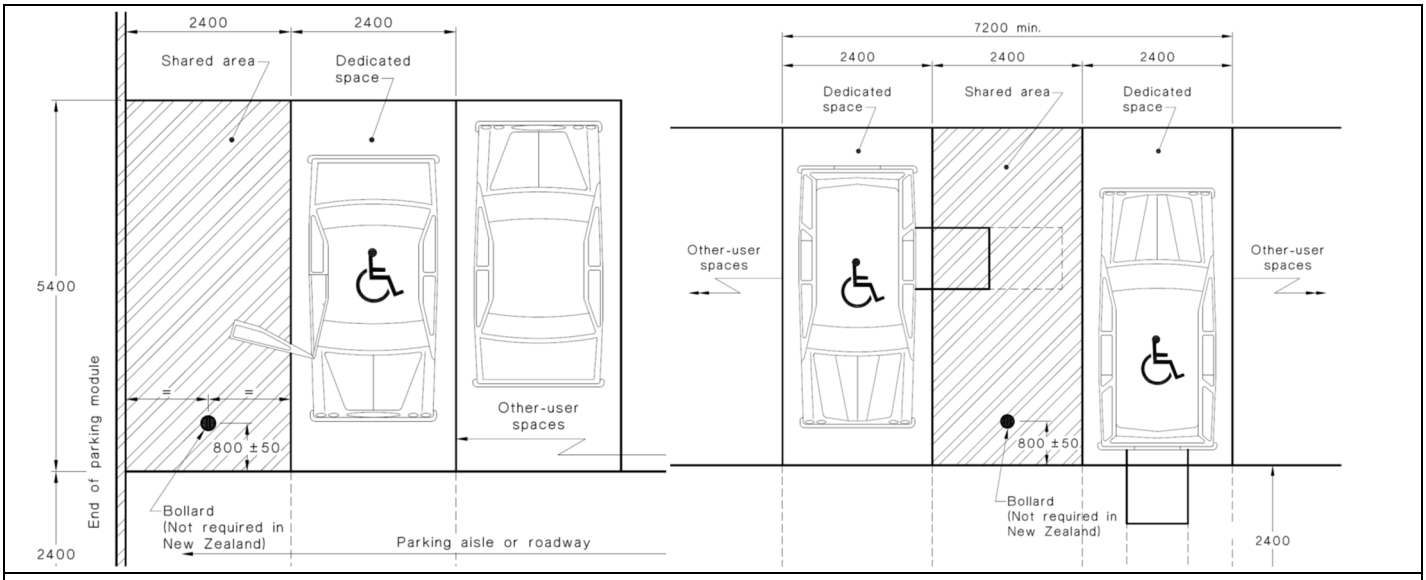
TABLE 3

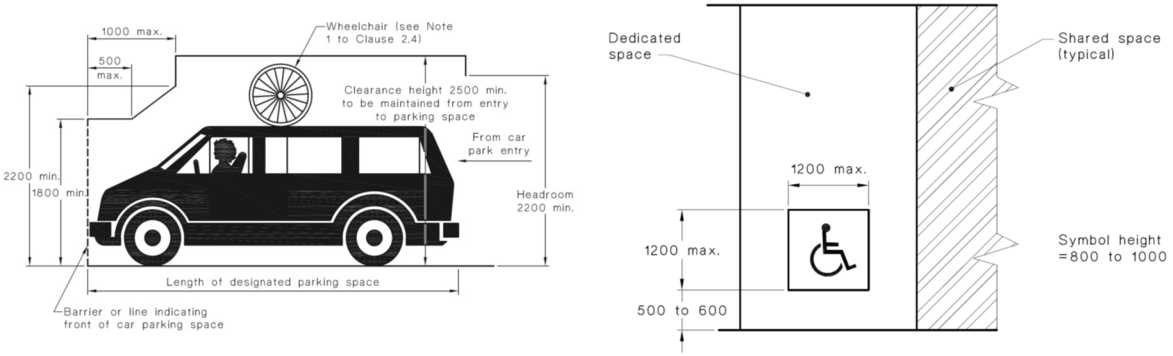
PEDESTRIAN FLOORING SELECTION GUIDE – MINIMUM PENDULUM OR RAMP RECOMMENDATIONS FOR SPECIFIC LOCATIONS

Location	Pendulum	Ramp
External colonnade, walkway and pedestrian crossings	W	R10
External ramps	V	R11
Entry foyers hotel, office, public buildings - wet	X	R10
Entry foyers hotel, office, public buildings - dry	Z	R9
Shopping centre excluding food court	Z	R9
Shopping centre – food court	X	R10
Internal ramps, slopes (greater than 2 degrees) - dry	X	R10
Lift lobbies above external entry level	Z	R9
Other separate shops inside shopping centres	Z	R9
Other shops with external entrances – entry area	X	R10
Fast food outlets, buffet food servery areas	X	R10
Hospitals and aged care facilities – dry areas	Z	R9
Hospital and aged care facilities – ensuites	X	A or R10
Supermarket aisles except fresh food areas	Z	R9
Shop and supermarket fresh fruit and vegetable areas	X	R10
Communal changing rooms	X	A
Swimming pool surrounds and communal shower rooms	W	B
Swimming pool ramps and stairs leading into water	V	C
Toilet facilities in offices, hotels, shopping centres	X	R10
Undercover concourse areas of sports stadium	X	R10
Accessible internal stair nosings (dry) – handrails present	X	R10
Accessible internal stair nosings (wet) – handrails present	W	B or R11
External stair nosings	W	R11

D3.4	Exemptions	Noted	The following areas are not required to be accessible: (a) An area where access would be inappropriate because of the particular purpose for which the area is used, (b) An area that would pose a health or safety risk for people with a disability (c) Any path of travel providing access only to an area exempted by (a) or (b)
D3.5	Accessible Carparking	CRA	Car-parking spaces have been provided to the building which are ancillary to the use. The car space still must comply with the space requirements of AS2890.6 form person with a disability.

Show Accessabel and Adaptable Carpaseces. **Note**: 'Accessable' and 'Adatable' car spaces are different sizes. Accessable sizes are indicated below asper AS2890.6, Adaptable are the old Accessable Spaces.	As this building is to incorporate adaptable units, usually each unit is to be allocated a carspace being in accordance with AS2890.6 and/or as per AS4299-1995. If a carspace is to be desinated as accessable, the entire sharde zone should be provided in accordance with AS2890.6. Designer to verify compliance prior to the issue the Construction Certificate. **CAR PARKING under - AS 4299-1995** **I.e: Adaptable Unit Car Space** General Private car parking spaces shall be large enough to enable a person with a wheelchair to get in and out of both the car and the parking space. A car parking space width of 3.8 m minimum is necessary to enable a driver to alight, open the passenger side door, and assist a person with a disability into a wheelchair, or for a side-loading ramp. A 3.8 m, minimum width is also required for a driver with a disability to unload a wheelchair and to alight. A roof to the car parking space is desirable. **NOTE**: If it is required to unload the wheelchair within the garage, an internal vertical clearance of 2.5 m is necessary to operate a car roof wheelchair unit. Garages and carports Garages and carports shall have minimum internal dimensions of 6.0 m × 3.8 m. A 2.5 m internal vertical clearance is desirable. A garage may be reduced if a hard surfaced level outside space of minimum dimensions 5.4 m × 3.8 m is provided as a sheltered carpark, or can be provided in the future. Provision for a power operated roller door is desirable. **NOTE**: A level surface includes surfaces with a gradient of up to 1:40.





Public Car Spaces Under AS2890.6

Each dedicated space shall be identified by means of a white symbol of access in accordance with AS 1428.1 between 800 mm and 1000 mm high placed on a blue rectangle with no side more than 1200 mm, placed as a pavement marking in the centre of the space between 500 mm and 600 mm from its entry point as illustrated.

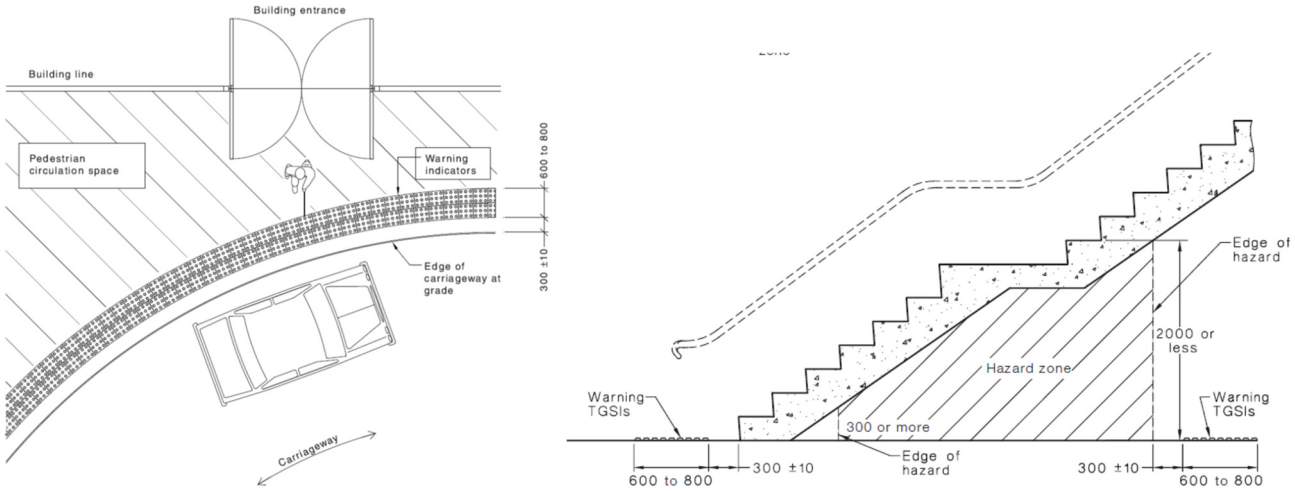
General Compliance with AS2890.1

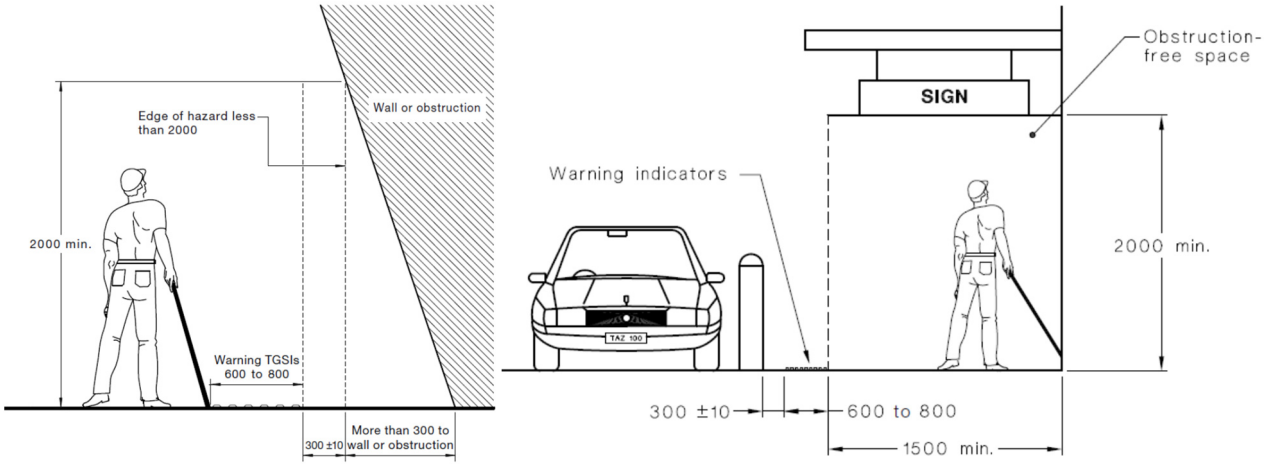
Signage is to be provided to all entrance point to a Carpark where a clearance of 3.0 metres or less (if only cars or light vans are likely to use the facility) or 4.6 metres or less (in all other cases), is provided.

D3.6	Signage Note: BCA Change: 2013 'Exits' must have Brail to identify occupant's location within a building.	CRA	In a building required to be accessible – Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access or deadness, as appropriate, in accordance with AS1428.1 must identify each – – Sanitary facility, – Ambulant toilet facility, – Any required accessible carparking space, – Where needed, directional signage to any carparking space or sanitary facility. – At Each '**Exit'** and which '**Level'** an occupant is at also needs to be in brail. Where a bank of sanitary facilities is not provided with an accessible unisex sanitary facility, directional signage incorporating the

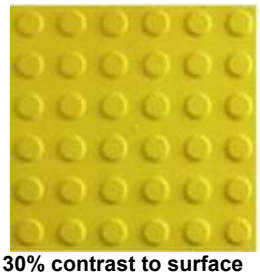
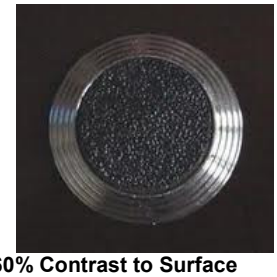
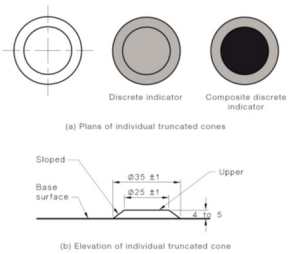
			international symbol of access in accordance with AS 1428.1 must be placed at the location of the sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex sanitary facility.

Please consult with your Access Consultant for the appropriate location and required directional signage.





D3.7	Hearing Augmentation	N / A	
D3.8	Tactile Indicators	CRA	For a building required to be accessible, tactile ground surface indicators must be provided to warn people who are blind or have a vision impairment in accordance with this clause. I.e.: – A stairway, other than a fire-isolated stairway, – An escalator,

			– A passenger conveyor of moving walk, – A ramp other than a fire-isolated ramp, step ramp, kerb ramp or swimming pool ramp, – In the absence of a suitable barrier an overhead obstruction less than 2m above floor level, other than a doorway. Tactile ground surface indicators required by (a) must comply with sections 1 and 2 of AS/NZS 1428.4.1
There are three (3) distinct types of TGSI, these each need to be assessed as to the most appropriate based on the surface it is to be applied and lighting conditions. AS1428.4.1 – 2009 clearly provides installation requirements.  **30% contrast to surface**  **45% Contrast to Surface**  **60% Contrast to Surface** 			
D3.9	Wheelchair Seating Spaces in Class 9b Assembly Buildings	N / A	
D3.10	Swimming Pools	N / A	
D3.11	Ramps	Noted	On an accessway – (a) A series of connected ramps must not have a combined vertical rise of more than 3.6m; and (b)A landing for a step ramp must not overlap a landing for another step ramp or ramp
D3.12	Glazing on an Accessway	CRA	On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights, and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1. Design verification to be provided prior to the issue of the Construction Certificate.
SECTION E – SERVICES AND EQUIPMENT			
Part E1 – Fire Fighting Equipment			
Clause	Description	Status	Comments
E1.1	-	-	No Provisions
E1.2	-	-	No Provisions
E1.3	Fire Hydrants	CRA	Fire Hydrant Coverage is required throughout the whole building in accordance with AS 2419.1. The hydrant booster system location on ground floor must comply with the requirements of AS 2419.1-2005. The pump alarm valve room located within basement 1 carpark appears to comply with the requirements of AS 2419.1-2005 and protection of the **Booster Assemblies**.

			Please note: If variations from AS2419.1 are required, a Clause 188 approval may be required to be submitted to the NSW Fire Brigade for approval, please allocate time for this process if required. Final plans and a design certificate from a qualified hydraulic engineer prior to the issue of a Construction Certificate.

AS2419.1:2005

3.2.2.2 Location External fire hydrants shall be located as follows:

(a) In a position that provides pedestrian access to the building for the fire brigade.

(b) When installed as a feed fire hydrant [See Figure 3.2.2.2(a), (b), (d) and (e)], within 20 m of a hardstand such that when a fire brigade pumping appliance is connected to it—

(i) all portions of the building shall be within reach of a 10 m hose stream, issuing from a nozzle at the end of a 60 m length of hose laid on the ground; and

(ii) a minimum of 1 m of hose shall extend into any room served.

(c) Where installed as an attack fire hydrant [see Figure 3.2.2.2(f)], within 50 m of a hardstand such that when connected directly to the external attack fire hydrant—

(i) all portions of the building shall be within reach of a 10 m hose stream, issuing from nozzle at the end of a 60 m length of hose laid on the ground; and

(ii) a minimum of 1 m of hose shall extend into any room served.

(d) Where installed in a system fitted with a fire brigade booster assembly and having feed fire hydrant performance only [see Figure 3.2.2.2(c)], within 20 m of a fire brigade pumping appliance located on a hardstand. All portions of the building shall be within reach of a 10 m hose stream, issuing from a nozzle at the end of 60 m length of hose laid on the ground with a minimum of 1 m of hose extending into any room served—

(i) where the hose is connected directly to the external fire hydrant; and

(ii) where the hose is connected to a fire brigade pumping appliance fed from the fire hydrant.

(e) In a position not less than 10 m from the building it is protecting unless safeguarded by construction—

(i) having a FRL of not less than 90/90/90;

(ii) extending 2 m each side of the fire hydrant outlet; and

(iii) extending not less than 3 m above the ground adjacent to the fire hydrant or the height of the building, whichever is the lesser.

(f) In a position not less than 10 m from any high voltage main electrical distribution equipment such as transformers and distribution boards, and from liquefied petroleum gas and other combustible storage.

(g) In a position so that the fire hydrant is not obstructed or obscured by obstacles, stored goods, vehicles, vegetation etc.

(h) In a position so that the fire hydrant is protected from possible mechanical damage by vehicles.

6.4 PUMPROOM

6.4.1 General

Pumprooms containing fixed on-site pumpsets and associated equipment shall be weatherproof and be—

(a) secure to prevent the entry of unauthorized persons;

(b) adequately ventilated for the aspiration and cooling of pump drivers;

(c) heated, where necessary, to prevent freezing and facilitate the cold start of compression ignition drivers;

(d) identified by appropriate signs and other visual and audible aids, so that the room and its entrance can be readily located by the attending fire brigade; and

(e) constructed with a minimum 2.1 m high internal clearance with adequate space for pump maintenance and replacement.

6.4.2 Internal pumprooms

Pumprooms located within a building shall have—

(a) a door opening to a road or open space, or a door opening to fire-isolated passage or stair which leads to a road or open space; and

(b) Except where the building is sprinklered in accordance with AS 2118.1, enclosing walls with an FRL not less than that prescribed by the BCA for a firewall for the particular building classification served by the fire hydrant system.

6.4.3 External Pumprooms

Pumprooms and enclosures, located external to and within 6 m of any building they are protecting, shall have enclosing walls with an FRL not less than that prescribed by the BCA for a firewall for the particular building classification served by the fire hydrant system.

Hardstand shall be provided within 20 m of the access door to the pumproom.

7.3 Fire Brigade Booster Assemblies

7.3 LOCATION

Fire brigade booster assemblies shall be located so that they meet the following requirements:

(a) They are readily accessible to firefighters.

(b) They are operable by fire brigade pumping appliances located within 8 m.

(c) If within, or affixed to, the external wall of the building, the booster shall be—

(i) within sight of the main entrance to the building; and

(ii) separated from the building by a construction with a fire resistance rating of not less than FRL 90/90/90 for a distance of not less than 2 m each side of and 3 m above the upper hose connections in the booster assembly

NOTE: An example of a booster assembly within the external wall of a building is shown in Figure 7.3.1.

(d) If remote from the building, the booster shall be—

(i) at the boundary of the site or within sight of the main entrance of the building;

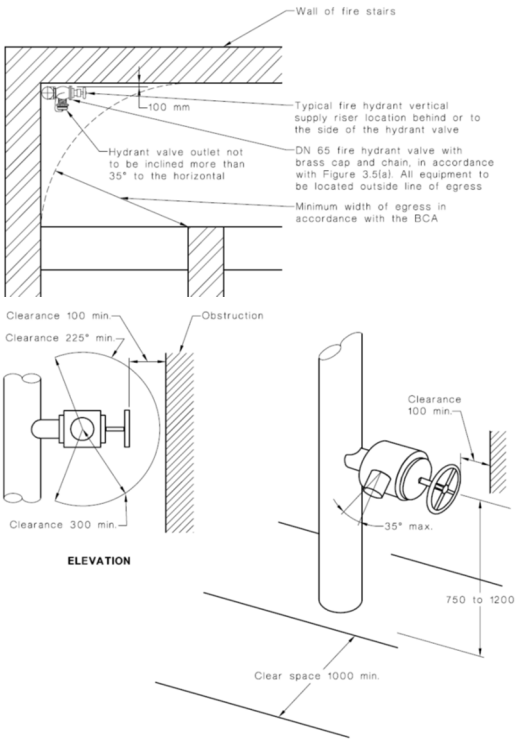
(ii) adjacent to the principal vehicular access to the site; and

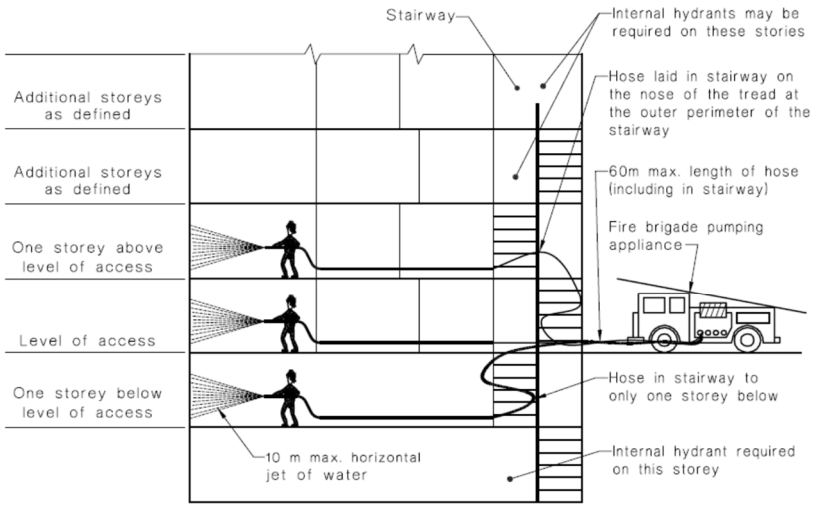
(iii) located not less than 10 m from the external wall of any building served

NOTE: An example of a booster assembly remote from a building is shown in Figure 7.3.2..

(e) The booster enclosure shall only contain firefighting pipework and equipment.

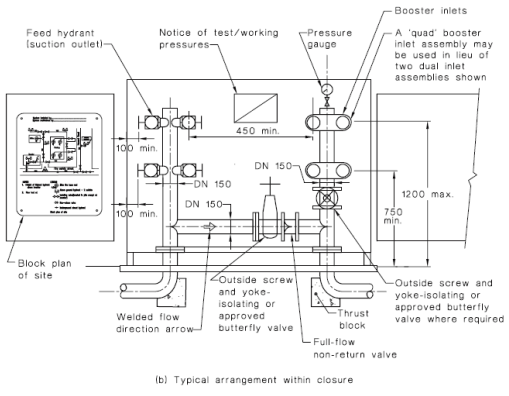
(f) In a position not less than 10 m from any high voltage main electrical distribution equipment such as transformers and distribution boards, and from liquefied petroleum gas and other combustible storage.





(g) Hose coverage from external hydrant (see Clause 3.2.2.1)

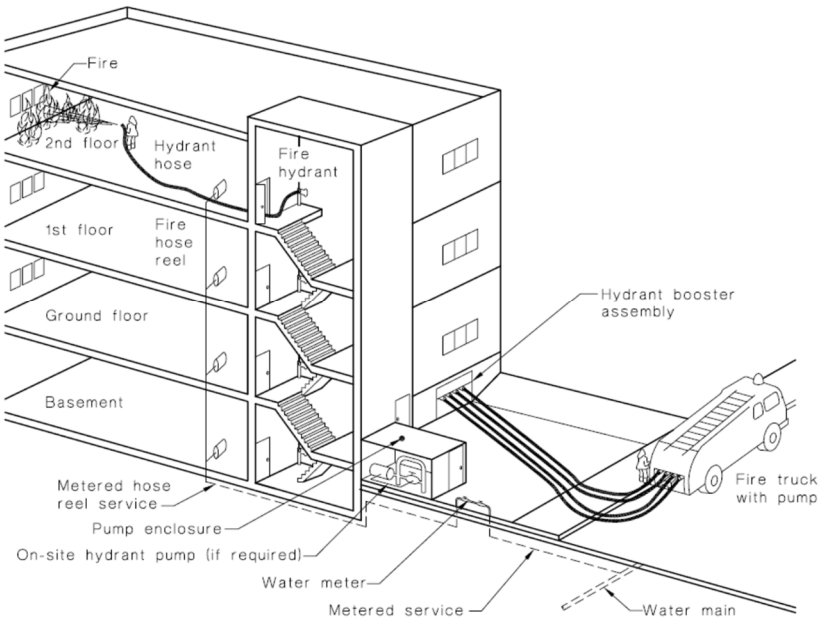
NOTE: Due to difficulties associated with fighting building fires, internal fire hydrants are required in fire-isolated stairs for levels more than one floor below ground and one or more levels above ground.



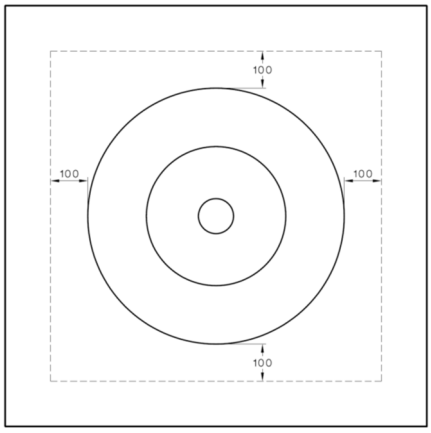
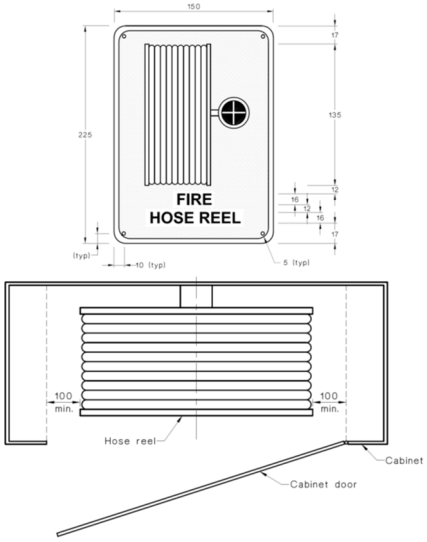
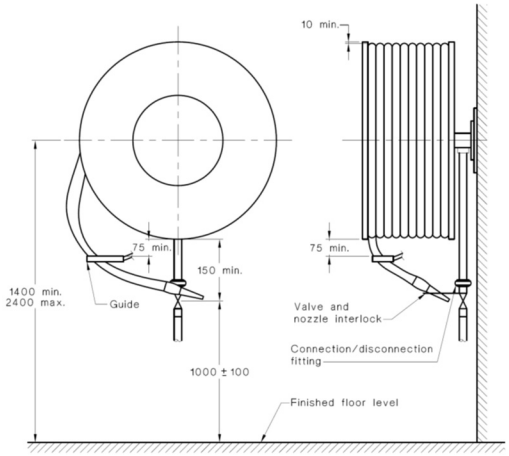
(b) Typical arrangement within closure

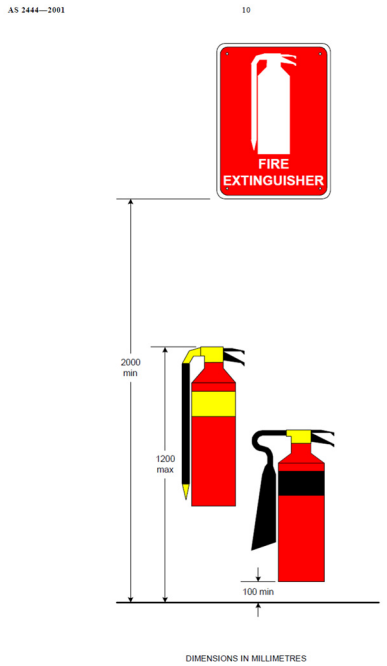
DIMENSIONS IN MILLIMETRES

FIGURE 7.4 (in part) TYPICAL BOOSTERS ARRANGEMENT (>50 kPa PRESSURE AT BOOSTER INLET)



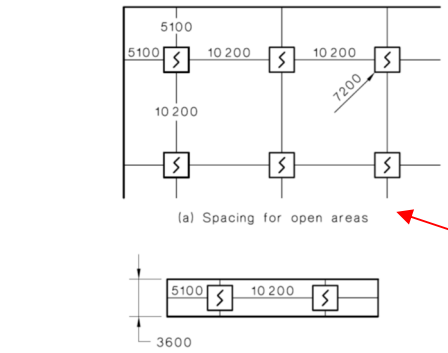
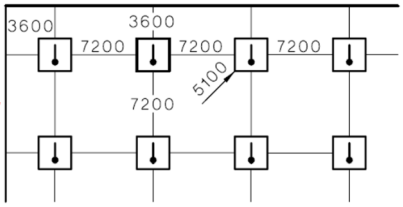
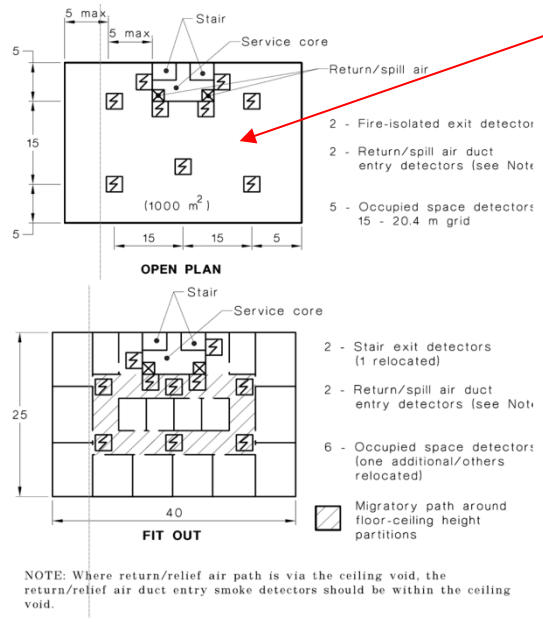
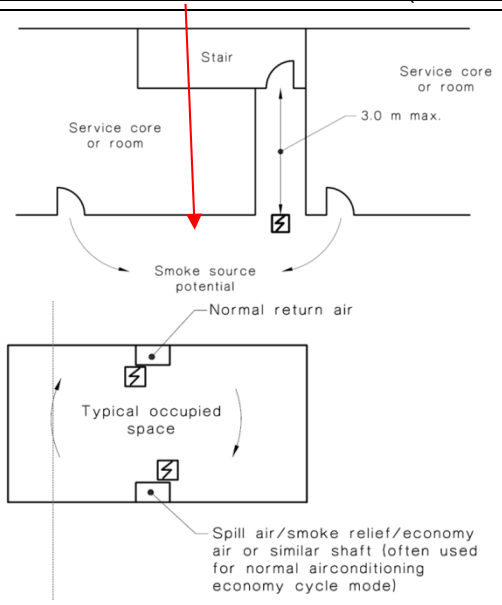
E1.4	Hose Reels	CRA	Fire hose reels coverage is required within the car park and retail potions of the building if a hydrant is located within the building. Where fire hose reels are located within the building, they are to be within 4m of an exit, additional hose reels may be provided for coverage purposes however are to be located in a path of travel to an exit. Fire hose reels are to be installed accordance with AS2441.

			Final plans and a design certificate from a qualified hydraulic engineer prior to the issue of a Construction Certificate. Note: Class 2 parts now do not required hose reel coverage under the current BCA if a 2.5kg fire extinguisher is located within 10m of each SOU.
			 (b) Front view DIMENSIONS IN MILLIMETRES FIGURE 10.2 FIXED HOSE REEL CLEARANCE   DIMENSIONS IN MILLIMETRES FIGURE 11.1 TYPICAL ARRANGEMENT OF FIXED TYPE HOSE REEL
E1.5	Sprinklers	CRA	The entire building is required to be sprinkler protected in accordance with Clause E1.5 and Specification E1.5 of the BCA as it achieves an effective height greater than 25m. The sprinkler system must activate a building Occupant Warning System (BOWS) provided in accordance with Clause 6 of Specification E2.2a as required by Clause 8 of Specification E1.5 of the BCA. The grade of the water supply to a required sprinkler system must not be less than Grade 1 for a building greater than 25m in effective height, except that a second water supply storage capacity of 25000L may be used if- ▪ The storage tank is located at the topmost story of the building; ▪ The building occupancy is classified as no more hazardous than Ordinary Hazard 2 (OH2) under As 2118.1; and ▪ An operational fire brigade service is available to attend a building fire. Where the sprinklers are installed in a space housing lift electrical and control equipment, including machine rooms, secondary floors and sheave rooms, they must be of the dry system type in accordance with AS2118.1. The location of the Sprinkler Valves Enclosures are also needed as they need to be accessible from open space or have direct access. Final plans and a design certificate from a qualified hydraulic engineer prior to the issue of a Construction Certificate.
E1.6	Portable fire extinguishers	CRA	Portable fire extinguishers are required to be provided in accordance with Table E1.6 of the BCA and AS 2444.

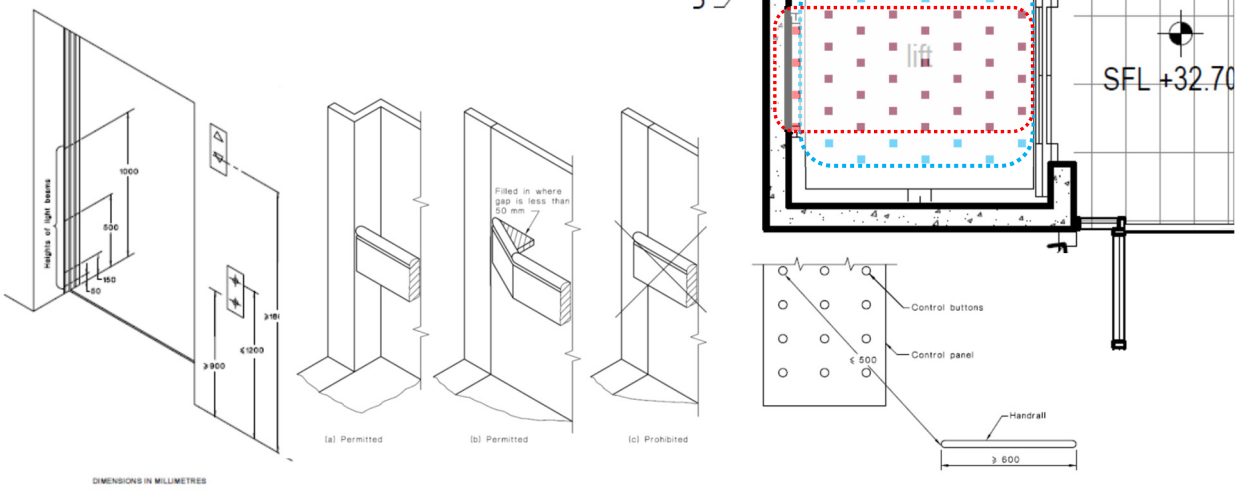
			For Class 2 or 3 buildings or Class 4 parts of a building portable fire extinguishers must be provided to serve the whole storey where one or more internal fire hydrants are installed and when fire hydrants are not installed to serve any fire compartment which a floor area greater than 500m^2(for the purposes of this Clause a Class 2, 3 or 4 parts of a building are considered to be a fire compartment. Portable fire extinguishers provided in a Class 2 or 3 building or Class 4 part of a building must be: • An ABE type fire extinguisher; and • A minimum size of 2.5kg; and • Distributed outside a sole-occupancy unit to serve the storey at which they are located and ensure that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10m. Details demonstrating compliance with this clause must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.
			 FIGURE 3.2 MOUNTING HEIGHTS FOR PORTABLE FIRE EXTINGUISHERS AND LOCATION SIGNS Signs are to be installed clearly over or directly adjacent to Portable fire extinguishers. – Each extinguisher shall be located in a conspicuous and readily accessible position. Extinguishers shall not be located in positions where access could present a hazard to the potential user. Where practicable, extinguishers shall be located along normal paths of travel and near exits. (Max 15m from each other etc) – Extinguishers Signs must be shown and shall be mounted not less than 2.0 m above floor level, or at a height that makes them most apparent to a person of average height and visual acuity approaching the extinguisher location. In addition to the location sign referred to in Clause 3.3 of AS2444, the cabinet or enclosure shall be marked with the words '**FIRE EXTINGUISHER**' in letters at least 32 mm high in a colour contrasting with the background unless the door has not less than 50% of its surface area fabricated from transparent material that permits visual identification of the cabinet's contents. Signs are to be installed clearly over or directly adjacent to Portable fire extinguishers. – Each extinguisher shall be located in a conspicuous and readily accessible position. Extinguishers shall not be located in positions where access could present a hazard to the potential user. Where practicable, extinguishers shall be located along normal paths of travel and near exits. (Max 15m from each other etc) – Extinguishers Signs must be shown and shall be mounted not less than 2.0 m above floor level, or at a height that makes them most apparent to a person of average height and visual acuity approaching the extinguisher location.
E1.7	-	-	No Provisions
E1.8	Fire control centres	N / A	It appears that a fire control centre facility has been on ground floor. The fire control facility must be provided in accordance with Specification E1.8 of the BCA.

			Details demonstrating compliance must be incorporated into the architectural drawings prior to the issue of a Construction Certificate.
E1.9	Fire precautions during construction	CRA	During construction, not less than one fire extinguisher to suit Class A, B and C fires is required for each storey, and is required to be located adjacent to each exit. After the building has reached an effective height of 12m: ▪ The required fire hydrants and fire hose reels must be operational in at least ever storey that is covered by the roof or the floor structure above, except the two (2) upper most storeys; and ▪ Any required booster connection must be installed. Details verifying compliance must be included on the architectural plans prior to the issue of the Construction Certificate.
E1.10	Provisions for special hazards	N / A	
Spec E1.8	Fire Control Centres (FCC)	N / A	**Location of fire control centre** A fire control centre must be so located in a building that egress from any part of its floor, to a public road or *open space*, does not involve changes in level which in aggregate exceed 300 mm. The egress from the ground floor FCC may involve a change in level which exceeds 300mm. designer to verify compliance prior to the issue of the Construction Certificate. **Equipment not permitted within a fire control centre** An internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings must not be located in a fire control centre, but may be located in rooms accessed through the fire control centre. Appears to comply with this requirement. **Ambient sound level for a fire control centre** (a) The ambient sound level within the fire control centre measured when all fire safety equipment is operating in the manner in which it operates in an emergency must not exceed 65 dB(A). (b) The measurement must be taken for a sufficient time to characterize the effects of all sound sources. Where there is not a great variation in noise level, a measurement time of 60 seconds may be used. Details verifying compliance must be included on the architectural plans prior to the issue of the Construction Certificate.

General Fire Service Signage			
FIRE HOSE REEL FIRE HYDRANT BOOSTER FIRE EXTINGUISHER SPRINKLER STOP VALVE INSIDE FIRE PANEL			FIRE HYDRANT PUMP – DO NOT SWITCH OFF SPRINKLER BOOSTER CONNECTION FIRE CONTROL ROOM
Part E2 – Smoke Hazard Management			
E2.1	Application of Part	Noted	Part is not applicable to • open deck car parks • open spectator stands
E2.2	General requirements	CRA	**Class 2 Parts of the Building** Each Class 2 SOU is to incorporate an AS3786 smoke alarm system which is connected to the consumer mains source and interconnected throughout the SOU. All common areas and class 6 parts should also be connected to a AS1670.1:20015 Smoke Detection and Alarm System connected to the BOWS. Details and a design certificate will be required by a qualified electrical engineer prior to the issue of a Construction Certificate. **Class 7a Carpark** The carpark levels are to be provided with a mechanical ventilation system in accordance AS 1668.2 and must comply with Clause 5.5 of AS 1668.1 except that: The fans with metal blades suitable for operation at normal temperature and electrical power and control cabling need not be fire rated. Upon activation of the BOWS, the fans are to run at full speed. Details and a design certificate will be required by a qualified electrical engineer prior to the issue of a Construction Certificate. **Building Occupant Warning System** **Clause 6 of Specification E2.2a** Subject to E4.9, a building occupant warning system provided as part of a smoke hazard management system must comply with Clause 3.22 of AS1670.1-2004 to sound throughout all occupied areas except: ▪ In a Class 2 or 3 building or Class 4 part of a building provided with a smoke alarm system in accordance with Clause 3 or

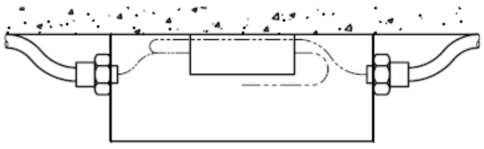
			Specification E2.2a where the sound pressure *within* each SOU door is to achieve no less than 85 dB(A). Details and a design certificate will be required by a qualified electrical engineer prior to the issue of a Construction Certificate. **System Monitoring** **Clause 7 of Specification E2.2a** The sprinkler system must be connected to a fire alarm monitoring system connected to a fire station or fire station dispatch centre in accordance with AS1670.3. Details and a design certificate will be required by a qualified electrical engineer prior to the issue of a Construction Certificate.
			 I.e.: Heat Detectors – AS1670.1 I.e.: Smoke Detectors – AS1670.1 I.e.: Smoke Detectors – AS1668.1 (M/V Shutdown etc.)
			
E2.3	Provisions for special hazards	N / A	

Part E3 – Lift Installations			
E3.1	Lift Installations	CRA	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1. Final design would need to be conferment at the Construction Certificate stage.
E3.2	Stretcher facility in lifts	CRA	A stretcher lift is required as the passenger serves a storey above an effective height of more than 12 metres. (600mm wide * 2000mm long and 1400mm high) Please also note the minimum cart size under the Access to Premises Standard and AS1428.1:2009 requiring 1400mm x 1600mm along with the appropriate cart controls and display and hearing requirements. **Note: The building also requires a stretcher lift because the building must be provided with emergency lifts in accordance with Clause E3.4 of the BCA.** Final design would need to be confirmed at the Construction Certificate stage.
E3.3	Warning against use of lifts in fire	CRA	A warning sign is to be displayed where it can be readily seen near every call button of the passenger lift. The warning sign is to comply with the details and dimensions set out in Figure E3.3 of the BCA. DO NOT USE LIFT IF THERE IS A FIRE
E3.4	Emergency lifts	N / A	**Emergency lifts** (a) At least one emergency lift complying with (d) must be installed in— (i) a building which has an effective height of more than 25 m; and (ii) a Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or open space. (b) An emergency lift may be combined with a passenger lift and must serve those storeys served by the passenger lift so that all storeys of the building served by passenger lifts are served by at least one emergency lift. (c) Where two or more passenger lifts are installed and serve the same storeys, excluding a lift that is within an atrium and not contained wholly within a shaft— (i) at least two emergency lifts must be provided to serve those storeys; and (ii) if located within different shafts, at least one emergency lift must be provided in each shaft. (d) An emergency lift must— (i) be contained within a fire-resisting shaft in accordance with C2.10. The building is to be provided with a minimum of one (1) emergency lift per shaft (2 emergency lifts in total).

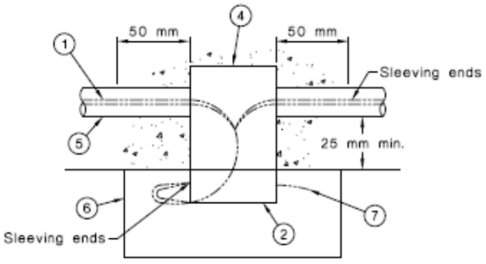
			Design verification to be provided on plans prior to the issue of the Construction Certificate.
E3.5	Landings	CRA	Access and egress to and from the lift well landings is to comply with the Deemed-to-Satisfy provisions of Section D of the BCA.
E3.6	Facilities for people with disabilities	CRA	The passenger lift within the building is to comply with AS1735.2 and table E3.6b Application of Features to Passenger Lifts i.e. several features from AS1735.12: – Handrail to be provided within the cart, – Brail and location of Control buttons, – Audio and Visual indicators etc. To be confirmed with details provided at Construction Certificate stage or design statement.
The lift car is to accommodate two separate dimensions. I.e.: 1400*1600mm for wheelchair circulation I.e.: 2000*600mm for a stretcher 			
E3.7	Fire Services Control	CRA	Passenger lift cars are to be provided with fire service controls in accordance with AS1735.2. Required in this instance as lift cars serve storey's above an effective height of 12m.
E3.8	Aged care buildings	N / A	
E3.9	Fire Services Recall Control Switch	CRA	**Fire service recall control switch** (a) Each group of lifts must be provided with one fire service recall control switch required by E3.7 that activates the fire service recall operation at (e). The switch must— (i) be located at the landing nominated by the appropriate authority; and (ii) be labelled "FIRE SERVICE" in indelible white lettering on a red background; and (iii) have two positions with an "OFF" and an "ON" position identified; and (iv) be operable only by the use of a key that is removable in either the "OFF" position or the "ON" position.

			(b) Adhesive labels must not be used for compliance with (a)(ii) and (a)(iii). (c) The key in (a)(iv) must be able to turn all fire service recall control switches in the building and must have a different key combination to other keys used for lifts in the building. (d) The fire service recall operation must be activated by— (i) switching the fire service recall control switch in (a) to "ON"; or (ii) a signal from a fire management system approved by the appropriate authority. (e) The activation of the fire service recall operation at (d) must— (i) cancel all registered car and landing calls; and (ii) inactivate all door reopening devices that may be affected by smoke; and (iii) ensure lift cars travelling toward the nominated floor continue to the nominated floor without stopping; and (iv) ensure lift cars travelling away from the nominated floor stop at or before the next available floor without opening the doors (either automatically or by the door open button), reverse direction and travel without stopping to the nominated floor; and (v) for lifts stopped at a floor other than the nominated floor, close the doors and travel without stopping to the nominated floor; and (vi) ensure that lifts stay at the nominated floor with doors open; and (vii) permit all lifts to return to normal service if the fire service recall control switch at (a) is switched to the "OFF" position during or after the fire service recall operation. (f) The requirements of (e) do not apply to lifts on inspection service or when the lift car fire service control switch required by E3.10 is in the "ON" position. (g) Lifts having manual controls must signal an alert to the lift for the lift to return to the nominated floor containing the recall switch that activated the signal. To be confirmed with details provided at Construction Certificate stage or design statement.
E3.10	Lift Car Fire Service Drive Control Switch	CRA	**Lift car fire service drive control switch** (a) The lift car fire service drive control switch required by E3.7 must be activated from within the lift car. The switch must— (i) be located between 600 mm and 1500 mm above the lift car floor; and (ii) be labelled "FIRE SERVICE" by indelible white lettering on a red background; and (iii) have two positions with an "OFF" and an "ON" position identified; and (iv) operate only by the use of a key that is removable in either the "OFF" position or the "ON" position. (b) Adhesive labels must not be used for compliance with (a)(ii) or (a)(iii). (c) When the lift car fire service drive control switch at (a) is turned to the "ON" position, the lift must—

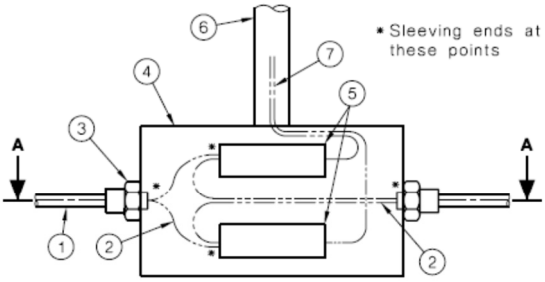
			(i) not respond to the fire service recall control switch; and (ii) cancel all registered lift car and landing calls; and (iii) override all lift car call access control systems; and (iv) inactivate all door reopening devices that may be affected by smoke; and (v) allow the registration of lift car call by lift car call buttons, however the lift doors must not close in response to the registration of lift car calls; and (vi) activate door closing by constant pressure being applied on the "door close" button unless the button is released before the doors are fully closed, in which case the doors must reopen and any registered lift car calls must be cancelled; and (vii) when the doors are closed, move the lift in response to registered lift car calls while allowing additional lift car calls to also be registered; and (viii) travel to the first possible floor in response to registered lift car calls and cancel all registered lift car calls after the lift stops; and (ix) ensure doors do not open automatically, rather by constant pressure being applied on the "door open" button unless the button is released before the doors are fully open, in which case the doors must re-close; and the requirements of (c)(i) to (c)(ix) do not apply to a lift operating on inspection service. (d) A multi-deck lift installation must have systems in place that— (i) are able to communicate to the fire officer that the fire service drive control switch will not operate until all decks have been cleared of passengers; and (ii) ensure there is an appropriate method of clearing all deck landings of passengers; and (iii) maintain all doors to deck landings not containing the fire service control switch closed and inoperative while the lift is on fire service drive control. To be confirmed with details provided at Construction Certificate stage or design statement.
Part E4 – Emergency Lighting, Exit Signs and Warning Systems			
E4.1	-	-	No provisions
E4.2	Emergency lighting requirements	CRA	Emergency lighting is to be provided throughout the building in accordance with Clause E4.2 of the BCA. Drawings a design certificate will be required by a suitably qualified electrical engineer prior to the issue of a Construction Certificate.
E4.3	Measurement of distance	Noted	
E4.4	Design and operation of emergency lighting	CRA	Emergency lighting shall be provided throughout the building in accordance with the requirements of Clause E4.4 of the BCA and AS 2293.1. Details and a design certificate will be required by a suitably qualified electrical engineer prior to the issue of a Construction Certificate.



SECTION A-A



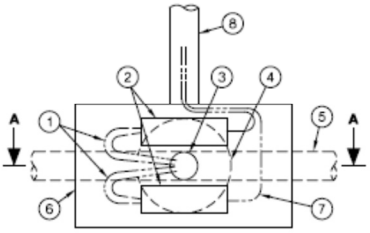
SECTION A-A



View into box with cover removed

NOT TO SCALE

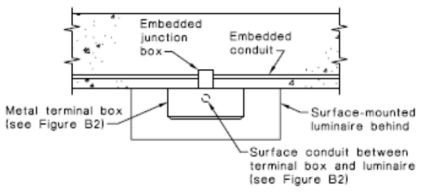
Item	Description
1	Surface-installed cable
2	Conductor tails, insulated or sleeved with silicone rubber
3	Metallic cable gland or bush
4	Metal terminal box
5	Ceramic fuse base and carrier with Type 'gG' fuse-link complying with AS 2005.10
6	Surface conduit to luminaire
7	Wiring to luminaire not to exceed 2 m unless wiring is of a type which will provide Class WS1X protection in accordance with AS/NZS 3013

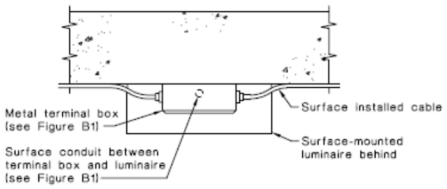


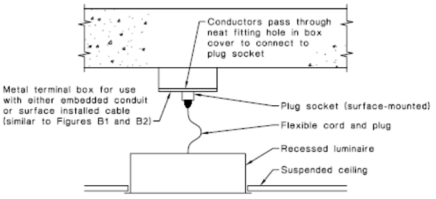
View into box with cover removed

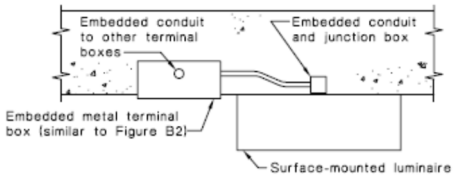
NOT TO SCALE

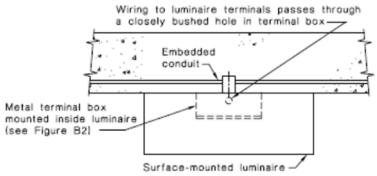
Item	Description
1	0.6/1 kV PVC insulated building wires V75, sleeved with silicone rubber
2	Ceramic fuse base and carrier with Type 'gG' fuse-link complying with AS 2005.10
3	Wire entry hole in base of metal terminal box
4	Embedded conduit junction box
5	Embedded conduit
6	Metal terminal box
7	Wiring to luminaire not to exceed 2 m unless wiring is of a type which will provide Class WS1X protection in accordance with AS/NZS 3013
8	Surface conduit to luminaire





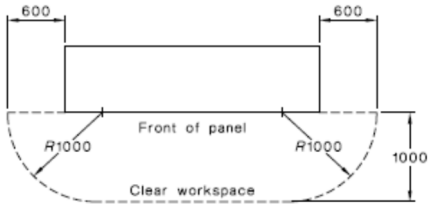






E4.5	Exit signs	CRA	Exit signs are to be provided in accordance with Clause E4.5 of the BCA.

			Exit signs must be clearly visible to person approaching the exit and must be installed on, above or adjacent to; 1. A door providing direct egress from a storey to a stairway, passageway or ramp serving as a required exit. 2. A door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space. 3. A door serving as or forming part of a required exit in a storey required to be provided with emergency lighting. A test switch is to be installed for each storey. Where and if requirements are altered under this proposal, details and a design certificate will be required by a suitably qualified electrical engineer prior to the issue of a Construction Certificate.
E4.6	Direction signs	CRA	Where an exit is not readily apparent then exit signs with directional arrows must be installed in appropriate positions in corridors, hallways, lobbies and the like indicating the direction to a required exit in accordance with Clause E4.6 of the BCA. Where and if requirements are altered under this proposal, details and a design certificate will be required by a suitably qualified electrical engineer prior to the issue of a Construction Certificate.
E4.7	Class 2, 3 and 4 buildings: Exemptions	Noted	
E4.8	Design and operation of exit signs	CRA	Exit signs are to operate in accordance with AS 2293.1 or for a photo luminescent exit sign, Specification E4.8 and be clearly visible at all times while the building is occupied. Where and if requirements are altered under this proposal, details and a design certificate will be required by a suitably qualified electrical engineer prior to the issue of a Construction Certificate.
E4.9	Sound System and Intercom System for Emergency Purposes	N / A	A sound system and intercom system for emergency purposes complying with AS 1670.4 must be installed within the building as it exceeds 25m in effective height. Details and a design certificate will be required by a suitably qualified electrical engineer prior to the issue of a Construction Certificate.



DIMENSIONS IN MILLIMETRES

FIGURE 2.1 INDICATOR PANEL—PERSONNEL WORKSPACE

APPENDIX D

(Informative)

STANDARD FORM OF INSTALLER'S STATEMENT
FOR SOUND SYSTEM AND INTERCOM SYSTEM

1 Name of premises.....

2 Situated at.....

.....

.....

3 I/We have installed in the above premises

an alteration to the system of*.....

a system of*.....

(Brand name)

4 The system incorporates.....

.....

..... ancillary equipment

CIE location.....

5 The quiescent load of ancillary equipment is.....

6 Primary power voltage and source.....

7 Secondary battery type and capacity.....

8 System maintenance agreement details.....

9 Portion/s of premises not served by this system.....

.....

I/We hereby certify that:

a The installation is complete and has been thoroughly tested.

b The system is installed in accordance with the current requirements of AS 1670.4*.

c The system is installed in accordance with attached design specification*.

Except in regard to the following details*.....

.....

.....

Which have been approved by..... (person)

of..... (organization)

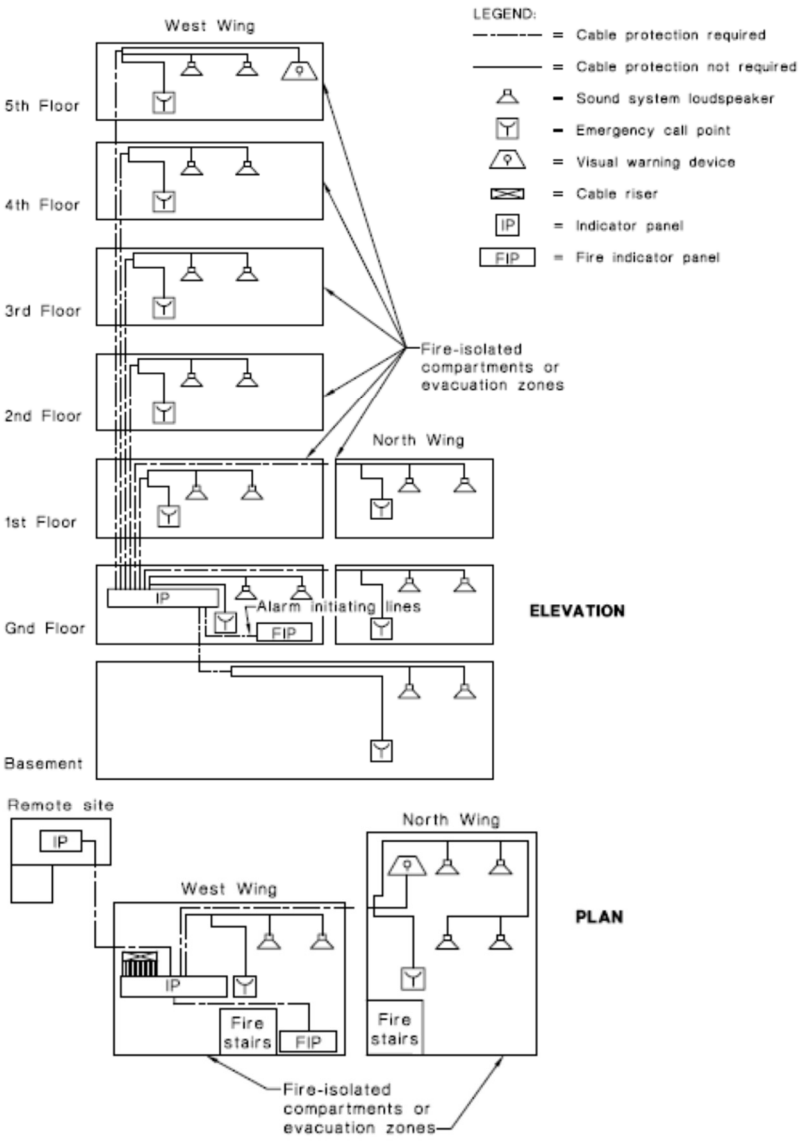


FIGURE 4.1 TYPICAL SOUND SYSTEM CABLE PROTECTION SCHEMATIC

Evacuation zone	Corresponding fire zones	Sound pressure level Max.	Sound pressure level Min.	STI Reading	Number of visual warning devices	Number of emergency call points	WIP location	Aural Call Signal level (dBA)	Fault signal at fire CIE
1									
2									
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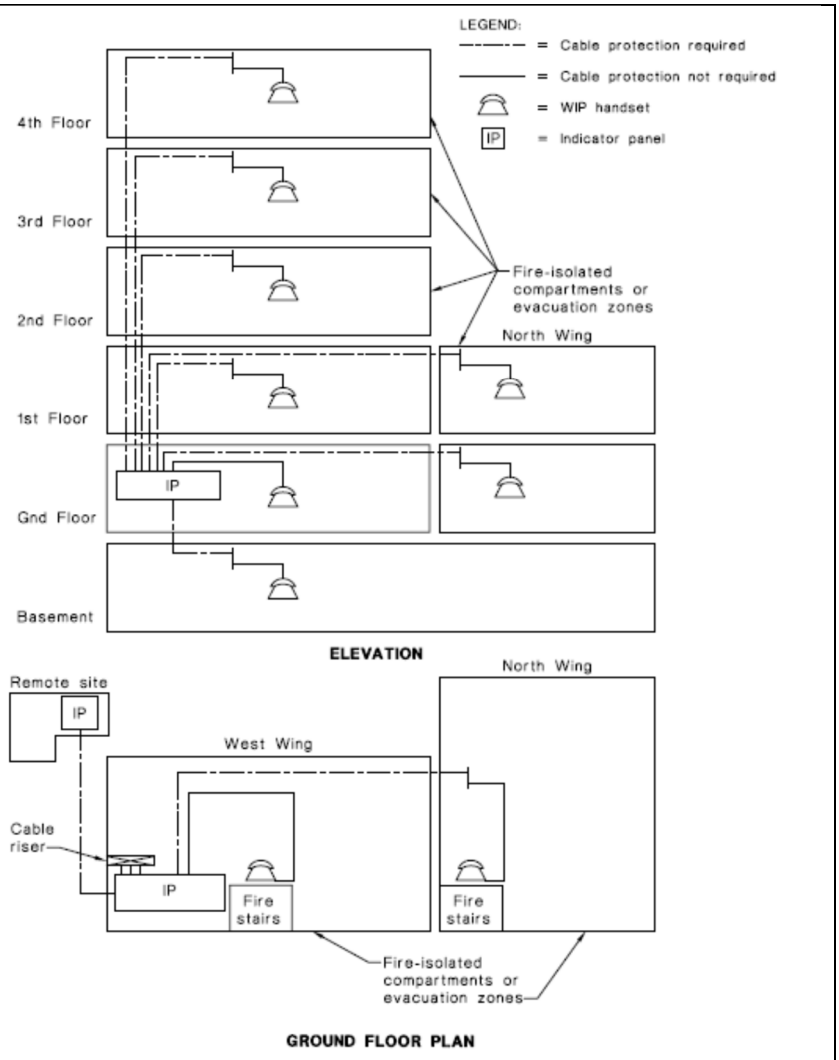


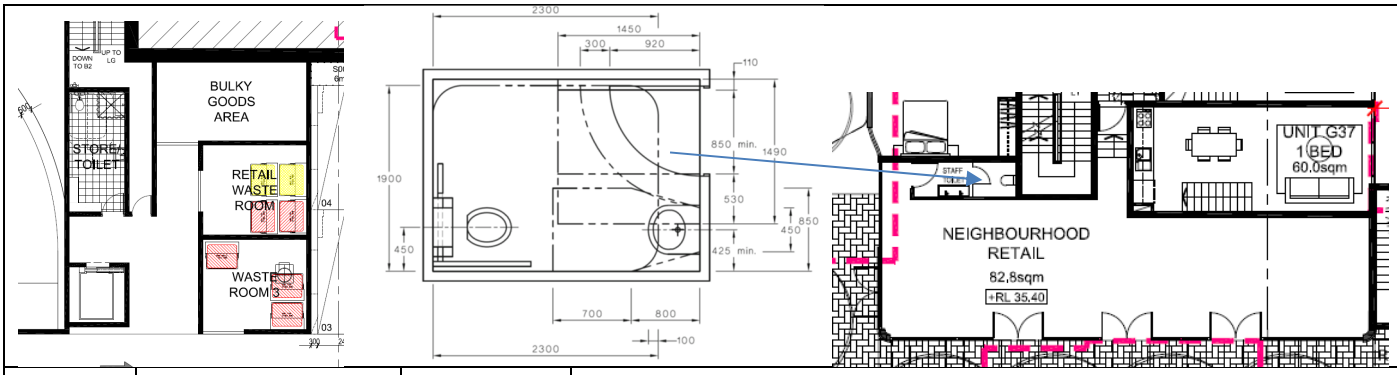
FIGURE 5.1 TYPICAL INTERCOM SYSTEM CABLE PROTECTION SCHEMATIC

SECTION F – HEALTH AND AMENITY

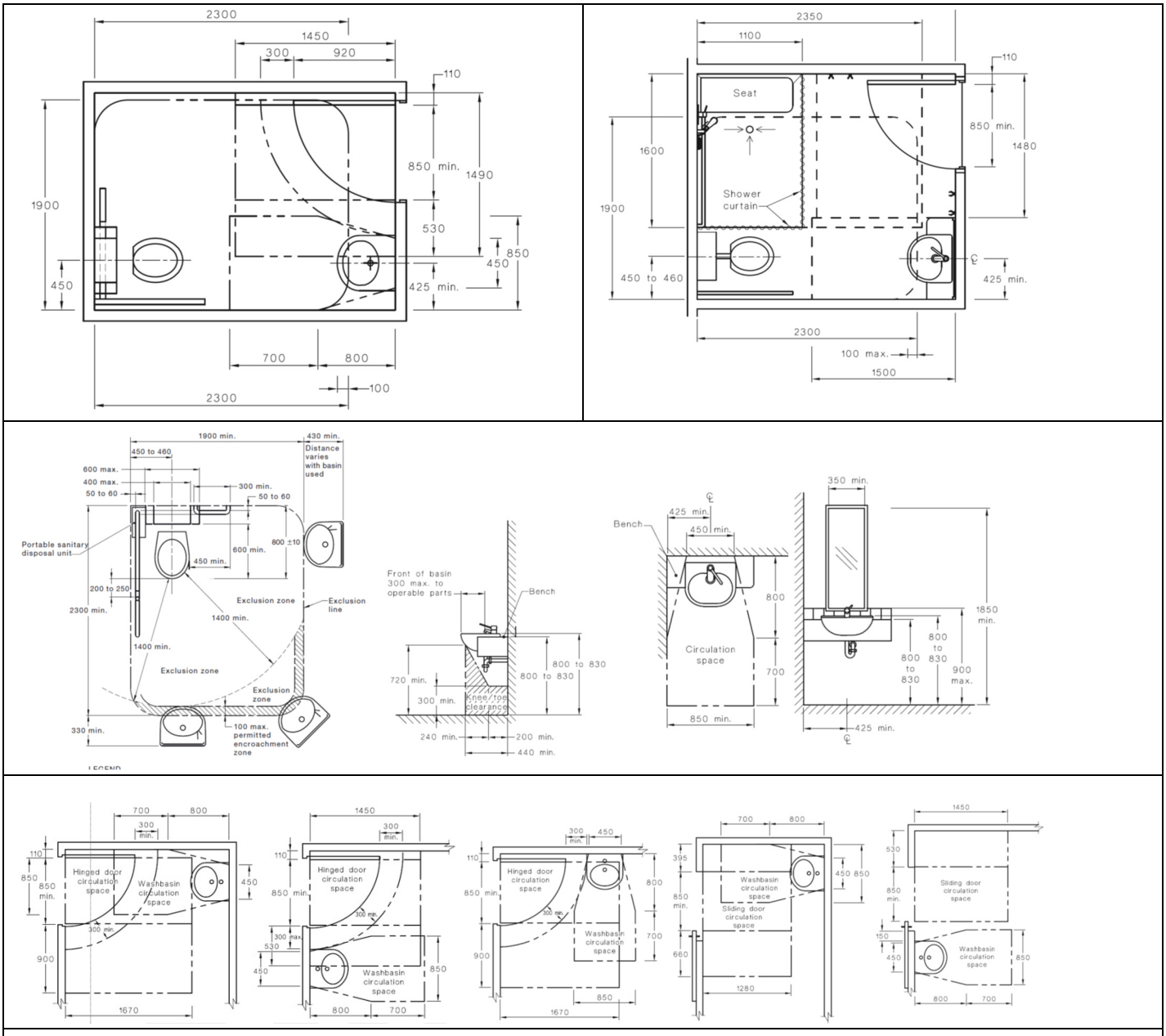
Part F1 – Damp and Weatherproofing

Clause	Description	Status	Comments
F1.1	Stormwater drainage	CRA	Stormwater drainage design shall be in accordance with AS/NZS 3500.3. Details and a design certificate will be required by a suitably qualified hydraulic engineer prior to the issue of a Construction Certificate.
F1.2	-	-	No provisions
F1.3	-	-	No provisions
F1.4	External above ground membrane	CRA	Waterproofing membranes for external above ground use may comply with AS 4654 Part 1 and 2. Details and a design certificate to be provided prior to the issue of a Construction Certificate.

F1.5	Roof coverings	CRA	Roof coverings are to comply with the relevant Australian Standards as per Clause F1.5. Details and design certification to be provided prior to the issue of a Construction Certificate.
F1.6	Sarking	CRA	Sarking type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2. Details and design certification to be provided prior to the issue of a Construction Certificate.
F1.7	Waterproofing of wet areas	CRA	Shower enclosure surfaces, floor surfaces in bathrooms, shower rooms, slop hoppers, sink compartments, laundry and sanitary compartments is required to be waterproofed in accordance with AS 3740. Details and design certification to be provided prior to the issue of a Construction Certificate.
F1.8	-	-	No provisions
F1.9	Damp-proofing	N / A	
F1.10	Damp-proofing of floors on the ground	CRA	A vapour barrier in accordance with AS2870 is to be provided beneath the basement floor slab. Details and design certification to be provided prior to the issue of a Construction Certificate.
F1.11	Provisions of floor wastes	CRA	The floor of each bathroom / laundry is to be graded to permit drainage to a floor waste. The plans forming part of the Construction Certificate Application must detail compliance with the above.
F1.12	Sub-floor ventilation	N / A	
F1.13	Glazed assemblies	CRA	Windows, sliding doors with a frame, adjustable louvres, shopfronts and window walls with one piece framing in an external wall must comply with AS 2047 requirements for resistance to water penetration. Details and design certification to be provided prior to the issue of a Construction Certificate.
Part F2 – Sanitary and Other Facilities			
F2.1	Facilities in residential buildings	CRA	Sanitary and other facilities for Class 2 and 3 buildings must be provided in accordance with Table F2.1. **Note**: F2.4 (a) requires a unisex Assessable sanitary compartment to be provided on ground level or near ground level which is to be used by maintenance staff. Details and final design certification to be provided prior to the issue of a Construction Certificate.



F2.2	Calculation of number of occupants and fixtures	Noted	Commercial spaces to be assessed upon incoming tenant and final design and use.
F2.3	Facilities in Class 3 to 9 buildings	CRA	Ground floor accessible sanitary facility(s) must be provided for the commercial staff. If more than 10 staff are employed, male and female sanitary compartments are to be provided in accordance with Table F2.3 of the BCA. Designer to verify compliance prior to the issue of the Construction Certificate. **Note**: The Accessible toilet to the retail space would need to be alternating, left and right handed from other accessible toilets within the complex.
F2.4	Facilities for people with disabilities	CRA	An accessible toilet is to be provided to serve the retail parts of the building, full compliance with AS1428.1:2009 is to be indicated on the Construction Certificate Plans.
    			*Where existing accessible toilets are provided, the use of exiting AS1428.1:2001 compliant toilet facility is deemed as acceptable only if the toilet actually complies with AS1248.1:2001.* Full compliance with AS1428.1:2009 is to be indicated on the Construction Certificate plans or via Design Certificate. Occupants are to be provided with two (2) different types of accessible toilets; 1: An accessible *toilet* compartment (Wheelchairs) i.e.: – Ground floor *RH Transfer* – First Floor *LH Transfer* etc. 2: an ambulant *cubical* being a minimum normal toilet cubical size for easier use (Persons with mobility difficulties) in each and every toilet bank.



Details for an Accessible Toilet: (Checklist)

- The toilet is to be signed according to AS1428.1, with Left or Right hand transfer.
- Door clearances shall be in accordance with the relevant doors size and approach form both sides.
- Doors are to have a staged closer, if it opens outwards, must also incorporate a closer which hold the door closed without pulling the door closed via a handle.
- Doors shall be provided with an in-use indicator and a bolt or catch. Where a snib catch is used, the snib handle shall have a minimum length of 45 mm from the centre of the spindle. In an emergency, the latch mechanism shall be openable from the outside.
- Toilet pan and wash basin are located in accordance with the diagrams with the required clearances,
- All hand rails are installed and are structural (110N),
- Flushing control are automatic or push action in the required zone,
- An emergency light is also to be installed within the toilet.
- A mirror is to be installed not less than 350mm wide by 900mm tall.
    - Located above the sink,

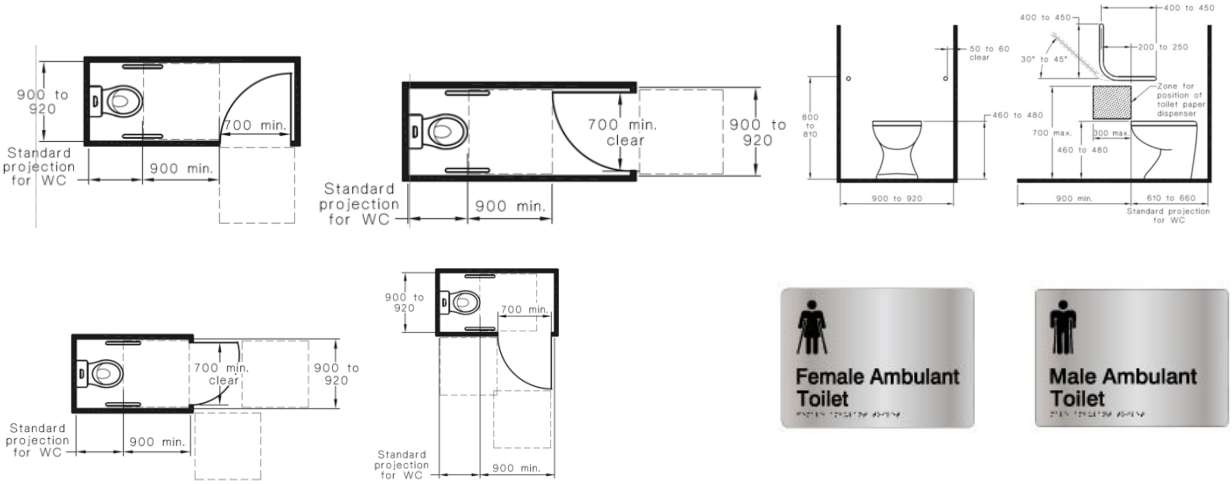
- Flat against the wall.

– A shelf is to be installed next to the basin @ 900-1000mm from the floor with a minimum width of 120-150mm by 300-400mm.
– Where provided, soap dispensers, towel dispensers, hand dryers and similar fittings shall be operable by one hand, and shall be installed with the height of their operative component or outlet not less than 900 mm and not more than 1100 mm above the plane of the finished floor, and no closer than 500 mm from an internal corner.
– A clothes-hanging device shall be installed 1200 mm to 1350 mm above the plane of the finished floor and not less than 500 mm out from any internal corner.

Ambulant Cubicle

Any toilet block is also to accommodate at least one ambulant cubical in **both** the *Male* and *Female* banks.

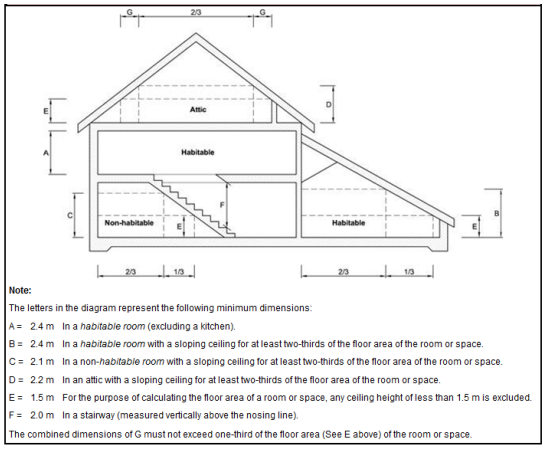
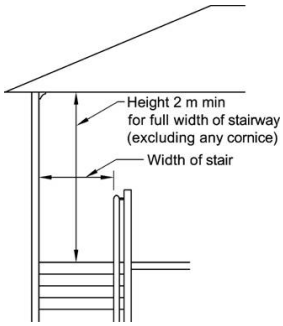
Final details to accompany the Construction Certificate Plans.

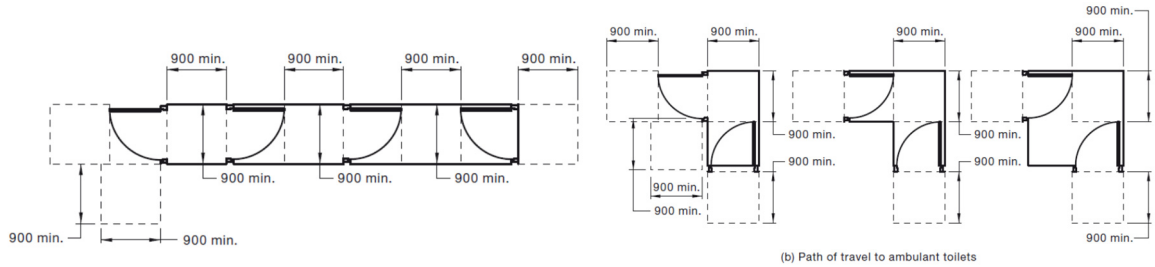


Details for an Ambulant Cubicle: (Checklist)

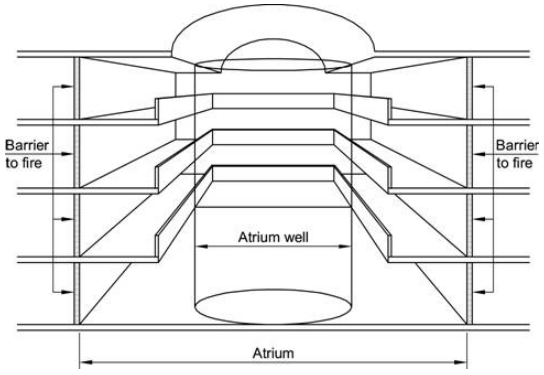
– The toilet is to be signed according to AS1428.1, on the cubicle door,
– Door clearances shall be in accordance with the relevant doors size and approach form both sides. (900*900 pads)
– Cubical is 900mm wide, Doors are 700mm and must also incorporate a closer or handle.
– Doors shall be provided with an in-use indicator and a bolt or catch. Where a snib catch is used, the snib handle shall have a minimum length of 45 mm from the centre of the spindle. In an emergency, the latch mechanism shall be openable from the outside.
– Toilet pan and wash basin are located in accordance with the diagrams with the required clearances,
– All hand rails are installed and are structural (110N),
– A clothes-hanging device shall be installed 1350 mm to 1500mm above the plane of the finished floor and not less than 500 mm out from any internal corner.

F2.5	Construction of sanitary compartments	CRA	Doors to the fully enclosed toilets are to open outwards, slide or be readily removable from the outside of the sanitary compartment unless there is a clear space of at least 1.2m between the closet pan within the sanitary compartment and the nearest part of the doorway. Plans submitted with the Construction Certificate Application must detail compliance with the above.
F2.6	Interpretation: Urinals and washbasins	Noted	
F2.7	Warm water installations	N / A	Not Applicable in NSW

F2.8	Waste	N / A	
Part F3 – Room Sizes			
F3.1	Height of rooms and other spaces	CRA	Ceiling heights must be not less than—
 Note: The letters in the diagram represent the following minimum dimensions: A = 2.4 m In a *habitable room* (excluding a kitchen). B = 2.4 m In a *habitable room* with a sloping ceiling for at least two-thirds of the floor area of the room or space. C = 2.1 m In a non-*habitable room* with a sloping ceiling for at least two-thirds of the floor area of the room or space. D = 2.2 m In an attic with a sloping ceiling for at least two-thirds of the floor area of the room or space. E = 1.5 m For the purpose of calculating the floor area of a room or space, any ceiling height of less than 1.5 m is excluded. F = 2.0 m In a stairway (measured vertically above the nosing line). The combined dimensions of G must not exceed one-third of the floor area (See E above) of the room or space. 			(a) in a habitable room excluding a kitchen — 2.4 m; and (b) in a kitchen — 2.1 m; and (c) in a corridor, passageway or the like — 2.1 m; and (d) in a bathroom, shower room, laundry, sanitary compartment, airlock, pantry, storeroom, garage, car parking area or the like — 2.1 m; and (e) in a room or space with a sloping ceiling or projections below the ceiling line within— (i) a habitable room— (A) in an attic — a height of not less than 2.2 m for at least two-thirds of the floor area of the room or space; and (B) in other rooms — a height of not less than 2.4 m over two-thirds of the floor area of the room or space; and (ii) a non-habitable room — a height of not less than 2.1 m for at least two-thirds of the floor area of the room or space, and when calculating the floor area of a room or space, any part that has a ceiling height of less than 1.5 m is not included; and (f) in a stairway — 2.0 m measured vertically above the nosing line. All other areas of the building are to be confirmed prior to the issue of the Construction Certificate.
Part F4 – Light and Ventilation			
F4.1	Provisions of natural light	Noted	Natural light must be provided to all habitable rooms located within the Class 2 portion of the development.
F4.2	Methods and extent of natural light	Complies	
F4.3	Natural light borrowed from adjoining room	CRA	Natural lighting to a room in a Class 2 building or Class 4 part of a building or in a sole-occupancy unit of a Class 3 building, may come through a glazed panel or opening from an adjoining room (including an enclosed verandah). The following Units are to be assessed for compliance which include: • Ground to twelfth floor residential units. Details and design certification for natural light borrowed are to be provided by the architect prior to the issue of a Construction Certificate.
F4.4	Artificial lighting	CRA	Artificial lighting must be provided in required stairways, passageways, ramps, sanitary compartments, bathrooms, laundries and other spaces used in common by occupants of the building complying with AS1680.0 in accordance with the requirements of Clause F4.4 of the BCA. Details and design certification to be provided by electrical engineer prior to the issue of a Construction Certificate.

F4.5	Ventilation of rooms	CRA	Ventilation shall be provided throughout the building by means of natural ventilation complying with Clause F4.6 or mechanical ventilation complying with the requirements of AS1668.2 and AS3666.1 as required by Clause F4.5 of the BCA. Details and design certification to be provided by mechanical engineer prior to the issue of a Construction Certificate. *Note: Any air handling system which recycles air from one fire compartment to another or operates in a manner that may unduly contribute to the spread of smoke from one compartment to another must be designed to operate a smoke control system in accordance with AS1668.1 or incorporate smoke dampers where the air-handling ducts pass any separating element to another fire compartment and shutdown and the smoke dampeners are activated to close automatically via smoke detectors complying with clause 4.10 of AS1668.1*
F4.6	Natural ventilation	CRA	See Clause F4.5
F4.7	Ventilation borrowed from adjoining room	CRA	See Clause F4.5
F4.8	Restriction on position of water closets and urinals	Complies	
F4.9	Airlocks	Noted	Note: Airlocks must comply with the set distances under AS1428.1 :2009
 (b) Path of travel to ambulant toilets			
F4.10	-	-	No provisions
F4.11	Carparks	CRA	The carpark is to be provided with ventilation complying with AS1668.2 or have an adequate system of permanent natural ventilation. Details and design certification to be provided by mechanical engineer prior to the issue of a Construction Certificate.
F4.12	Kitchen local exhaust	CRA	The Commercial tenancies are to accommodate provisions for future ventilation complying with AS1668.2 or have an adequate system of permanent natural ventilation. Details and design certification to be provided by mechanical engineer prior to the issue of a Construction Certificate.
Part F5 – Sound Transmission and Insulation			
F5.1	Application of part	Applies	Applicable to Class 2 buildings
F5.2	Determination of airborne sound	Noted	Construction required to have an airborne sound insulation rating must have the value for weighted sound reduction index (Rw) or weighted

	insulation ratings		sound reduction index with spectrum adaptation term (Rw + Ctr) determined in accordance with AS/NZS1276.1, or ISO717.1 using result from laboratory measurements, or comply with Specification F5.2 of the BCA.
F5.3	Determination of impact sound installation ratings	Noted	A floor required to have an impact sound insulation rating must have the required value for weighted normalised impact sound pressure level with spectrum adaptation term (Ln,w+Cl) determined in accordance with AS/ISO 717.2 using results from laboratory measurements or comply with Specification F5.2 of the BCA. A wall that is required to have an impact sound insulation rating must be of discontinuous construction.
F5.4	Sound insulation rating for floors	CRA	Floors separating sole occupancy units or separating sole occupancy units from a plant room, lift shaft, public lobby or the like or parts of different classifications must have an Rw + Ctr of not less than 50 and an Ln,w + Cl of not more than 62. A design certificate and details of form of construction required to achieve such will be required from a qualified acoustic engineer prior to the issue of a Construction Certificate.
F5.5	Sound insulation rating of walls	CRA	A wall separating sole occupancy units must have an Rw + Ctr not less than 50. A wall separating a sole occupancy from a lift shaft, public lobby or the like, or parts of different classifications must have an Rw + Ctr not less than 50. Compliance with F5.3(b) is required if the wall separates a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room (excluding a kitchen) in another adjoining unit or a sole occupancy unit from a plant room or lift shaft. A door may be incorporated in a wall that separates a sole occupancy unit from a stairway, public corridor, public lobby or the like, provided the door assembly has an Rw not less than 30. Where a wall required to have sound insulation has a floor above, the wall must continue to the underside of the floor above or a ceiling that provides the sound insulation required for the wall. Where a wall required to have sound insulation has a roof above, the wall must continue to the underside of the roof above or a ceiling that provides the sound insulation required for the wall. A design certificate and details of form of construction required to achieve such will be required from a qualified acoustic engineer prior to the issue of a Construction Certificate.
F5.6	Sound insulation rating of services	CRA	If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one sole-occupancy unit, the duct or pipe must be separated from the rooms of any sole-occupancy unit by construction with an Rw + Ctr (airborne) not less than—

			(i) 40 if the adjacent room is a habitable room (other than a kitchen); or (ii) 25 if the adjacent room is a kitchen or non-habitable room. If a storm water pipe passes through a sole-occupancy unit it must be separated in accordance with (i) and (ii) above. A design certificate and details will be required by a qualified acoustic engineer prior to the issue of a Construction Certificate.
F5.7	Isolation of pumps	CRA	A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.
SECTION G – ANCILLARY PROVISIONS			
Part G1 – Minor Structures and Components			
Clause	Description	Status	Comments
G1.1	Swimming pools	N / A	
G1.2	Refrigerated chambers, strong-rooms and vaults	N / A	
G1.101	Provision for cleaning windows	CRA	A safe manner of cleaning windows is to be provided as windows are located 3 or more storeys above ground level. The windows must either be able to be cleaned wholly from within the building, or a method complying with the Construction Safety Act 1912 and Regulations is required. Details verifying compliance must be provided prior to the issue of a Construction Certificate
Part G2	Heating appliances, fireplaces, chimneys and flues	N / A	
Part G3	Atrium construction	N / A	
			*Atrium* means a space within a building that connects 2 or more storeys, and— (a) is wholly or substantially enclosed at the top by a floor or roof (including a glazed roof structure); and (b) includes any adjacent part of the building not separated by an appropriate barrier to fire; but (c) does not include a stairwell, rampwell or the space within a shaft.
Part G4	Construction in alpine areas	N / A	

Part G5	Construction in bushfire prone areas	N / A	
SECTION H – SPECIAL USE BUILDINGS			
N / A			
SECTION I – MAINTENANCE Note: Essential Fire Safety Measures or other safety measures must be maintained and certified on a ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.			
SECTION J – ENERGY EFFICENCY			
Clause	Description	Status	Comments
NSW J(A)	Energy Efficiency – Class 2 Buildings and Class 4 Parts	Noted	Sub-section J(A) is applicable to the proposed development.
NSW J(B)	Energy Efficiency – Class 3 Buildings	N / A	Sub-section J(B) is not applicable to the proposed development.
J1.2	Thermal construction general	CRA	Details verifying compliance must be provided prior to the issue of a Construction Certificate
J1.3(d) and J1.5(c)	Thermal breaks	CRA	Details verifying compliance must be provided prior to the issue of a Construction Certificate
J1.3(c)	Compensating for a loss of ceiling insulation	CRA	Details verifying compliance must be provided prior to the issue of a Construction Certificate
J1.6	Floor edge insulation	CRA	Details verifying compliance must be provided prior to the issue of a Construction Certificate
J3	Building Sealing	CRA	Details verifying compliance must be provided prior to the issue of a Construction Certificate
J3.2	Chimneys and flues	N / A	Not applicable
J3.3	Roof lights	CRA	If proposed, (a) A roof light must be sealed, or capable of being sealed, in accordance with (b) to minimise air leakage when serving a conditioned space. (b) A roof light required by (a) to be sealed or capable of being sealed must be constructed with— (i) an imperforate ceiling diffuser or the like installed at the ceiling or internal lining level; or (ii) a weatherproof seal if it is a roof window; or (iii) a shutter system readily operated either manually, mechanically or electronically by the occupant.
J3.4	External windows and doors		(a) A seal to restrict air infiltration must be fitted to each edge of an external door, openable external window or the like when serving a conditioned space. (b) The requirements of (a) do not apply to— (i) a window complying with AS 2047; or

			(ii) an external louvre door, louvre window, or other such opening; or (iii) a fire door. (c) A seal required by (a) may be a foam or rubber compressible strip, fibrous seal or the like. (d) An external door at the main point of entry to the building, if leading to a conditioned space with a floor area of more than 50 m2, must have a means of minimising the loss of conditioned air such as an airlock, self-closing door, revolving door or the like. Details verifying compliance must be provided prior to the issue of a Construction Certificate
J3.5	Exhaust fans	CRA	An exhaust fan must be fitted with a sealing device when serving an air-conditioned space, or a habitable room in climate zone 4, 6, 7 or 8. Details verifying compliance must be provided prior to the issue of a Construction Certificate
J3.6	Construction of roofs, walls and floors	CRA	(a) Roofs, external walls, external floors and any opening such as a window, door or the like must be constructed to minimise air leakage in accordance with (b) when forming part of the external fabric of a conditioned space (b) Construction required by (a) must be— (i) enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or (ii) sealed by caulking, skirting, architraves, cornices or the like. Details verifying compliance must be provided prior to the issue of a Construction Certificate
J5.2	Air-conditioning and ventilating systems	CRA	Details to be provided with the Construction Certificate Application.
J5.3	Time switch	CRA	Power supply to: (a) an air-conditioning system of more than 10 kWr; or (b) a ventilation system with an air flow rate of more than 1000 L/s; or (c) heating systems of more than 10 kWheating, must be controlled by a time switch in accordance with Specification J6. Details verifying compliance must be provided prior to the issue of a Construction Certificate
J5.4	Heating and cooling systems	CRA	Details to be provided with the Construction Certificate Application.
J5.5	Ancillary exhaust systems	CRA	Details to be provided with the Construction Certificate Application.
J7.2	Hot water supply	CRA	Details to be provided with the Construction Certificate Application.
JA5.2	Access for maintenance	CRA	Access must be provided to all services and their components including: i) Time switches and motion detectors; and ii) Room temperature thermostats; and iii) Plant thermostats such as on boilers or refrigeration units; and iv) Outside air dampers; and v) Reflectors, lenses and diffusers of light fittings; and

			vi)	Heat transfer equipment; and
			vii)	Adjusted or motorised shading devices.

4.0 FIRE SAFETY SCHEDULE

Details on the draft proposed fire safety schedule is included in the following schedule.

4.1 Proposed Fire Safety Schedule

Subject to the final construction design documentation and BCA compliance options chosen, the draft fire safety schedule for the development, when completed, will be:

Item No.	Essential Fire and Other Safety Measures	Standard of Performance	Standard of Maintenance and supplementary fire safety statements	Proposed
1.	Fire rated access panels & doors/hoppers	BCA C3.13 (Openings in Shafts) AS 1905.1 -2005 (Fire Resistant Doorsets)	AS1851- 2005	✓
2.	Automatic fail safe devices - Auto open Sliding Exit doors - Break Glass release	BCA D2.21 (Operation of Latches) AS 1670.1 -2015 (Fire)		TBA
3.	Automatic fire detection & alarm - Fire Alarm / Smoke detection - BOWS - Fire/System Monitoring	BCA E2.2a Clause 3 (Smoke alarm system) and Clause 6 (BOWS) Clause 7 (System Monitoring) AS1670.1 – 2015 (Fire) AS1670.3 – 2004 (Fire Alarm Monitoring)	AS1851- 2005	✓
4.	Automatic fire suppression systems - Sprinklers to carpark only	BCA E1.5 AS 2118.1 – 1999 (Sprinklers) (Confirm if this is to be a Combined Hydrant and Sprinkler AS2118.6-2012)	AS1851- 2005	✓
5.	Emergency lighting	BCA E4.2 (Emergency Lighting requirements) E4.4 (Design and Operation – Emergancy Lighting) E4.7 (Class 2, 3 and 4) AS/NZS 2293.1 –2005		✓
6.	Exit signs	BCA E4.5 (Exit Signs) E4.6 (Direction Signs) E4.8 (Design and Operation - Exits) AS/NZS 2293.1 –2005		✓
7.	Fire dampers - Note: Any Smoke Dampers?	BCA E2.2a C3.15 and Spec C3.15 AS 1668.1 – 1998		✓
8.	Fire doors	BCA C2.12 (Separation of Equipment)	AS1851- 2005	✓ TBA

		C2.13 (Electricity Supply Systems) C3.4 (Methods of Protection) C3.5 (Doors in Fire Walls) TBA C3.8 (Openings in Fire Isolated Exits) C3.10 (Opening in Fire Isolated Lift Shafts) AS 1735.11 - 1986 C3.11 (Bounding Construction) C3.13 (Opening in Shafts) AS/NZS 1905.1 – 2005		
9.	Fire hydrant systems - NSW Storz Couplings	BCA E1.3 AS 2419.1 – 2005	AS1851- 2005	✓
10.	Fire seals	BCA C3.15, C3.16, Spec C3.15		✓
11.	Construction Joints	BCA C3.16 AS1530.4 - 2005		✓
12.	Hose reel systems - Carpark and ground floor retail areas only.	BCA E1.4, AS 2441 – 2005	AS1851- 2005	✓
13.	Lightweight construction - Fire Rating of Electrical Switchboard	BCA C1.8 and AS1530.4 - 2005		✓
14.	Mechanical air handling systems 1. Mechanical ventilation to carpark. 2. Auto-shutdown of Air-handling System.	BCA E2.2a, Spec E2.2a AS/NZS 1668.1 – 1998	AS1851- 2005	✓
15.	Path of travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186		✓
16.	Portable fire extinguishers	BCA E1.6 AS 2444 – 2001	AS1851- 2005	✓
17.	Smoke dampers	BCA C2.5 and Spec C2.5 Spec E2.2a AS/NZS 1668.1 – 1998		✓
18.	Smoke detectors & heat detectors 1. Auto-shutdown of Air-handling System. a. Any >1,000ls	BCA Spec E2.2a AS1668.1 – 1998		✓
19.	Stretcher Lifts including - Fire Service Controls - Recall Operation - drive control switch	BCA E3.2 as AS 1735.2-2001 And E3.7 (Fire Service Controls) E3.9 (Fire Service Recall Operation Swich) E3.10 (Lift Car Fire Service drive control swich)		✓
20.	System Monitoring	BCA Spec E2.2a		✓

		AS 1670.3 - 2004		
21.	Warning & operational signs	D2.23 (Signs on Fire Doors) E3.3 (Lift Sign), EPA Regs 2000, Clause 183		✓
22.	OTHER	Performance Solution		TBA

Note: The above schedule is draft only for indicative purposes at this stage of design documentation. Any performance solutions accepted to satisfy BCA performance provisions will be incorporated into the final proposed fire safety schedule at CC stage.

4.2 Certification of Essential Fire Safety Measures

Pursuant to Section 169 of the Environmental Planning and Assessment Regulations 2000, it will be necessary for the owner of the building, on completion of work to furnish a Final Fire Safety Certificate with regard to each essential fire safety measure identified in the proposed Fire Safety Schedule listed above.

The final fire safety certificate must state that each essential fire safety measure specified in the fire safety schedule for the building to which the certificate relates:

(a) has been assessed by a properly qualified person, and
(b) was found, when it was assessed, to be capable of performing to at least the standard required by the current fire safety schedule for the building for which the certificate is issued.

Every year, the owner(s) will need to sign and submit an Annual Fire Safety Statement to the Local Council and the NSW Fire Brigades, which confirms that all essential fire safety measures have been tested and maintained and perform to the original design and installation standard. A copy of the Annual Fire Safety Statement must also be displayed in a prominent areas of the buildings (i.e. the main entrance foyers).

5.0 CONCLUSION

The development application seeks consent for a new residential development at 134-144 Pitt Street, Redfern.

Although demonstrating compliance with the BCA at DA assessment stage is not a prescribed head of consideration under Section 79C of the Environmental Planning & Assessment Act 1979, Council has an obligation to consider whether the proposal, as lodged, is indicatively capable of complying with the BCA - without significant modification to those plans for which approval is sought.

In this instance we are confident that any modifications and advancement in level of details required to the proposal in order to satisfy the requirements of the BCA (in force at the time the Construction Certificate application is lodged) will **not** necessitate the need for any significant design changes that in turn would necessitate the submission of an application under Section 96 of the Environmental Planning and Assessment Act 1979.

In the same regard, we draw Council's attention to the requirements of clause 145 of the Environmental Planning & Assessment Regulation 2000, and suggest that detailed & specific BCA compliance matters shall be addressed to the satisfaction of the appointed Certifying Authority prior to the issue of the Construction Certificate.

Further, it is considered that this BCA review and the progression of the design documentation through to the prescribed Construction Certificate stage will be sufficient to ensure that the proposed design will achieve the necessary compliance with the BCA.

APPENDIX A – FIRE RESISTANCE LEVELS

Table 3 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*, where the distance from any *fire-source feature* to which it is exposed is—				
less than 3 m	90/ - / -	120/ - / -	180/ - / -	240/ - / -
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	- / 90/ 90	- /120/120	- /120/120	- /120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/ - / -	180/ - / -	240/ - / -
Non-*loadbearing*	- / 60/ 60	- / - / -	- / - / -	- / - / -
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/ - / -	180/ - / -	240/ - / -
Non-*loadbearing*	- / 60/ 60	- / - / -	- / - / -	- / - / -
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	- / 90/ 90	- / 90/ 90	- /120/120	- /120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—	90/ - / -	120/ - / -	180/ - / -	240/ - / -
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

APPENDIX B – REFERENCED DOCUMENTATION

The following documentation was used in the preparation of this report:

Drawing No.	Title	Issue	Date	Drawn By
A-090	Lower Basement Plan	A	09/2016	Tony Owen Partners
A-091	Upper Basement Plan	A	09/2016	Tony Owen Partners
A-100	Lower Ground Plan	A	09/2016	Tony Owen Partners
A-101	Ground Floor Plan	A	09/2016	Tony Owen Partners
A-102	First Floor Plan	A	09/2016	Tony Owen Partners
A-103	Second Floor Plan	A	09/2016	Tony Owen Partners
A-104	Third Floor Plan	A	09/2016	Tony Owen Partners
A-105	Fourth Floor Plan	A	09/2016	Tony Owen Partners
A-106	Fifth Floor Plan	A	09/2016	Tony Owen Partners
A-110	Roof Plan	A	09/2016	Tony Owen Partners
A-200	East Elevation	A	09/2016	Tony Owen Partners
A-201	West Elevation	A	09/2016	Tony Owen Partners
A-202	North Elevation	A	09/2016	Tony Owen Partners
A-203	East Elevation	A	09/2016	Tony Owen Partners
A-204	West and North Elevation	A	09/2016	Tony Owen Partners
A-300	Sections A and B	A	09/2016	Tony Owen Partners
A-301	Sections C and D	A	09/2016	Tony Owen Partners