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BUILDING CODE OF AUSTRALIA 2019 COMPLIANCE REPORT

Project: Astra Aerolab Development – Workshop/Office Building

Building Address: Lot 109/1 Williamtown Drive, Williamtown NSW 2318

Prepared for: EJE Architecture

Prepared by: Lauren Piper & **Reviewed by**: Ray Williams

Draft Date: 13.09.2022

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1.0 BASIS OF ASSESSMENT

1.1 Location and Building Description

The development, subject to this report, is located at Lot 109/1 Williamtown Drive, Williamtown NSW 2318.

The development consists of a 2,000m2 (Workshop) and ancillary attached two (2) storey Office Building (1,211m2) and associated car parking.

1.2 Purpose of Building Report

The purpose of this report is to:

- Identify the relevant Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) in relation Clauses B, C, D, E, F, G & H and provide any non-compliances with the relevant Clauses for the proposed development in order to issue the Construction Certificate; and
- Provide a schedule of fire safety measures for the proposed development.

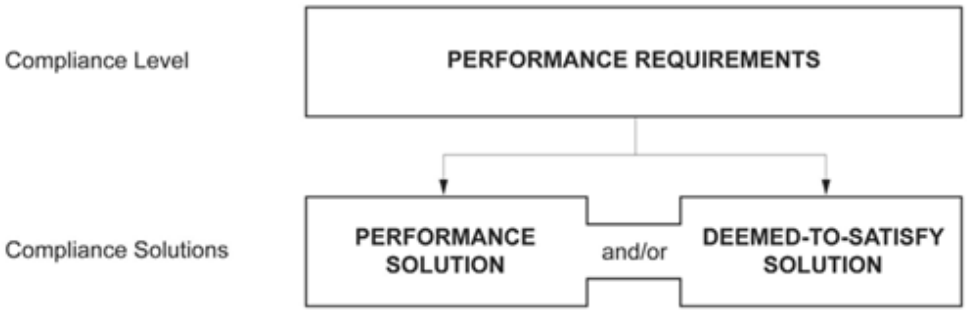
Section A2.1 of the Building Code of Australia 2019 states that the Performance Requirements can only be satisfied by a:

(a) Performance Solution; or
(b) Deemed-to-Satisfy Solution; or
(c) A combination of (a) and (b).

The following is noted:

- the term *Performance Solution* was formerly known as *Alternative Solution*
- The terms *Performance Solution* and *Deemed-to-Satisfy Solution* were formerly used under the term *Building Solution.*

Figure 1: NCC compliance option structure



1.3 Building Code of Australia (BCA)

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code (NCC) Series - Building Code of Australia (BCA) 2019 Amdt 1 - Volume 1 and the NSW variations where applicable and Premises Standards.

1.4 Report Limitations

This report does not include nor imply any detailed or assessment for design compliance or upgrading for:-

1. the structural adequacy or design of the building;
2. the inherent derived fire-resistance ratings of any existing structural elements of the building (unless specifically referred to);
3. the design basis and/or operating capabilities of any existing or proposed electrical, mechanical or hydraulic fire safety measure; and
4. fire safety upgrading of the existing building (unless specifically referred to).

This report does not include, imply or compliance with:

1. Demolition Standards not referred to by the BCA;
2. Occupational Health and Safety Act;
3. Construction Safety Act;
4. Requirements of other Regulatory Authorities including, but not limited to, Telstra, Water Authority, Electricity Authority, WorkCover, RTA, Council and the like; and
5. Conditions of Development Consent.

Note: "The contents of this report is provided for information only to demonstrate the types of fire safety measures that may be required to be installed in a building of this design when referencing the Deemed-to-Satisfy provisions of the Building Code of Australia".

1.5 Design Documentation

This report has been based on the following;

- Plans prepared by EJE Architecture, Job/Project No. 13393; Lot 109/1

Drawing Nos.	Sheet Name:	Rev: #	Dated:
A-0-000	Cover Sheet	A	19/08/2022
A-0-001	Drawing List	A	19/08/2022
A-0-002	Site Plan	A	19/08/2022
A-0-003	Truck Turning Diagrams	A	19/08/2022
A-1-000	Overall Plan	A	19/08/2022
A-1-100	Ground Floor Plan	A	19/08/2022
A-1-101	Level 1 Plan	A	19/08/2022
A-1-110	Perspective Views	A	19/08/2022
A-1-200	Elevations	A	19/08/2022
A-1-300	Section	A	19/08/2022

- Building Code of Australia 2019, Volume 1 and relevant Australian Standards.
- Environmental Planning and Assessment Act 1979.
- Environmental Planning and Assessment Regulation 2000.
- Access to Premises Standard.

1.6 Summary of Non-compliances and Performance Solutions

The following table provides a list of Deemed-to-Satisfy compliance departures with the proposed design;

Summary of Non-compliances & Performance Solutions		
Item #	**BCA Clause**	**Comments**
1.	D1.4	Exit travel distances - The travel distance on the first-floor open plan office located on the Tennant B side exceeds 20m to the single exit (central foyer) required non-fire isolated stairway.
2.	C2.7	Separation by Fire Walls - The wall separating the Office Building from the Workshop Building is to be separated by a common fire wall to achieve an FRL in accordance with Spec C1.1 and Table 4 (i.e. FRL of 240/240/240) with the construction complying with C2.7 (a) & (b). Architectural and structural details are to demonstrate compliance.
3.	C3.3	Separation of Openings in Different Fire Compartments - Confirmation of the external walls and openings opposing different fire compartments (buildings) that may require an FRL and protection in accordance with C3.3 and C3.4.
4.	C3.4	Protection of Openings - Openings within 180 degrees of adjoining buildings that require protection in accordance with clause C3.3 are to be protected in accordance with C3.4.
5.	C3.5	Doorways in Fire Walls - The common fire wall separating the Class 5 Office building from the Class 8 Workshop/Production building is provided with openings that are to be protected with an FRL not less than -/240/30 and designed to comply with the requirements of Clause C3.5.
6.	F1.0 & FP1.4	Weatherproofing Performance Solution - The architect or façade engineer is to demonstrate that the construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements through a performance solution report.

1.7 Terminology

- An Accredited Practitioner (Fire Safety) - Is the holder of an accreditation under the *Building and Development Certifiers Act 2018* that authorises the holder to exercise the functions of an accredited practitioner (fire safety).

- *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.

- *Effective height*

  Effective height means the vertical distance between the floor of the lowest storey included in a determination 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).

- *Exit*

  Exit means –
  (a) Any, or any combination of the following if they provide egress to a road or open space— (i) An internal or external stairway.

  (ii) A ramp.

  (iii) A fire-isolated passageway.

  (iv) A doorway opening to a road or open space.

  (b) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

- *Fire compartment*

  Fire compartment means –
  (a) the total space of a building; or

  (b) when referred to in— (i) the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

  (ii) the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to Satisfy Provisions of the relevant Part.

- *Fire Resistance Level (FRL)* - means the grading periods in minutes tested in accordance with AS 1530.4-2005 for the following criteria -

  a) structural adequacy; and
  b) integrity; and
  c) insulation,
  d) 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.

- *Fire wall*

  Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

- *Loadbearing*

  Intended to resist vertical forces additional to those due to its own weight.

- Mezzanine – means an intermediate floor within a room that is not enclosed by a wall.

- *Non-combustible*

  Non-combustible means—

  (a) applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and

  (b) applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

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

- *Sarking-type material*

  Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

- *Smoke growth rate index*

  Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

- *Sole occupancy unit*

  Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—
  (a) a dwelling; or

  (b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or

  (c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building.

2.0 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia 2019 the development may be described as follows;

2.1 Building Classification (Part A6 & Part A7)

The building classification has been classified as follows.

Building Levels	**Classification**	**Use**	**RIS**
Ground Floor Level	Class 5	Office	1
First Floor Level	Class 5	Office	2
Building Levels	**Classification**	**Use**	**RIS**
Ground Floor Level	Class 8	Workshop/Production	1

2.2 Rise in storeys (Clause C1.2)

The buildings have a rise in storeys of 2 (Office) and 1 (Workshop/Production).
Levels contained = Office (2) and Workshop/Production (1)

2.3 Effective Height (Schedule 3)

The building has an effective height of <12m (Approx).

2.4 Type of Construction (Clause C1.1)

Rise in storeys of 2 (Office) = Type C Construction.
Rise in storeys of 1 (Workshop/Production) = Type B Construction due to the Volume. (See C2.2 in the report)

3.0 BUILDING CODE OF AUSTRALIA ASSESSMENT (BCA)

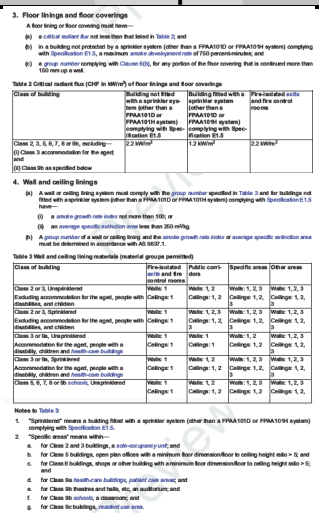
Legend:

N/A	= Not applicable
Applies	= Applicable for project
Complies	= Compliant
Capable	= Capable of Compliance with design
Non-compliant	= Design does not comply with Deemed-to-Satisfy provisions of BCA
Performance Solution	= Performance Solution to meet the Performance Requirements of BCA

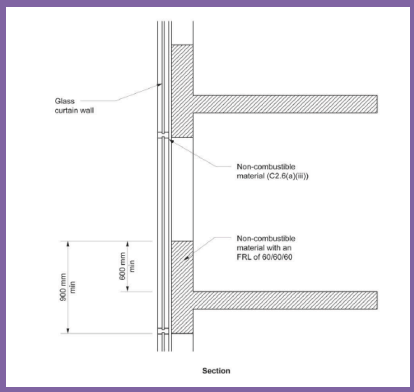
Item	Description	Status	Comments
SECTION B	**STRUCTURAL PRVISIONS**	Applies	
B1.1	Resistance to actions	Applies	Structural engineers details and a design statement is to be provided for all structural elements of the development to demonstrate compliance with the structural provisions of Section B. **Capable of complying**
B1.2	Determination of individual actions	Applies	Structural engineers details and a design statement is to be provided for all structural elements of the development to demonstrate compliance. **Capable of complying**
B1.4	Determination of structural resistance of materials and forms of construction	Applies	Structural engineers details and a design statement is to be provided for all structural elements of the development to demonstrate compliance. **Capable of complying**
B1.5	Structural software	Applies	Structural engineers details and a design statement is to be provided for all structural elements of the development to demonstrate compliance. **Capable of complying**
B1.6	Construction of buildings in flood hazard areas	Noted	Structural engineers details and a design statement is to be provided for all structural elements of the development to demonstrate compliance.
SECTION C	**FIRE RESISTANCE**	Applies	
PART C1	**FIRE RESISTANCE AND STABILITY**		
C1.1	Type of Construction	Type C (Office) and B (Workshop) Construction	The proposed development is **capable of complying** with the FRL requirements of Building Elements in Tables 4 & 5 of Spec C1.1
	Fire Source features (Proposed Building)		Openings located within 3m of the fire source feature (boundary) are required to be protected in accordance with BCA C3.4 and all building elements required to be

Item	Description	Status	Comments
			provided with an FRL designed to comply with BCA Spec C1.1 and Tables 4 & 5.
	• External Wall to North Boundary	Applies > 6m to far side of road (Aerospace Avenue)	Complies
	• External Wall to East Boundary	Applies > 3m to boundary	**N/A**
	• External Wall to South Boundary	Applies > 3m to boundary	**N/A**
	• External Wall to West Boundary	Applies > 3m	Complies
	• Other buildings on site	Applies > 6m to another building on site	**Capable of complying**
Specification C1.1	Fire-resisting construction		
2	General Requirements	Noted	Noted
3	Type A Fire-Resisting Construction	N/A	N/A
4	Type B Fire-Resisting Construction	Applies	Workshop **– Capable of Complying**
5	Type C Fire-Resisting Construction	Applies	Office **- Capable of complying**
C1.2	Rise in storeys	Applies	No. of Storeys = 2 (Office)
C1.3	Mixed class & top most storey	N/A	N/A
C1.5	Two storey Class 2, 3 or 9 buildings concession	N/A	N/A
C1.6	Class 4 parts of buildings	N/A	N/A
C1.7	Open spectator stands and indoor sports stadiums	N/A	N/A
C1.8 and Specification C1.8	Lightweight construction	N/A	All lightweight construction is to comply with Spec C1.1, C1.9 and Spec C1.1, Table 3. Manufacturers specifications are to be provided to demonstrate compliance.
C1.9	Non-combustible building elements	Applies to the Workshop	(a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible: (i) External walls and common walls, including all components incorporated in them including the façade covering, framing and insulation. (ii) The flooring and floor framing of lift pits. (iii) Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products or combustion, that is non-loadbearing, must be of non-combustible construction in – (i) A building required to be of Type A construction; and

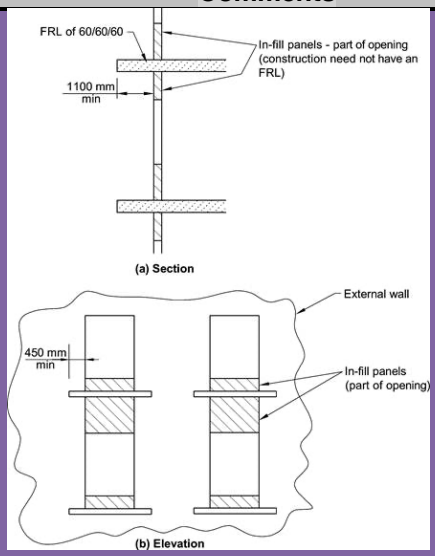
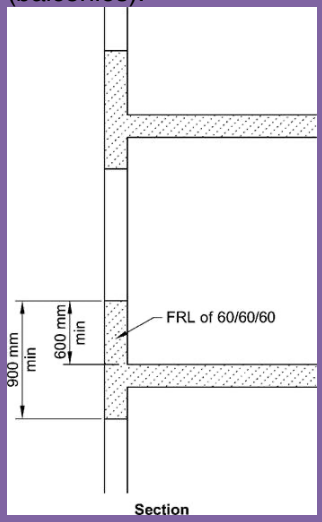
Item	Description	Status	Comments
	The following table lists building elements required to be non-combustible, concrete, or masonry in a building of Type A construction. **Building elements required to be non-combustible, concrete, masonry or fire-protected timber in a building of Type A construction** | Building element	Type A construction | |---|---| | External wall | Non-combustible | | Common wall | Non-combustible | | Floor and floor framing of lift pit | Non-combustible | | All loadbearing internal walls (including those of shafts) | Concrete, masonry or fire-protected timber | | Loadbearing fire walls | Concrete, masonry or fire-protected timber | | Non-loadbearing walls required to be fire-resistant | Non-combustible | | Non-loadbearing lift, ventilation, pipe, garbage and like shafts which do not discharge hot products of combustion | Non-combustible | The following table lists building elements required to be non-combustible, concrete, masonry or fire-protected timber in a building of Type B construction. **Building elements required to be non-combustible, concrete, masonry or fire-protected timber in a building of Type B construction** | Building element	Type B construction | |---|---| | External wall | Non-combustible | | Common wall | Non-combustible | | Floor and floor framing of lift pit | Non-combustible | | All loadbearing internal walls (including those of shafts) | Concrete, masonry or fire-protected timber | | Loadbearing fire walls | Concrete, masonry or fire-protected timber | | Non-loadbearing walls required to be fire-resistant | Non-combustible | | Non-loadbearing lift, ventilation, pipe, garbage and like shafts which do not discharge hot products of combustion | Non-combustible (subject to conditions outlined in C1.9(b)) | It should be noted that Parts C1, C2 and C3 and the associated Specifications contain some further non-combustibility requirements for certain building elements. Note also that C1.9 and other Deemed-to-Satisfy Provisions contain a number of concessions from non-combustibility. For example, C1.13 allows fire-protected timber to be used where an element is required to be non-combustible. C1.9(d) allows a concession from the requirement for non-combustibility for minor ancillary items forming part of an external wall. These minor ancillary items include gaskets, caulking, sealants and damp-proof courses. They may be used wherever a material is required to be non-combustible. In some instances the material may contain combustible components. C1.9(e) lists materials deemed to be non-combustible. These materials may be used wherever a material is required to be non-combustible. In some instances the material may contain combustible components. The materials listed are not intended to apply to fire place hearths (see G2.3).		(ii) A building required to be of Type B construction, subject to C2.10, in – (A) A Class 2, 3 or 9 building; and (B) A Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. (c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1. (d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants and damp-proof courses. (e) The following materials may be used wherever a non-combustible material is required: (i) Plasterboard. (ii) Perforated gypsum lath with a normal paper finish. (iii) Fibrous-plaster sheet. (iv) Fibre-reinforced cement sheeting. (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) Bonded laminated materials where – (A) Each lamina, including any core, is non-combustible; and (B) Each adhesive layer does not exceed 1mm in thickness and the total thickness of the adhesive layers does not exceed 2mm; and (C) The Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively. **Comments**: The architect is to provide evidence of suitability under BCA A5.2 via the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory, or d) a certificate or report from a professional engineer for each non-combustible building element. **Capable of complying**
A5.5, C1.10 and NSW Specification	Fire hazard properties	Applies	The fire hazard properties of the proposed floor linings and coverings, wall and ceiling linings in common areas and Specific areas

Item	Description	Status	Comments
C1.10 & C1.10a			(Refer to Note 2) are to be provided to the Principal Certifier prior to issue of the Construction Certificate. **Comments**: The fire hazard properties for all floor linings and coverings, wall and ceiling linings are to be provided by the manufacture in the form of the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory **Capable of complying** Air-handling ductwork – Rigid and flexible ductwork in a Class 2 to 9 building must comply with the relevant fire hazard properties set out in AS4254.1 and AS4254.2 and provided to the Principal Certifier prior to issue of the Construction Certificate. **Comments**: The rigid and flexible air-handling ductwork must comply with the relevant fire hazard properties set out in AS4254.1 and AS4254.2 in the form of the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory **Capable of complying**
C1.11 and Specification C1.11	Performance of external walls in fire	Applies	Structural details and design statement will be required to support an application for construction certificate. **Capable of complying**
C1.12	Non-combustible materials	Deleted	Deleted
C1.13	Fire protected timber “concession”	N/A	N/A
C1.14	Ancillary elements	Applies to Workshop	An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following: (a) An ancillary element that is non-combustible. (b) A gutter, downpipe or other plumbing fixture or fitting. (c) A flashing.

Item	Description	Status	Comments
			(d) A grate or grille not more than 2 m² in area associated with a building service. (e) An electrical switch, socket-outlet, cover plate or the like. (f) A light fitting. (g) A required sign. (h) A sign other than one provided under (a) or (g) that— (i) achieves a group number of 1 or 2; and (ii) does not extend beyond one storey; and (iii) does not extend beyond one fire compartment; and (iv) is separated vertically from other signs permitted under (h) by at least 2 storeys. (i) An awning, sunshade, canopy, blind or shading hood other one provided under (a) that— (i) meets the requirements of Table 4 of Specification C1.10 as for an internal element; and (ii) serves a storey— (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an exit, where it would render the exit unusable in a fire. (j) A part of a security, intercom or announcement system. (k) Wiring. (l) A paint, lacquer or a similar finish. (m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k). **Comments**: The architect/structural engineer is to provide evidence of suitability under BCA A5.2 via the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory or a certificate, or d) a report from a professional engineer for each non-combustible ancillary element. **Capable of complying**
PART C2	**COMPARTMENTATION AND SEPARATION**		
C2.2	General floor area and limitations Lot 109/1 - Facility Site Area 7,290m² Vehicle Movement 2,695m² Building Area Workshop Area 2,000m² Offices Area 985 m² Foyer Area 226m² Total 3,211m²	Applies	Table C2.2 Maximum size of fire compartments or atria Classification / Type A construction / Type B construction / Type C construction 5, 9b or 9c: Max floor area—8000 m² / Max volume—48000 m³; Max floor area—5500 m² / Max volume—33000 m³; Max floor area—3000 m² / max volume—18000 m³ 6, 7, 8 or 9a (except for patient care areas): Max floor area—5000 m² / Max volume—30000 m³; Max floor area—3500 m² / Max volume—21000 m³; Max floor area—2000 m² / Max volume—12000 m³ Note to Table C2.2: See C2.5 for maximum size of compartments in patient care areas in Class 9a health-care buildings. Class 5 Type C Construction – Floor Area = 1,211m2 and Volume = 9,688m3.

Item	Description	Status	Comments
			Class 8 Type B Construction – Floor Area = 2,000m2 and Volume = 18,000m3. **Complies**
C2.3	Large isolated buildings	N/A	N/A
C2.4	Requirements for open spaces and vehicular access	N/A	N/A
NSW C2.5 (b)	Class 9a and 9c buildings	N/A	N/A
C2.6	Vertical separation of openings in external walls	N/A	To Type **A** construction (a) If in a building of Type A construction, any part of a window or other opening in an external wall is above another opening in the storey next below and its vertical projection falls no further than 450 mm outside the lower opening (measured horizontally), the openings must be separated by— (i) A spandrel which – (A) Is not less than 900mm in height; and (B) Extends not less than 600mm above the upper surface of the intervening floor; and (C) Is of non-combustible material having an FRL of not less than 60/60/60; or (ii) Part of a curtain wall or panel wall that complies with (i); or Construction that complies with (i) behind a curtain wall or panel wall and has any gaps packed with a non-combustible material that will withstand thermal expansion and structural movement of the walling without the loss of seal against fire and smoke; or  (iii) A slab or other horizontal construction that – (A) Projects outwards from the external face of the wall not less than 1100mm; and

Item	Description	Status	Comments
			(B) Extends along the wall not less than 450mm beyond the openings concerned; and (C) Is non-combustible and has an FRL of not less than 60/60/60. (b) The requirements of (a) do not apply to – (i) An open-deck car park; or (ii) An open spectator stand; or (iii) A building which has a sprinkler system complying with Specification E1.5 installed throughout (other than a FPAA101D or FPAA101H system); or (iv) Openings within the same stairway; or (v) Openings in external walls where the floor separating the storeys does not require an FRL with respect to integrity and insulation. (c) For the purposes of C2.6, window or other opening means that part of the external wall of a building that does not have an FRL off 60/60/60 or greater. **Comments**: The building is to be provided with a sprinkler system in accordance with E1.5 and Spec E1.5 or E1.5a. Should a FPAA101D or FPAA101H system as described in C2.6 (b)(iii) be proposed then spandrel separation will apply. The plans will be required to indicate spandrel separation of 900mm with horizontal projections on balconies to be 1.1m and window openings setback 450mm from edge of balconies.

Item	Description	Status	Comments
			 The spandrel separation of 900mm and 600mm is to be provided between storeys where the 1.1m horizontal projections (balconies). 
C2.7	Separation by fire walls	Applies	The office and workshop/production buildings are proposed to be separated by common fire wall complying with the following. **Construction** — A *fire wall* must be constructed in accordance with the following: (i)The *fire wall* has the relevant FRL prescribed by Specification C1.1 for each of the adjoining parts, and if these are different, the greater FRL, except where Tables 3.9, 4.2 and 5.2 of Specification C1.1 permit a lower FRL on the *carpark* side.

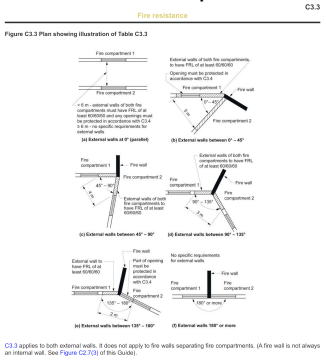
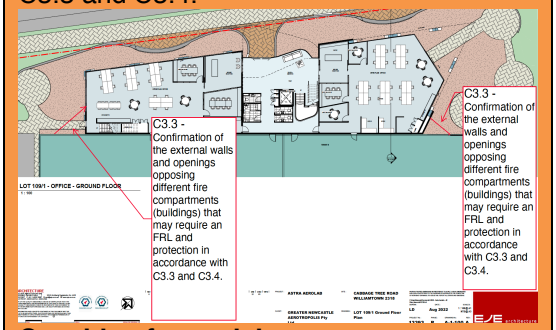
Item	Description	Status	Comments
			(ii)Any openings in a *fire wall* must not reduce the FRL *required* by Specification C1.1 for the *fire wall*, except where permitted by the *Deemed-to-Satisfy Provisions* of Part C3. (iii)Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not pass through or cross the *fire wall* unless the *required fire-resisting* performance of the *fire wall* is maintained. **Separation of buildings** — A part of a building separated from the remainder of the building by a *fire wall* may be treated as a separate building for the purposes of the *Deemed-to-Satisfy Provisions* of Sections C, D and E if it is constructed in accordance with (a) and the following: (i)The *fire wall* extends through all *storeys* and spaces in the nature of *storeys* that are common to that part and any adjoining part of the building. (ii)The *fire wall* is carried through to the underside of the roof covering. (iii)Where the roof of one of the adjoining parts is lower than the roof of the other part, the *fire wall* extends to the underside of – (A)the covering of the higher roof, or not less than 6 m above the covering of the lower roof; or (B)the lower roof if it has an FRL not less than that of the *fire wall* and no openings closer than 3 m to any wall above the lower roof; or (C)the lower roof if its covering is *non-combustible* and the lower part has a sprinkler system (other than aFPAA101D or FPAA101H system) complying with Specification E1.5. **Comments**: The common fire wall separating the Office Building from the Workshop Building is to achieve an FRL in accordance with Spec C1.1 and Table 4 (i.e. FRL of 240/240/240) and the construction complying with C2.7 (a) & (b). Architectural and structural details are to demonstrate compliance. **Capable of complying** **Note**: See Clause C3.5 in the report for further information.

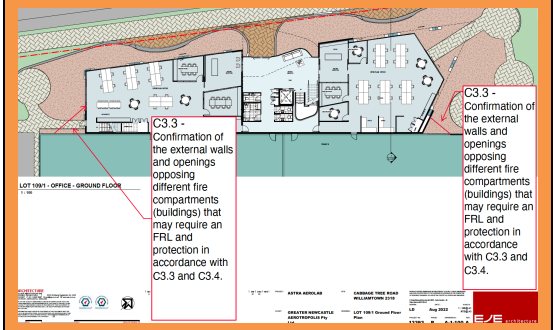
Item	Description	Status	Comments
C2.8	Separation of classifications in the same storey	N/A	The building has a Class 7a car park located alongside Class 6 “Retail Premises” and Class 2 “Residential” sole-occupancy units lobby in the same storey; • Each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or • The parts must be separated in that storey by a fire wall having – • The higher FRL prescribed in Table **3**, 4 or 5 of Specification C1.1 as applicable for that element for the Type of construction and the classifications concerned. • Where one part is a car park complying with Table **3.9**, 4.2 or 5.2 of Specification C1.1, the parts may be separated by a fire wall complying with the appropriate Table. **Comments**: The following FRL’s are to be provided to walls separating classifications in the same storey: Class 7a and Class 6 = FRL 180/180/180 Class 7a and Class 2 = FRL 120/120/120 **Note**: Fire doors are to be provided in separating walls that have the same integrity of the FRL with a concession for the insulation which can be reduced to 30min. A floor plan identifying the required FRL and door schedule is to be provided with the structural details to confirm FRL compliance.
C2.9	Separation of classifications in different storeys	N/A	If parts of different classification are situated one above the other in adjoining *storeys* they must be separated as follows; (a) Type A construction — The floor between the adjoining parts must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey.

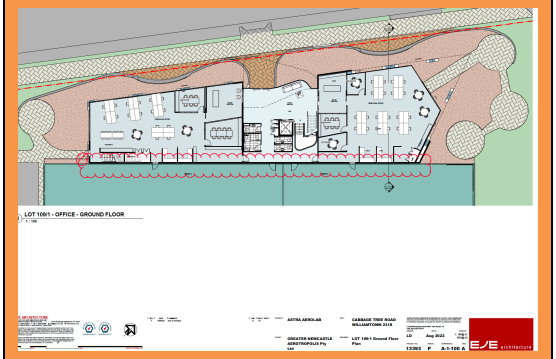
Item	Description	Status	Comments
			~~(b) Type B or C construction — If one of the adjoining parts is of Class 2, 3 or 4, the floor separating the part from the *storey* below must—~~ ~~(i) be a floor/ceiling system incorporating a ceiling which has a *resistance to the incipient spread of fire* to the space above itself of not less than 60 minutes; or~~ ~~(ii) have an FRL of at least 30/30/30; or~~ ~~(iii) have a *fire-protective covering* on the underside of the floor, including beams incorporated in it, if the floor is *combustible* or of metal.~~ **Comments**: The following FRL's are to be provided to floors separating classifications in different storeys. Class 7a and Class 2 = FRL 120/120/120 Class 6 and Class 2 = FRL 180/180/180 Class 2 and Class 2 = FRL 90/90/90 A floor plan identifying the required FRL is to be provided with the structural details to confirm compliance.
C2.10	Separation of lift shafts	N/A	(a) Any lift connecting more than 2 storeys, or more than 3 storeys if the building is sprinklered, (other than lifts which are wholly within an atrium) must be separated from the remainder of the building by enclosure in a shaft in which— (i) in a building required to be of Type A construction—the walls have the relevant FRL prescribed by Specification C1.1; and (ii) in a building required to be of Type B construction — the walls— (A) if loadbearing, have the relevant FRL prescribed by Table 4 of Specification C1.1; or (B) if non-loadbearing, be of non-combustible construction. (b) Any lift in a patient care area in a Class 9a health-care building or a resident use area in Class 9c aged care building must be separated from the remainder of the building by a shaft having an FRL of not less than— (i) in a building of Type A or B construction — 120/120/120; or

Item	Description	Status	Comments
			(ii) in a building of Type C construction — 60/60/60. (c) An emergency lift must be contained within a fire-resisting shaft having an FRL of not less than 120/120/120. (d) Openings for lift landing doors and services must be protected in accordance with the Deemed-to-Satisfy Provisions of Part C3. **Comments:** The lifts are enclosed in their own shaft and require an FRL of not less than 120/120/120 with lift openings to be protected. Structural details are required to confirm FRL compliance. **Note**: See Spec E1.5a clause 3 – Permitted Concessions for reduced FRL's.
C2.11	Stairways and lifts in one shaft	N/A	The plans indicate that no stairways and lifts in one shaft.
C2.12	Separation of equipment	Applies	(a) Equipment other than that described in (b) and (c) must be separated from the remainder of the building with construction complying with (d), if that equipment comprises— (i) lift motors and lift control panels; or (ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or (iii) central smoke control plant; or (iv) boilers; or (v) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours. (b) Equipment need not be separated in accordance with (a) if the equipment comprises— (i) smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or (ii) stair pressurising equipment installed in compliance with the relevant provisions of AS/NZS 1668.1; or (iii) a lift installation without a machine-room; or (iv) equipment otherwise adequately separated from the remainder of the building.

Item	Description	Status	Comments
			(c) Separation of on-site fire pumps must comply with the requirements of AS 2419.1. (d) Separating construction must have— (i) except as provided by (ii)— (A) an FRL as required by Specification C1.1, but not less than 120/120/120; and (B) any doorway protected with a self-closing fire door having an FRL of not less than –/120/30; or (ii) when separating a lift shaft and lift motor room, an FRL not less than 120/–/–. **Comments:** Further confirmation is to be provided to demonstrate as to whether this clause applies. **Capable of complying**
C2.13	Electricity supply system	Applies	Details are to be provided for the proposed electrical supply for the building. **Note**: Emergency equipment is to be fire separated in separate switchboards from non-emergency equipment. **Capable of complying**
C2.14	Public corridors in Class 2 and 3 buildings	N/A	In a Class 2 or 3 building, a public corridor (*enclosed*), if more than 40 m in length, must be divided at intervals of not more than 40 m with smoke-proof walls complying with Clause 2 of Specification C2.5. **Comments**: The public corridors serving the sole-occupancy units do not exceed 40m in distance.
PART C3	**PROTECTION OF OPENINGS**		
C3.2(a) NSW deleted	Protection of openings in external walls that are required to have an FRL	Applies	**Comments:** The plans indicate that openings are provided within 6m of another building on the same allotment. The openings require protection in accordance with C3.4.

Item	Description	Status	Comments
C3.3	Separation of openings in different fire compartments 	Applies	The distance between parts of *external walls* and any openings within them in **different *fire compartments*** separated by a ***fire wall*** must not be less than that set out in Table C3.3, unless— (a)those parts of each wall have an FRL not less than 60/60/60; and (b)any openings protected in accordance with C3.4. **Comments**: Confirmation of the external walls and openings opposing different fire compartments (buildings) that may require an FRL and protection in accordance with C3.3 and C3.4.  **Capable of complying**
C3.4	Acceptable methods of protection	Applies	The windows and doors are required to be provided with the following; Doorways – (a) internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or (b) -/60/30 fire doors that are self-closing or automatic closing. Windows – (a) Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or (b) -/60/- fire windows that are automatic closing or permanently fixed in the closed position; or (c) -/60/- automatic closing fire shutters. Other openings – (a) Excluding voids – internal or external wall-wetting sprinklers, as appropriate; or (b) Construction having an FRL not less than -/60/-. **Comments**: Openings within 180 degrees of adjoining buildings that require protection

Item	Description	Status	Comments
			in accordance with clause C3.3 are to be protected in accordance with C3.4.  **Capable of complying**
C3.5	Doorways in fire walls	Applies	(a)The aggregate width of openings for doorways in a *fire wall*, which are not part of a *horizontal exit*, must not exceed½ of the length of the *fire wall*, and each doorway must be protected by— (i)2 fire doors or fire shutters, one on each side of the doorway, each of which has an FRL of not less than ½ that *required* by Specification C1.1 for the *fire wall* except that each door or shutter must have an *insulation* level of at least 30; or (ii)a fire door on one side and a fire shutter on the other side of the doorway, each of which complies with (i); or (iii)a single fire door or fire shutter which has an FRL of not less than that *required* by Specification C1.1 for the *firewall* except that each door or shutter must have an *insulation* level of at least 30. (b)A fire door or fire shutter *required* by (a)(i), (ii) or (iii) must be *self-closing*, or *automatic* closing in accordance with(c)and (d). (c)The *automatic* closing operation *required* by (b) must be initiated by the activation of a smoke detector, or any other detector deemed suitable in accordance with AS 1670.1 if smoke detectors are unsuitable in the atmosphere, installed in accordance with the relevant provisions of AS 1670.1 and located on each side of the *fire wall* not more than 1.5m horizontal distance from the opening. (d)Where any other *required* suitable fire alarm system, including a sprinkler system (other than a FPAA101D system)complying with Specification E1.5, is installed in the building, activation of the system in either *fire compartment* separated by the *fire wall* must also initiate the *automatic* closing operation.

Item	Description	Status	Comments
			Comments: The common fire wall separating the Class 5 Office building from the Class 8 Workshop/Production building is provided with openings that are to be protected with an FRL not less than -/240/30 and designed to comply with the requirements of Clause C3.5.  A door schedule is to be provided including specifications and any other design that assist in the operation of the fire door/s. **Capable of complying**
C3.6	Sliding fire doors	N/A	N/A
C3.7	Protection of doorways in horizontal exits	N/A	(a) A doorway that is part of a *horizontal exit* must be protected by either— (i)a single fire door that has an FRL of not less than that *required* by Specification C1.1 for the *fire wall* except that the door must have an *insulation* level of at least 30; or (ii)in a Class 7 or 8 building — 2 fire doors, one on each side of the doorway, each with an FRL of not less than that *required* by Specification C1.1 for the *fire wall* except that each door must have an *insulation* level of at least 30. (b)Each door *required* by (a) must be *self-closing*, or *automatic*-closing in accordance with the following: (i)The *automatic*-closing operation must be initiated by the activation of a smoke detector, or any other detector deemed suitable in accordance with AS 1670.1 if smoke detectors are unsuitable in the atmosphere, installed in accordance with the relevant provisions of AS 1670.1 and located on each side of the *fire wall* not more than 1.5 m horizontal distance from the opening. (ii)Where any other *required* suitable fire alarm system, including a sprinkler system (other than a FPAA101D system) complying with Specification E1.5, is installed in the building, activation of the

Item	Description	Status	Comments
			system in either *fire compartment* separated by the *fire wall* must also initiate the *automatic*-closing operation. **Comments**: The horizontal exit leading from the car parking 2 is to be provided with a self-closing fire door. **Note**: See D1.11 for further information.
C3.8	Openings in fire isolated exits	N/A	(a) Doorways that open to *fire-isolated stairways*, *fire-isolated passageways* or *fire-isolated ramps*, and are not doorways opening to a road or *open space*, must be protected by –/60/30 fire doors that are *self-closing*, or *automatic*-closing in accordance with (b) and (c). (b)The *automatic*-closing operation *required* by (a) must be initiated by the activation of a smoke detector, or any other detector deemed suitable in accordance with AS 1670.1 if smoke detectors are unsuitable in the atmosphere, installed in accordance with the relevant provisions of AS 1670.1 and located not more than 1.5 m horizontal distance from the approach side of the doorway. (c)Where any other *required* suitable fire alarm system, including a sprinkler system (other than a FPAA101D system) complying with Specification E1.5, is installed in the building, activation of the system must also initiate the *automatic*-closing operation. (d)A *window* in an *external wall* of a *fire-isolated stairway*, *fire-isolated passageway* or *fire-isolated ramp* must be protected in accordance with C3.4 if it is within 6 m of, and exposed to, a *window* or other opening in a wall of the same building, other than in the same fire-isolated enclosure. **Comments**: A door schedule is to be provided to confirm compliance.
C3.9	Service penetrations in fire isolated exits	N/A	Fire-isolated exits must not be penetrated by any services other than— (a) electrical wiring permitted by D2.7(e) to be installed within the exit; or (b) ducting associated with a pressurisation system if it— (i) is constructed of material having an FRL of not less than –/120/60

Item	Description	Status	Comments
			where it passes through any other part of the building; and (ii) does not open into any other part of the building; or (c) water supply pipes for fire services.
C3.10	Openings in fire isolated lift shafts	N/A	(a) Doorways — If a lift shaft is required to be fire-isolated, an entrance doorway to that shaft must be protected by –/60/– fire doors that— (i) comply with AS 1735.11; and (ii) are set to remain closed except when discharging or receiving passengers, goods or vehicles. (b) Lift indicator panels — A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35 000 mm2 in area. **Comments:** Lift manufacturer details and certification is to be provided to the Principal Certifying Authority to confirm design compliance for the openings in fire-isolated lift shafts.
C3.11 NSW C3.11(d) & C3.11 (g)	Bounding construction: Class 2, 3 & 4 buildings	N/A	Type A Construction - Sole-occupancy unit entry doors shall be provided with self-closing, FRL-/60/30 fire doors. Type B or C Construction – Sole-occupancy unit entry doors shall be provided with self-closing, tight fitting, solid core doors, not less than 35mm thick. **Comments**: A door schedule is to be provided to confirm compliance. **Note**: See Spec E1.5a clause 3 – Permitted Concessions for reduced FRL's. **Capable of complying** In a Class 2 or 3 building where a path of travel to an exit does not provide a person seeking egress with a choice of travel in different directions to alternative exits and is along an open balcony, landing or the like and passes an external wall of – (i) another sole-occupancy unit; or (ii) a room not within a sole-occupancy unit, then than external wall must – (iii) be constructed of concrete or masonry, or be lined internally with a fire-protective covering; and

Item	Description	Status	Comments
			(iv) have any doorway fitted with a self-closing, tight-fitting solid core door not less than 35mm thick; and (v) have any windows or other openings – (A) protected internally in accordance with C3.4; or (B) located at least 1.5m above the floor of the balcony, landing or the like. **Comments:** The open balcony path of travel to an exit does not provide a person seeking egress with a choice of travel in different directions to alternative exits. Therefore, the external walls of a room not within a sole-occupancy unit and sole-occupancy unit must be constructed of concrete or masonry, or be lined internally with a fire-protective covering; and have any doorway fitted with a self-closing, tight-fitting solid core door not less than 35mm thick; and have any windows or other openings – (a) protected internally in accordance with **C3.4**; or (b) located at least 1.5m above the floor of the balcony, landing or the like. **Note**: See Spec E1.5a clause 3 – Permitted Concessions for not requiring openings to be protected externally in accordance with C3.11(g).
C3.12	Openings in floors for services	N/A	(a) Where a service passes through— (i) a floor that is required to have an FRL with respect to integrity and insulation; or (ii) a ceiling required to have a resistance to the incipient spread of fire, the service must be installed in accordance with (b). (b) A service must be protected— (i) in a building of Type A construction, by a shaft complying with Specification C1.1; or (ii) in a building of Type B or C construction, by a shaft that will not reduce the fire performance of the building elements it penetrates; or (iii) in accordance with C3.15. (c) Where a service passes through a floor which is required to be protected by a

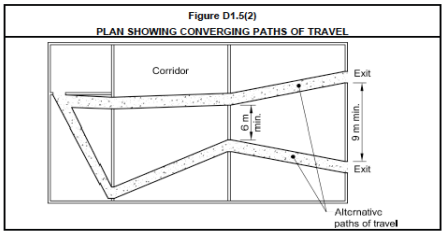
Item	Description	Status	Comments
			fire-protective covering, the penetration must not reduce the fire performance of the covering. **Comments:** An approved system from the manufacture is to be provided to maintain the FRL for services that pass through a floor, wall or ceiling in the form of the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory
C3.13	Openings in shafts	N/A	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— (a) if it is in 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 (b) a self-closing –/60/30 fire door or hopper; or (c) an access panel having an FRL of not less than –/60/30; or (d) if the shaft is a garbage shaft — a door or hopper of non-combustible construction.
C3.15	Openings for service installations **Note**: Should an insulation used as a thermal break to comply with Section J be proposed the service penetrations, are not to be covered by the lining and therefore, cutback and then taped where the foam is exposed. This only applies to bottom down fire stopping systems such as fire collars and only requires the steel ring of the collar to be exposed.	Applies	Where an electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrates a building element (other than an external wall or roof) that is required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire, that installation must comply with any one of the following: (a) Tested systems (i) The service, building element and any protection method at the penetration are identical with a prototype assembly of the service, building element and protection method which has been tested in accordance with AS 4072.1 and AS 1530.4 and has achieved the required FRL or resistance to the incipient spread of fire. (ii) It complies with (i) except for the insulation criteria relating to the service if—

Item	Description	Status	Comments
			(A) the service is a pipe system comprised entirely of metal (excluding pipe seals or the like); and (B) any combustible building element is not located within 100 mm of the service for a distance of 2 m from the penetration; and (C) combustible material is not able to be located within 100 mm of the service for a distance of 2 m from the penetration; and (D) it is not located in a required exit. (b) Ventilation and air-conditioning — In the case of ventilating or air-conditioning ducts or equipment, the installation is in accordance with AS/NZS 1668.1. (c) Compliance with Specification C3.15 (i) The service is a pipe system comprised entirely of metal (excluding pipe seals or the like) and is installed in accordance with Specification C3.15 and it— (A) penetrates a wall, floor or ceiling, but not a ceiling required to have a resistance to the incipient spread of fire; and (B) connects not more than 2 fire compartments in addition to any fire-resisting service shafts; and (C) does not contain a flammable or combustible liquid or gas. (ii) The service is sanitary plumbing installed in accordance with Specification C3.15 and it— (A) is of metal or UPVC pipe; and (B) penetrates the floors of a Class 5, 6, 7, 8 or 9b building; and (C) is in a sanitary compartment separated from other parts of the building by walls with the FRL required by Specification C1.1 for a stair shaft in the building and a self-closing –/60/30 fire door. (iii) The service is a wire or cable, or a cluster of wires or cables installed in accordance with Specification C3.15 and it— (A) penetrates a wall, floor or ceiling, but not a ceiling

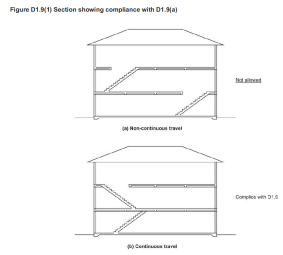
Item	Description	Status	Comments
			required to have a resistance to the incipient spread of fire; and (B) connects not more than 2 fire compartments in addition to any fire-resisting service shafts. (iv) The service is an electrical switch, outlet, or the like, and it is installed in accordance with Specification C3.15. **Comments:** An approved system from the manufacture is to be provided to maintain the FRL for services that pass through a common fire wall in the form of the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory **Capable of complying**
C3.17	Columns protected with lightweight construction to achieve an FRL	N/A	A column protected by *lightweight construction* to achieve an FRL which passes through a building element that is *required* to have an FRL or a *resistance to the incipient spread of fire*, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the *required* FRL or *resistance to the incipient spread of fire*. **Comments**: A system of design is to be provided should columns be protected with lightweight construction to achieve an FRL.
SECTION D	**ACCESS & EGRESS**		
PART D1	**PROVISION FOR ESCAPE**		
D1.1	Application of part	Applies	**Capable of complying**
D1.2	Number of Exits required	Applies	All buildings – Every building must have at least one exit from each storey. **Complies** Class 2 – (b) Class 2 to 8 buildings — In addition to any horizontal exit, not less than 2 exits must be provided from the following: (i) Each storey if the building has an effective height of more than 25m. (ii) A Class 2 or 3 building subject to C1.5. Why do some buildings require multiple exits?

Item	Description	Status	Comments
			The purpose of regulatory control over the number of exits in a building is to maximise the opportunities for people to have egress from the building in an emergency. Egress from some buildings can be very difficult (for example, particularly tall or large buildings, or even small buildings which have a complex passageway design). It may be necessary to provide several alternative exits. Class 5 Office – One (1) exit is required. **Complies** **Note**: Refer to clause D1.4 in the report for further information. Class 8 Workshop/Production – Two (2) exits are required from each tenancy. **Capable of complying**
D1.3	When fire isolated exits are required	N/A	(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 require 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. **Comments:** The stairways are required to be fire isolated as the connect, pass through or passes by more than 3 consecutive storeys.

Item	Description	Status	Comments
			Note: The lift overrun and stairway are not considered to be a storey by definition leading to the roof top. (b) Class 5, 6, 7, 8 or 9 buildings – Every stairway or ramp serving as a required exit must be fire-isolated unless – (i) In a Class 9a health-care building – it connects, or passes through or passes by not more than 2 consecutive storeys in areas other than patient care areas; or (ii) it is part of an open spectator stand; or (iii) in any other case except in a Class 9c aged care building, it connects, passes through or passes by not more than 2 consecutive storeys and one extra storey of any classification may be included if – (A) the building has a sprinkler system complying with Specification E1.5 installed throughout; or (B) the required exit does not provide access to or egress for, and is separated from, the extra storey by construction having – (aa) an FRL of –/60/60, if non-loadbearing; and (bb) an FRL of 90/90/90 for Type A construction or 60/60/60 for Type B construction, if loadbearing; and (cc) no opening that could permit the passage of fire or smoke.
D1.4	Exit travel distances	Applies	**Class 5, 6, 7, 8 or 9 buildings** — (i)no point on a floor must be more than 20 m from an *exit*, or a point from which travel in different directions to 2*exits* is available, in which case the maximum distance to one of those *exits* must not exceed 40 m; and (ii)in a Class 5 or 6 building, the distance to a single *exit* serving a *storey* at the level of access to a road or *open space* may be increased to 30 m. **Comments:** The travel distance on the first-floor open plan office on the Tennant B side exceeds 20m to the single exit (central foyer) required non-fire isolated stairway. **Does not comply**

Item	Description	Status	Comments
			Note: No assessment has been undertaken on the workshop/production building due to the limited information on the plans.
D1.5	Distance between alternative exits	Applies	Class 5 and 8 – Located not less than 9m apart. **Capable of complying** Class 5 and 8 – Not more than 60m apart. **Capable of complying** All Classes – Not converge closer than 6m.  D1.6 Dimensions of exits and paths of travel to exits **Capable of complying**
D1.6	Dimensions of exits	Applies	The unobstructed height throughout a required exit or path of travel to a required exit must be not less than 2m, except the unobstructed height of doorway may be reduced to not less than 1980mm. **Capable of complying** A minimum 1m clear path of travel to exits is to be provided. **Note**: At the doorway the opening width may be reduced by 250mm. **Comments:** The common corridors are required to have an unobstructed width of not less than 1m. **Capable of complying** **Note:** See also clause D1.13 in the report to determine the aggregate unobstructed width, the number of persons accommodated must be calculated.
D1.7	Travel via fire isolated exits	N/A	(a) A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from— (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or

Item	Description	Status	Comments
			(iii) a sanitary compartment, airlock or the like. (b) Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— (i) to a road or open space; or (ii) to a point— (A) in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and (B) from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or (iii) into a covered area that— (A) adjoins a road or open space; and (B) is open for at least 1/3 of its perimeter; and (C) has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and (D) provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m. (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. (d) If more than 2 access doorways, not from a sanitary compartment or the like, open to a required fire-isolated exit in the same storey— (i) a smoke lobby in accordance with D2.6 must be provided; or (ii) the exit must be pressurised in accordance with AS/NZS 1668.1.

Item	Description	Status	Comments
			(e) A ramp must be provided at any change in level less than 600 mm in a fire-isolated passageway in a Class 9 building.
D1.8	External stairways in lieu of fire isolated stairways	N/A	N/A
D1.9	Travel by non-fire isolated stairways or ramps  	Applies	(a) A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. **Complies** (b) ~~In a Class 2, 3 or 4 building, the distance between the doorway of a room or sole-occupancy unit and the point of egress to a road or open space by way of a stairway or ramp that is not fire-isolated and is required to serve that room or sole-occupancy unit must not exceed –~~ (i) ~~30 m in a building of Type C construction; or~~ (ii) ~~60 m in all other cases.~~ (c) In a Class 5, 6, 7, 8 or 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 80 m. **Complies** (d) ~~In a Class 2, 3 or 9a building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than –~~ (i) ~~15 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or~~ (ii) ~~30 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions.~~ (e) In a Class 5 to 8 or 9b building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than – (i) 20 m from a doorway providing egress to a road or open space or

Item	Description	Status	Comments
			from a fire-isolated passageway leading to a road or open space; or **Complies** ~~(ii) 40 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions.~~ (f) ~~In a Class 2 or 3 building, if 2 or more exits are required and are provided by means of internal non-fire-isolated stairways or non-fire-isolated ramps, each exit must –~~ (i) ~~provide separate egress to a road or open space; and~~ (ii) ~~be suitably smoke-separated from each other at the level of discharge.~~ **Note**: See D2.6 for further requirements.
D1.10	Discharge from exits	Applies	(a) An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it. (b) If a required exit leads to an open space, the path of travel to the road must have an unobstructed width throughout of not less than – (i) the minimum width of the required exit; or (ii) 1m, Whichever is the greater. (c) If an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by – (i) ~~a ramp or other incline having a gradient not steeper than 1:8 at any part, or not steeper than 1:14 if required by the Deemed-to-Satisfy Provisions of Part D3; or~~ (ii) except if the exit is from a Class 9a building, a stairway complying with the Deemed-to-Satisfy Provisions of the BCA. (d) The discharge point of alternative exits must be located as far apart as practical. An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit or access to it.

Item	Description	Status	Comments
			Comments: An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit or access to it. **Capable of complying**
D1.11	Horizontal exits	N/A	(a)*horizontal exits* must not be counted as *required exits*— (i)between *sole-occupancy units*; or (ii)in a Class 9b building used as an *early childhood centre*, primary or secondary *school*. (b)In a Class 9a *health-care building* or Class 9c building, *horizontal exits* may be counted as *required exits* if the path of travel from a *fire compartment* leads by one or more *horizontal exits* directly into another *fire compartment* which has at least one *required exit* which is not a *horizontal exit*. (c)In cases other than in (b), *horizontal exits* must not comprise more than half of the *required exits* from any part of a *storey* divided by a *fire wall*. (d)*Horizontal exits* must have a clear area on the side of the *fire wall* to which occupants are evacuating, to accommodate the total number of persons (calculated under D1.13) served by the *horizontal exit* of not less than— (i)2.5 m2 per patient/resident in a Class 9a *health-care building* or Class 9c *aged care building*; and (ii)0.5 m2 per person in any other case. (e)Where a *fire compartment* is provided with only two *exits*, and one of those *exits* is a *horizontal exit*, the clear area *required* by (d) is to be of a size that accommodates all the occupants from the *fire compartment* being evacuated. (f)The clear area *required* by (d) must be connected to the *horizontal exit* by an unobstructed path that has at least the dimensions *required* for the *horizontal exit* and may include the area of the unobstructed path. **Note**: See C3.7 of the report for further information.
D1.12 and Specification C1.12	Non-required stairways, ramps or escalators	N/A	N/A
D1.13	Number of persons accommodated	Noted	Class 5 - Office areas including reception = 10m2 per person = 98 occupants. Class 8 - Workshop = 50m per person = 40 occupants.

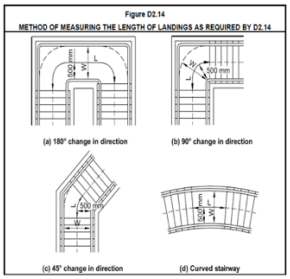
Item	Description	Status	Comments
			Total = 138 occupants. **Note**: The number of exits, exit widths and sanitary facilities are to be designed to cater for the building occupant numbers. **Capable of complying**
D1.14 & D1.15	Measurement of distances and method of measurement	Noted	Noted
D1.16	Plant rooms and lift monitor rooms: concession	N/A	N/A
D1.17	Access to lift pits  	N/A	Access to lift pits must— (a) where the pit depth is not more than 3 m, be through the lowest landing doors; or (b) where the pit depth is more than 3 m, be provided through an access doorway complying with the following: (i) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii). (ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. (iii) Access to the doorway must be by a stairway complying with AS 1657. (iv) In lieu of D2.21, doors fitted to the doorway must be— (A) of the horizontal sliding or outwards opening hinged type; and (B) self-closing and self-locking from the outside; and (C) marked on the landing side with the letters not less than 35 mm high: (D) "DANGER LIFTWELL – ENTRY OF UNAUTHORIZED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES" **Comments:** The plans are in preliminary draft. Further assessment is required.
D1.18	Egress from early childhood centres **Explanatory information:** D1.18(a) recognises the difficulties associated with evacuation of *early*	N/A	(a) Every part of a Class 9b *early childhood centre* must be wholly within a *storey* that provides direct egress to a road or *open space*. (b) The requirements of (a) do not apply in a building with a *rise in storeys* of not more

Item	Description	Status	Comments
	childhood centres. Should an *early childhood centre* be proposed within a *storey* that does not meet the requirements of D1.18(a), a *Performance Solution* is to be used to demonstrate compliance with the relevant *Performance Requirements*.		than 2, where the Class 9b *early childhood centre* is the only use in that building.
PART D2	**CONSTRUCTION OF EXITS**		
D2.1	Application of part	Applies	**Capable of complying**
D2.2	Fire isolated stairways and ramps	N/A	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.
D2.3	Non-fire isolated stairways and ramps	N/A	In a building having a rise in storeys of more than 2, required stairs and ramps (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft, must be constructed according to D2.2, or only of— (a) reinforced or pre-stressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m3 at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.
D2.4	Separation of rising and descending stair flights	N/A	If a stairway serving as an exit is required to be fire-isolated— (a) there must be no direct connection between— (i) a flight rising from a storey below the lowest level of access to a road or open space; and (ii) a flight descending from a storey above that level; and (b) any construction that separates or is common to the rising and descending flights must be— (i) non-combustible; and (ii) smoke proof in accordance with Clause 2 of Specification C2.5.

Item	Description	Status	Comments
D2.5	Open access ramps and balconies	N/A	N/A
D2.6	Smoke lobbies	N/A	A smoke lobby *required* by D1.7 must— (a)have a *floor area* not less than 6 m2; and (b)be separated from the occupied areas in the *storey* by walls which are impervious to smoke, and— (i)have an FRL of not less than 60/60/– (which may be fire-protective grade plasterboard, gypsum block with set plaster, face brickwork, glass blocks or glazing); and (ii)extend from slab to slab, or to the underside of a ceiling with a *resistance to the incipient spread of fire* of 60 minutes which covers the lobby; and (iii)any construction joints between the top of the walls and the floor slab, roof or ceiling must be smoke sealed with intumescent putty or other suitable material; and (c)at any opening from the occupied areas, have smoke doors complying with Clause 3 of Specification C3.4 except that the smoke sensing device need only be located on the approach side of the opening; and (d)be pressurised as part of the *exit* if the *exit* is *required* to be pressurised under E2.2.
D2.7	Installations in exits and paths of travel	Applies	Services or equipment comprising electricity meters, distribution boards or ducts or central telecommunications distribution boards or equipment or electrical motors or other motors serving equipment in the building, may be installed in a required exit, in any corridor, hallway, lobby or the like leading to a required exit if the services or equipment are enclosed by non-combustible construction or a fire protective covering with doorways and openings suitably sealed against smoke spreading from the enclosure. **Capable of complying**
D2.8	Enclosure of space under stairs and ramps	N/A	The space below the required fire-isolated stairway must not be enclosed to form a cupboard or similar enclosed space. **Complies** The space below a required non-fire isolated stairway must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls & ceilings have an FRL of not less than 60/60/60 and any

Item	Description	Status	Comments
			access doorway to the enclosed space is fitted with a self-closing -/60/30 fire door.
D2.9	Width of stairways – Required by **D1.6 (Dimensions of Exits)**	N/A	External stairway widths do not exceed 2m. Or The external stairway leading to the forecourt is to be divided by a continuous handrail/barrier with widths that do not exceed 2m. **Note**: See clauses D2.17 and D3 in the report for further requirements.
D2.10	Pedestrian ramps, also reference Part D3 & AS1428.1	N/A	(a) A fire-isolated ramp may be substituted for a fire-isolated stairway if the construction enclosing the ramp and the width and ceiling height comply with the requirements for a fire-isolated stairway. (b) A ramp serving as a required exit must— (i) where the ramp is also serving as an accessible ramp under Part D3, be in accordance with AS 1428.1; or (ii) in any other case, have a gradient not steeper than 1:8. (c) The floor surface of a ramp must have a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586. **Table D2.14 SLIP-RESISTANCE CLASSIFICATION** Application / Surface conditions: Dry / Wet Ramp steeper than 1:14: P4 or R11 / P5 or R12 Ramp steeper than 1:20 but not steeper than 1:14: P3 or R10 / P4 or R11 Tread or landing surface: P3 or R10 / P4 or R11 Nosing or landing edge strip: P3 / P4
D2.11	Fire isolated passageways	N/A	(a) The enclosing construction of a fire-isolated passageway must have an FRL when tested for a fire outside the passageway in another part of the building of— (i) if the passageway discharges from a fire-isolated stairway or ramp — not less than that required for the stairway or ramp shaft; or (ii) in any other case — not less than 60/60/60. (b) Notwithstanding (a)(ii), the top construction of a fire-isolated passageway need not have an FRL if the walls of the fire-isolated passageway extend to the underside of— (i) a non-combustible roof covering; or

Item	Description	Status	Comments
			(ii) a ceiling having a resistance to the incipient spread of fire of not less than 60 minutes separating the roof space or ceiling space in all areas surrounding the passageway within the fire compartment.
D2.12	Roof as open space	N/A	If an exit discharges to a roof of a building, the roof must— (a) have an FRL of not less than 120/120/120; and (b) not have any rooflights or other openings within 3 m of the path of travel of persons using the exit to reach a road or open space.
D2.13	Treads and risers Table D2.14 SLIP-RESISTANCE CLASSIFICATION Application / Surface conditions: Dry / Wet Ramp steeper than 1:14 — P4 or R11 — P5 or R12 Ramp steeper than 1:20 but not steeper than 1:14 — P3 or R10 — P4 or R11 Tread or landing surface — P3 or R10 — P4 or R11 Nosing or landing edge strip — P3 — P4 Flight A flight is the part of a stairway that has a continuous slope created by the nosing line of the stair treads. Quarter landings are not considered part of a flight. However, winders are considered part of a flight. See Figure A1.1(FLI). Figure A1.1(FLI) IDENTIFICATION OF STAIR FLIGHTS Quarter landing Flight number 2 Flight number 1 (a) Quarter landing stairway - 2 flights (b) Continuous stairway - 1 flight (90° change in direction) Max. 3 winders Flight number 1 Flight number 2 Half Landing Max. 6 winders (c) Half landing stairway - 2 flights (d) Continuous stairway - 1 flight (180° change in direction)	Applies	(a) A stairway must have— (i) not more than 18 and not less than 2 risers in each flight; and (ii) going (G), riser (R) and quantity (2R + G) in accordance with Table D2.13, except as permitted by (b) and (c); and (iii) constant goings and risers throughout each flight, except as permitted by (b) and (c), and the dimensions of goings (G) and risers (R) in accordance with (a)(ii) are considered constant if the variation between— (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm; and (iv) risers which do not have any openings that would allow a 125 mm sphere to pass through between the treads; and (v) treads which have— (A) a surface with a slip resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; or (B) a nosing strip with a slip resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; and (vi) treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 storeys; and (vii) in a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30°; and (viii) in the case of a **required stairway**, no winders in lieu of a landing. **Comments**: A stair detail and section including opaque/enclosed risers, non-slip

Item	Description	Status	Comments
			nosings and one tread width offset landing/step on the lower flight is required to facilitate accessible compliant handrails is to be provided to confirm compliance. **Capable of complying** **Note:** See clause D3 in the report for further requirements.
D2.14	Landings  Figure D2.14 METHOD OF MEASURING THE LENGTH OF LANDINGS AS REQUIRED BY D2.14 (a) 180° change in direction (b) 90° change in direction (c) 45° change in direction (d) Curved stairway Table D2.14 SLIP-RESISTANCE CLASSIFICATION Application / Surface conditions: Dry / Wet Ramp steeper than 1:14: P4 or R11 / P5 or R12 Ramp steeper than 1:20 but not steeper than 1:14: P3 or R10 / P4 or R11 Tread or landing surface: P3 or R10 / P4 or R11 Nosing or landing edge strip: P3 / P4	Applies	In a stairway— (a) landings having a maximum gradient of 1:50 may be used in any building to limit the number of risers in each flight and each landing must— (i) be not less than 750 mm long, and where this involves a change in direction, the length is measured 500 mm from the inside edge of the landing; and (ii) have— (A) a surface with a slip resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; or (B) a strip at the edge of the landing with a slip resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586, where the edge leads to a flight below. **Comments**: A stair detail and section is to be provided to confirm compliance. **Capable of complying**

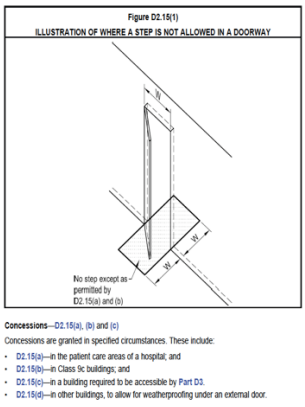
Item	Description	Status	Comments

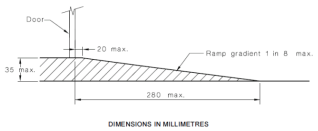
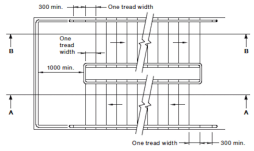
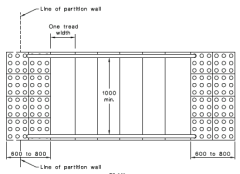
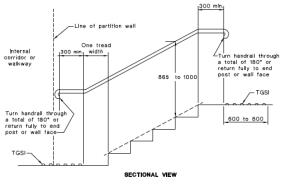
Extraction from Standards Australia Handbook 197:1999

TABLE 3

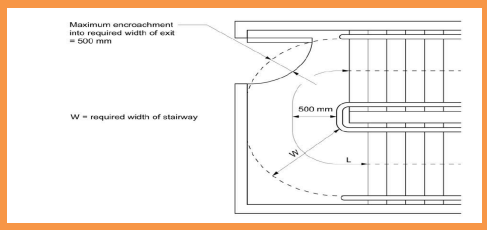
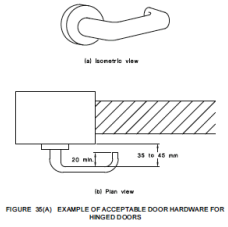
PEDESTRIAN FLOORING SELECTION GUIDE – MINIMUM PENDULUM OR RAMP RECOMMENDATIONS FOR SPECIFIC LOCATIONS

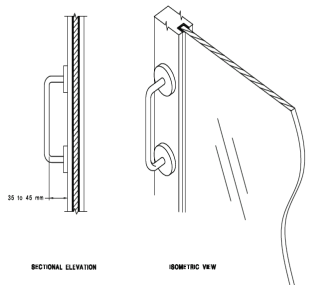
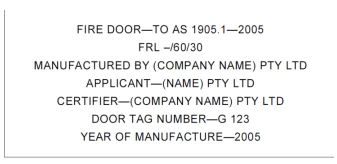
Location	Pendulum	Ramp
External colonnade, walkway and pedestrian crossings	W	R10
External ramps	V	R11
Entry foyers hotel, office, public buildings - wet	X	R10
Entry foyers hotel, office, public buildings - dry	Z	R9
Shopping centre excluding food court	Z	R9
Shopping centre – food court	X	R10
Internal 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

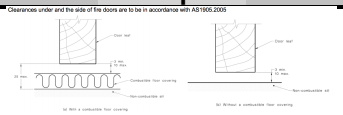
D2.15	Thresholds  **Concessions**—D2.15(a), (b) and (c) Concessions are granted in specified circumstances. These include: • D2.15(a)—in the patient care areas of a hospital; and • D2.15(b)—in Class 9c buildings; and • D2.15(c)—in a building required to be accessible by Part D3. • D2.15(d)—in other buildings, to allow for weatherproofing under an external door.	Applies	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless— (a) in patient care areas in a Class 9a *health-care building*, the door sill is not more than 25 mm above the finished floor level to which the doorway opens; or (b) in a Class 9c building, a ramp is provided with a maximum gradient of 1:8 for a maximum height of 25 mm over the threshold; or (c) in a building required to be accessible by Part D3, the doorway— (i) opens to a road or *open space*; and (ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or *NSW D2.15(d)*,(e) (d) in other cases—

Item	Description	Status	Comments
	 DIMENSIONS IN MILLIMETRES FIGURE 21 THRESHOLD RAMP		(i) the doorway opens to a road or *open space*, external stair landing or external balcony; and (ii) the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens. **Comments**: A landing detail is to be provided to confirm compliance. **Capable of complying**
D2.16	Barriers to prevent falls – Balustrades/Stairways	Applies	Balustrades are to be a minimum of 1m in height and have no openings greater than 125mm. In addition to the above where floors are more than 4m above the surface beneath, any horizontal or near horizontal elements between 150mm and 760mm above the floor must not facilitate climbing. **Comments**: A balustrade detail and section is to be provided to confirm compliance. **Capable of complying**
D2.17	Handrails <u>Accessible stairway handrails</u>  (a) Plan DIMENSIONS IN MILLIMETRES FIGURE 28 (in part) HANDRAILS TO STAIRS WITH INTERMEDIATE LANDINGS 49 AS 1428.1—2009  PLAN  SECTIONAL VIEW DIMENSIONS IN MILLIMETRES FIGURE 26(B) STAIRWAY LOCATION AND HANDRAIL EXTENSIONS AT END OF STAIRWAY OTHER THAN AT LINE OF BOUNDARY	Applies	Handrails in required non fire-isolated exits are to be continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand-hold. **Comments**: A stair detail and section is to be provided to confirm compliance. **Capable of complying** <u>Stairways/Ramps required to be accessible</u> Handrails are to be located on both sides of ramps and stairways in required exits where they are required to be accessible to comply with Clause 12 of AS1428.1-2009. **Comments**: A stair/ramp detail and section including offset landing/step on the lower flight is required to facilitate accessible compliant handrails is to be provided to confirm compliance. Refer to diagram (left) from AS1428.1-2009 which illustrates the one tread width offset. **Capable of complying**
D2.18	Fixed platforms, walkways, stairways and ladders	N/A	N/A

Item	Description	Status	Comments
D2.19	Doorways and doors	N/A	(b) A doorway serving as a required exit or forming part of a required exit, or a doorway in a patient care area of a Class 9a health-care building— (i) must not be fitted with a revolving door; and (ii) must not be fitted with a roller shutter or tilt-up door unless— (A) it serves a Class 6, 7 or 8 building or part with a floor area not more than 200 m2; and (B) the doorway is the only required exit from the building or part; and (C) it is held in the open position while the building or part is lawfully occupied; and (iii) must not be fitted with a sliding door unless— (A) it leads directly to a road or open space; and (B) the door is able to be opened manually under a force of not more than 110 N; and (iv) if fitted with a door which is power-operated— (A) it must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and (B) if it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. (c) A power-operated door in a path of travel to a required exit, except for a door in a patient care area of a Class 9a health-care building as provided in (b), must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source. **Comments**: The required exit automatic sliding door leading from the lobby must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and as it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm

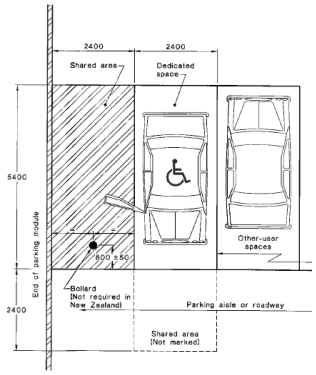
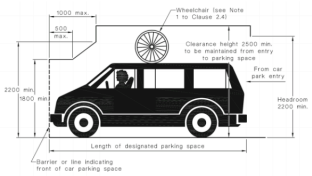
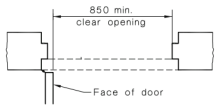
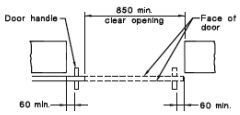
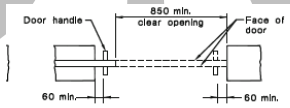
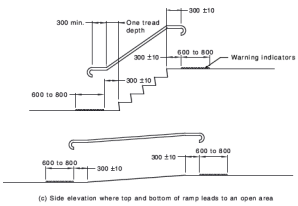
Item	Description	Status	Comments
			anywhere in the fire compartment served by the door. **Capable of complying**
D2.20	Swinging doors	Applies	A swinging door in a required exit or forming part of a required exit – (a) must not encroach— (i) at any part of its swing by more than 500 mm on the *required* width (including any landings) of a *required*— (A) stairway; or (B) ramp; or (C) passageway, if it is likely to impede the path of travel of the people already using the *exit*; and  (ii) when fully open, by more than 100 mm on the *required* width of the *required exit*, and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door, **Capable of complying** and (iii) must swing in the direction of egress, unless it serves a building or part with a floor area not more than 200m2, it is the only required exit from the building or part and it is fitted with a device for holding it in the open position. **Capable of complying**
D2.21	Operation of latch <u>Lever Action Door Hardware</u>  FIGURE 35(A) EXAMPLE OF ACCEPTABLE DOOR HARDWARE FOR HINGED DOORS	Applies	Except in early childhood centres, swimming pool barriers or similar situations where the location of the opening and locking controls is prescribed by the relevant statutory authority, the location of the controls for doors and gates shall be above a level surface and as follows: Lever downward action door hardware located between 900mm and 1100mm above the floor that is readily openable without a key from the side seeking egress is to be installed on all path of travel and required exit doors.

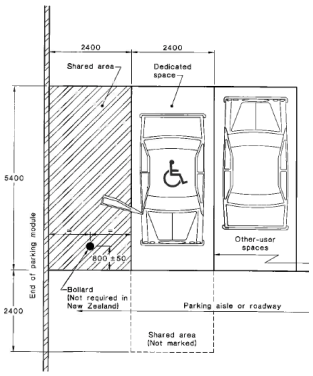
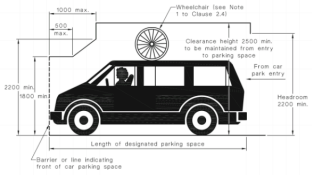
Item	Description	Status	Comments
	Sliding Door Hardware  Panic Bar Door Hardware 		**Comments**: The CC plans to confirm compliance in the form of door schedule. **Capable of complying** Doorways serving areas required to be accessible in accordance with D3 BCA are to be provided with lever downward action door hardware that the hand of a person who cannot grip will not slip from the handle during operation of the latch and have clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm. **Comments**: The CC plans to confirm compliance in the form of door schedule. **Capable of complying**
D2.22	Re-entry from fire isolated exits	N/A	(a) Doors of a fire-isolated exit must not be locked from the inside as follows: (i) In a Class 9a health-care building. (ii) In a Class 9c aged care building. (iii) In a fire-isolated exit serving any storey above an effective height of 25 m, throughout the exit. (b) The requirements of (a) do not apply to a door fitted with a fail-safe device that automatically unlocks the door upon the activation of a fire alarm and— (i) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (ii) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation.
D2.23	Signs on fire doors  	Applies	(a) A sign, to alert persons that the operation of certain doors must not be impaired, must be installed where it can readily be seen on, or adjacent to, a— (i) (A) required fire door providing direct access to a fire-isolated exit, except a door providing direct egress from a sole-occupancy

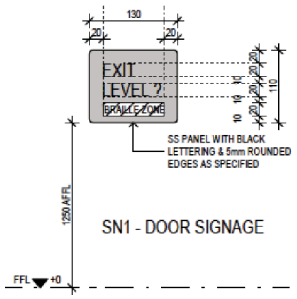
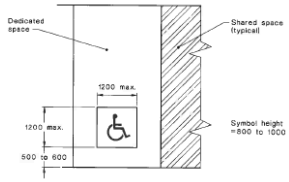
Item	Description	Status	Comments
			unit in a Class 2 or 3 building or Class 4 part of a building; and (B) required smoke door, on the side of the door that faces a person seeking egress and, if the door is fitted with a device for holding it in the open position, on either the wall adjacent to the doorway or both sides of the door; and (ii) (A) Fire door forming part of a horizontal exit; and (B) Smoke door that swings in both directions; and (C) Door leading from a fire isolated exit to a road or open space, on each side of the door. (b) A sign referred to in (a) must be in capital letters not less than 20 mm high in a colour contrasting with the background and state— (i) for an automatic door held open by an automatic hold-open device— "**FIRE SAFETY DOOR—DO NOT OBSTRUCT**" or (ii) for a self-closing door— "**FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN**"; or (iii) for a door discharging **from** a fire-isolated exit— "**FIRE SAFETY DOOR—DO NOT OBSTRUCT**." **See example below;**  **Capable of complying** **Note**: In accordance with Clause 183 of the EP&A Reg 2000 a fire safety notice be displayed in the following areas of the building; A fire safety notice is to be displayed at all times in a conspicuous position adjacent to

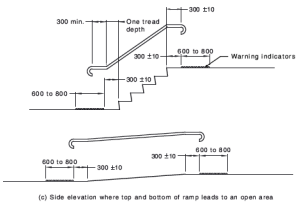
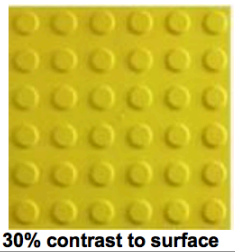
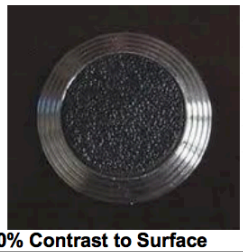
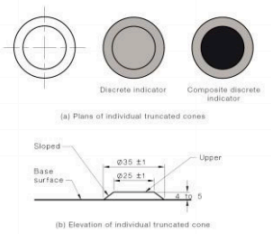
Item	Description	Status	Comments
			a doorway providing access to, but not within, that fire stairway, passageway or ramp. The notice is to display **the following words**; OFFENCES RELATING TO FIRE EXITS By virtue of the regulations under the Environmental Planning And Assessment Act 1979, it is an offence: (a) to place anything in this exit that may impede the free passage of persons, or (b) to interfere with or cause obstruction or impediment to, the operation of the doors providing access to this exit, or (c) to remove, damage or otherwise interfere with this notice. **Capable of complying** **Note:** All fire doors and frames are to be tagged in accordance with AS 1905.2005 and a complete door schedule to be provided prior to issue of the Occupation Certificate.
D2.24	Protection of openable windows	N/A	(a) A window opening must be provided with protection, if the floor below the window is 2m or more above the surface beneath in – (i) a bedroom in a Class 2 or 3 building or Class 4 part of a building; or (ii) a Class 9b early childhood centre. (b) Where the lowest level of the window opening is less than 1.7m above the floor, a window opening covered by (a) must comply with the following: (i) The openable portion of the window must be protected with – (A) a device capable of restricting the window opening; or (B) a screen with secure fittings. (ii) A device or screen required by (i) must – (A) not permit a 125mm sphere to pass through the window opening or screen; and (B) resist an outward horizontal action of 250N against the – (aa) window restrained by a device; or (bb) screen protecting the opening; and

Item	Description	Status	Comments
			(C) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. (c) A barrier with a height not less than 865mm above the floor is require to an openable window – (i) in addition to window protection, when a child resistant release mechanism is required by (b)(ii)(C); and (ii) where the floor below the window is a 4m or more above the surface beneath if the window is not covered by (a). (d) A barrier covered by (c) except for (e) must not – (i) permit a 125mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150mm and 760mm above the floor that facilitate climbing. (e) A barrier required by (c) to an openable window in – (i) fire-isolated stairways, fire-isolated ramps and other areas used primarily for emergency purposes, excluding external stairways and external ramps; and (ii) Class 7 (other than carparks) and Class 8 buildings and parts of buildings containing those classes; must not permit a 300mm sphere to pass through it.
PART D3	**ACCESS FOR PEOPLE WITH A DISABILITY**		
D3.1	General Building Access Requirements	Applies	Class 5/8 - To and within all areas normally used by the occupants. **Capable of complying**
D3.2	Access to Buildings	Applies	Access and AS1428.1-2009 a) Access is to be provided via a walkway, ramp or lift from street to the principal entrance/s of the building. b) The shared area adjacent to the accessible car space is to be provided with a bollard to prevent vehicles parking (AS2890.6). c) A level walkway 1m wide is to be provided from the shared accessible car space to the

Item	Description	Status	Comments
	   (a) Swing door  (c) Surface-mounted sliding door DIMENSIONS IN MILLIMETRES  (b) Cavity sliding door  (c) Side elevation where top and bottom of ramp leads to an open area **Note**: Walkway – Gradient 1:20 Ramp – Gradient 1:14 Accessible shared carspace – Gradient 1:40 or 1:33 (Bituminous seal)		principle entrance of the building. d) All door openings on the ground floor are to have a clear opening of 850mm (920mm) door, with exception the W.C and storage areas. e) Circulation spaces to doorways are to comply with AS1428.1-2009. f) Tactile ground surface indicators are to be installed on top and bottom of landings of the required non fire – isolated stairways and ramps. g) A scaled 1:50 floor and internal elevation plan is to be provided for the uni-sex accessible sanitary facility and ambulant facility. (Should one be required by F2.4) **Comments**: Design details/sections are required to confirm access compliance. **Capable of complying**
D3.3	Parts of Buildings to be Accessible	Applies	Parts of the building required to be accessible; a) every ramp and stairway must comply with Cl10 (ramps) and Cl11 (stairs) of AS1428.1; circulation

Item	Description	Status	Comments
			spaces must comply with AS1428.1. **Note** : Except for a fire isolated stairway, only Cl11.1(f) and (g) of AS1428.1 applies. b) every passenger lift must comply with E3.6 c) external/internal accessways must have passing spaces complying with AS1428.1-2009 at a maximum of 20m intervals, where direct line of sight is not available; and d) turning spaces complying with AS1428.1-2009 within 2m of the end of accessways where it is not possible to continue traveling along the accessway and at maximum 20m intervals along the accessway. **Definition** - Accessway means a continuous accessible path of travel (as defined in AS 1428.1) to, into or within a building. **Note:** Passing space for 2 persons using wheelchairs shall be a minimum width of 1800 mm for a minimum length of 2000 mm. **Comments:** The office accessways do not exceed 20m in length where direct line of sight is not available. Design details/sections are required to confirm access compliance. **Capable of complying**
D3.4	Exemptions	N/A	N/A
D3.5	Accessible Car parking  	Applies	In accordance with Table D3.5 - A shared accessible car space is to be provided in the car park with access to lift to serve all storeys provided. Plans to confirm compliance with AS2890.6. **Capable of complying**

Item	Description	Status	Comments
	Note: Gradients for shared accessible car spaces are not to exceed 1:40 in any direction and 1:33 for bituminous seal as per AS2890.6.		
D3.6	Signage   	Applies	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 and AS2890.6, - 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 braille. 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 **Capable of complying**
	 *Please consult with your Access Consultant for the appropriate location and required directional signage.*  		
D3.8	Tactile Indicators	Applies	For a building required to be accessible, tactile ground surface indicators must be provided to warn people who are blind or

Item	Description	Status	Comments
	 (c) Side elevation where top and bottom of ramp leads to an open area		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 **Comments**: Details/sections required to confirm compliance for ramps and stairways to AS1428.4. **Capable of complying**
	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	N/A
D3.10	Swimming Pools	N/A	N/A
D3.11	Ramps	N/A	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	Applies	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. **Capable of complying**

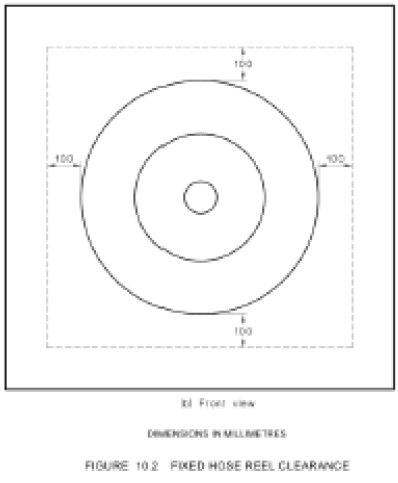
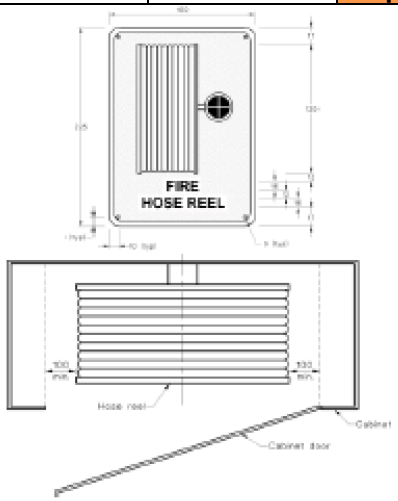
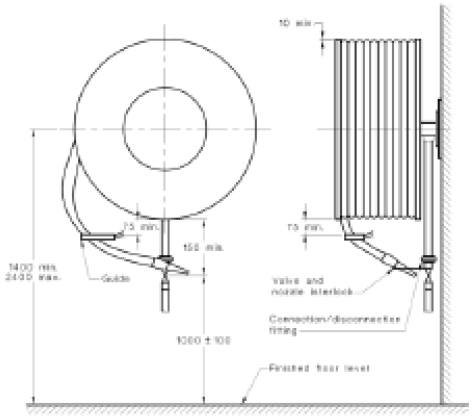
Item	Description	Status	Comments
SECTION E	**SERVICES & EQUIPMENT**		
PART E1	**FIRE FIGHTING EQUIPMENT**	Applies	**Capable of complying**
E1.3	Fire Hydrants	Applies	(a)A fire hydrant system must be provided to serve a building— (i)having a total *floor area* greater than 500 m2; and (ii)where a *fire brigade station* is— (A)no more than 50 km from the building as measured along roads; and (B)equipped with equipment capable of utilising a fire hydrant. (b)The fire hydrant system— (i)must be installed in accordance with AS 2419.1, except— (A)a Class 8 *electricity network substation* need not comply with clause 4.2 of AS 2419.1 if— (aa)it cannot be connected to a town main supply; and (bb)one hour water storage is provided for fire-fighting; and (B)where a sprinkler system is installed throughout a building in accordance with AS 2118.1, AS 2118.4, AS2118.6, FPAA101H or FPAA101D the fire hydrant booster protection requirements of clauses 7.3(c)(ii) and7.3(d)(iii) of AS 2419.1 do not apply; and (C)a fire hydrant booster assembly may be located between 3.5 m and 10 m of the building, and need not comply with clause 7.3(d)(iii) of AS 2419.1 where the assembly is protected by an adjacent fire-rated freestanding wall that— (aa)achieves an FRL of not less than 90/90/90; and (bb)extends not less than 1 m each side of the outermost fire hydrant booster risers within the assembly and is not less than 3 m wide; and (cc)extends to a height of not less than 2 m above finished ground level; and (ii)where internal fire hydrants are provided, they must serve only the *storey* on which they are located except that a *sole-occupancy unit*— (A)in a Class 2 or 3 building or Class 4 part of a building may be served by a single fire hydrant located at the level of egress from that *sole-occupancy unit*; or (B)of not more than 2 *storeys* in a Class 5, 6, 7, 8 or 9 building may be served by a single fire hydrant located at the level of egress from that *sole-occupancy unit*

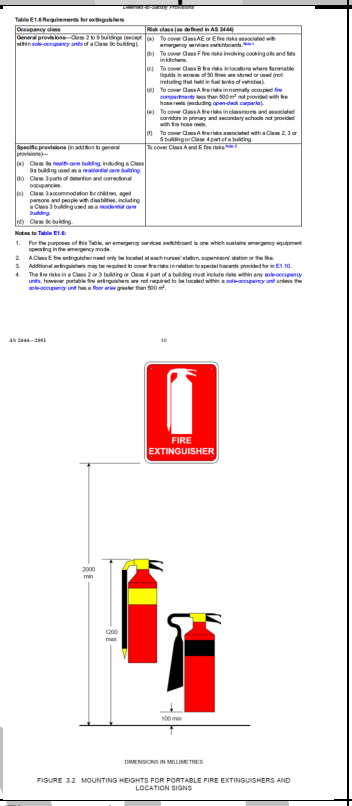
Item	Description	Status	Comments
			provided the fire hydrant can provide coverage to the whole of the *sole-occupancy unit*. **Comments**: The building is to be serviced with a hydrant system. Hydraulic details and design certificate is to be provided from an accredited practitioner (fire safety) to confirm compliance with AS2419-2005. The location of the hydrant booster is critical for brigade access. **Capable of complying**

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.

Item	Description	Status	Comments
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.			
E1.4	Hose reels	Applies	Fire hose reels are to be provided to serve a fire compartment greater than 500m2 and to serve the building where internal fire hydrants are to be provided.

Item	Description	Status	Comments
			Comments: The Class 8 building is required to be served by a hose reel system. Should the building be provided with internal fire hydrants each storey is to be served via hose reel system. Hydraulic details and design certificate is to be provided from an accredited practitioner (fire safety) to confirm compliance with AS2441-2005. **Capable of complying**
 FIGURE 10.2 FIXED HOSE REEL CLEARANCE   FIGURE 11.1 TYPICAL ARRANGEMENT OF FIXED TYPE HOSE REEL			
E1.5 and Specification E1.5 – Fire Sprinkler Systems & Specification E1.5a Class 2 & 3 buildings with an effective height <25m	Sprinklers **Note**: Consideration is to be given to the insulation proposed as a thermal break to the underside of the carpark to comply with Section J. Should a polyethylene, expanded polystyrene or extruded polystyrene insulation be proposed then AS2118.1 requires the sprinklers to be located from 450mm to be within 300mm of a ceiling/ roof with a combustible insulation, lining or similar. Refer to (Cl 5.4.3 of AS2118.1-1999 and Cl 5.5.3 of AS2118.1-2017).	N/A	N/A
E1.6	Portable fire extinguishers	Applies	The building is to be provided with Portable Fire Extinguishers in accordance with E1.6, Table E1.6 and AS 2444-2001. **Capable of complying**

Item	Description	Status	Comments
			
E1.8 and Specification E1.8 – Fire Control Centres	Fire control centres **<u>Buildings with effective height >25m<50m</u>** Spec E1.8 – The design of a fire control centre must; • Clause 3 - Be located in a building that egress from any part of its floor to a road or open space, does not involve changes in level which in aggregate exceed 300mm. • Clause 4 - Have no internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings are to be located in the fire control centre. • Clause 5 - Have an ambient sound level within the fire control centre measures when all fire safety equipment is operating in the manner in which it operates in an emergency must not exceed 65db(A). **<u>Buildings with effective height >50m</u>** Spec E1.8 – The design of a fire control centre must; • Clause 3 - Be located in a building that egress from any part of its floor to a road or open space, does not involve changes in level which in aggregate exceed 300mm.	N/A	A fire control centre facility in accordance with Specification E1.8 must be provided for— (a) a building with an effective height of more than 25 m; and (b) a Class 6, 7, 8 or 9 building with a total floor area of more than 18 000 m2. **Note**: The fire control centre must be so located in a building that egress from any part of its floor, to a road or open space, does not involve changes in level which in aggregate exceed 300mm. **Comments**: A fire control centre is required to be included into the design in accordance with Spec E1.8 as the effective height of the building is more than 25m.

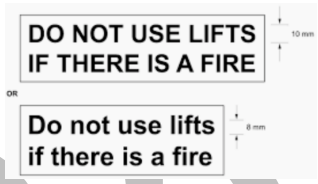
Item	Description	Status	Comments
	• Clause 4 - Have no internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings are to be located in the fire control centre. • Clause 5 - Have an ambient sound level within the fire control centre measures when all fire safety equipment is operating in the manner in which it operates in an emergency must not exceed 65db(A). • Have construction in a building with an effective height > 50m designed to comply with Spec E1.8, Clauses 6 & 7. • Clause 8 (a) - The doors to a fire control centre in a building with an effective height of >25m<50m must open into the room, be lockable and located so that persons using escape routes from the building will not obstruct or hinder access to the room. • Clause 8 (b) - Be accessible via two paths of travel, one being from the front entrance to the building and one direct from a public space or fire isolated passageway which leads to the public place and a has a door with an FRL of not less than -/120/30. • Clause 9 (a) – Contain a fire indicator panel, telephone directly connected to an external telephone exchange, blackboard or whiteboard not less than 1200mm wide x1000mm high, a pin up board not less than 1200mm wide x1000mm high, a racked plan layout table and colour coded, durable tactical fire plans. • Clause 9 (c) – Have a floor area of not less than 10m2 and the length of any internal side must be not less than 2.5m, have a clear space of not less than 1.5m2 in front of the fire indicator panel and a maintained clear path of travel. • Clause 10 – Ventilation either natural or a pressurisation system that only serves the fire control room. • Clause 11 – Suitably signed with letters of not less than 50mm high and or a colour which contrasts with that of the background to state FIRE CONTROL ROOM. • Clause 12 – Emergency lighting is to be provided		
E1.9	Fire precautions during construction	Applies	In a building under construction—

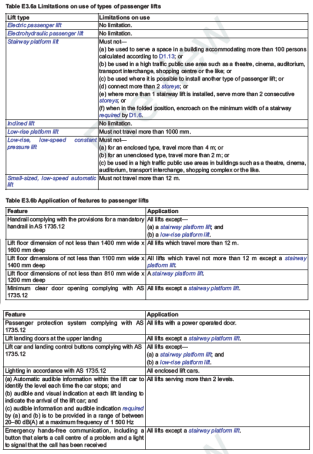
Item	Description	Status	Comments
			(a) not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each *storey* adjacent to each *required exit* or temporary stairway or *exit*; and (b) after the building has reached an *effective height* of 12 m— (i) the *required* fire hydrants and fire hose reels must be operational in at least every *storey* that is covered by the roof or the floor structure above, except the 2 uppermost *storeys*; and (ii) any *required* booster connections must be installed. **Comments**: The CC issue plans are to reference the fire precautions during construction requirements with the relevant design statement prepared by an accredited practitioner (fire safety) to confirm compliance. **Capable of complying**
E1.10	Provision for special hazards	Applies	Suitable additional provision must be made if special problems of fighting fire could arise because of— (a)the nature or quantity of materials stored, displayed or used in a building or on the allotment; or (b)the location of the building in relation to a water supply for fire-fighting purposes. **Comments**: The operation and use of the workshop/production building is to be provided to determine whether additional firefighting provisions are required. **Capable of complying**
PART E2	**SMOKE HAZARD MANAGEMENT**		
E2.1	Application of part	Applies	**Capable of complying**
E2.2 and Specification E2.2a – Smoke Detection and Alarm Systems; Specification	General requirements	N/A	**Automatic shutdown:** A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000L/s and miscellaneous exhaust air systems installed in accordance with Section 5 and 6 of AS1668.1) which does not form part of an the smoke management system, on the activation of –

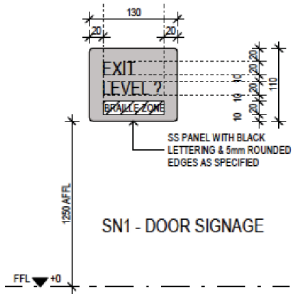
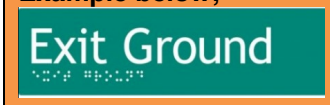
Item	Description	Status	Comments
			• Smoke detectors installed complying with Clause 6 of Specification E2.2a; and • Any other installed fire detection system, including a sprinkler system complying with Specification E1.5. **Comments**: Mechanical & Electrical details and design certificates are to be provided by an accredited practitioner (fire safety) practitioner and are to be provided prior to issue of the Construction Certificate. **Smoke Detection:** The building is to be provided with a smoke alarm system complying with Spec. E2.2a Clause 3 or a smoke detection system complying with Spec. E2.2a Clause 4 or a combination of a smoke alarm system within the sole-occupancy units and a smoke detection system in areas not within sole-occupancy units. **Comments**: Electrical details and design certificate is to be provided by an accredited practitioner (fire safety) and are to be provided prior to issue of the Construction Certificate. **Fire Isolated Exits:** A required— (a) fire-isolated stairway, including any associated fire-isolated passageway or fire-isolated ramp serving— (i) any storey above an effective height of 25 m; or (ii) more than 2 below ground storeys, not counted in the rise in storeys in accordance with C1.2; or (iii) an atrium; or (iv) a Class 9a building with a rise in storeys of more than 2; or (v) a Class 9c aged care building with a rise in storeys of more than 2; and (b) fire-isolated passageway or fire-isolated ramp with a length of travel more than 60 m to a road or open space, must be provided with— (c) an automatic air pressurisation system for fire-isolated exits in accordance with AS/NZS 1668.1; or (d) open access ramps or balconies in accordance with D2.5. Notes:

Item	Description	Status	Comments
NSW E2.2b – Smoke Exhaust Systems; Specification			1. An automatic air pressurisation system for fire-isolated exits applies to the entire exit. 2. Refer D1.7(d) for pressurisation of a fire-isolated exit having more than 2 access doorways from within the same storey. **Class 7a (Basement Car park):** A Class 7a building, including a basement, provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS/NZS 1668.1 except that— (a) fans with metal blades suitable for operation at normal temperature may be used; and (b) the electrical power and control cabling need not be fire rated. Class 9b – Entertainment Venue A building or part of a building used as a nightclub, discotheque or the like must be provided with— (a) *automatic* shutdown of any air-handling system (other than miscellaneous exhaust air systems installed in accordance with Sections 5and 6of AS/NZS 1668.1) which does not form part of the smoke hazard management system, on the activation of— (i) smoke detectors installed complying with **Clause 5of Specification E2.2a**;and (ii) any other installed fire detection and alarm system, including a sprinkler system complying with **Specification E1.5**;and (b) (i) an *automatic* smoke exhaust system complying with **Specification E2.2b**;or (ii) *automatic smoke-and-heat vents* complying with **Specification E2.2c**, if the building is single *storey*; or (iii) a sprinkler system complying with **Specification E1.5** with fast response sprinkler heads. **Stages and backstages**: (i) For the purpose of this Table, where a stage is separated from the auditorium by a proscenium wall incorporating a proscenium opening, a backstage room or area that is not separated from the stage by construction having an FRL of not less than 60/60/60, it taken to form part of the stage.

Item	Description	Status	Comments
E2.2c – Smoke and Heat Vents			(ii) A building or part of a building used as an assembly building which has a stage – (A) With a floor area of more than 50m2 and not more than 150m2 must, over the stage, be provided with – (aa) an automatic smoke exhaust system complying with Spec E2.2b (including Figure 2); or (ab) roof mounted automatic smoke-and-heat vents complying with NSWH101.22, in a single storey building or the top storey of a multi storey building; or (B) With a floor area of more than 150m2 must, over the stage, be provided with an automatic smoke exhaust system complying with Spec E2.2b (including Figure 2); or (C) Equipped with means of flying scenery, must, over the stage, be provided with an automatic smoke exhaust system complying with Spec E2.2b (including Figure 2). N/A
E2.3	Provision for special hazards	Applies	The operation and use of the workshop/production building is to be provided to determine whether additional firefighting provisions are required. **Capable of complying**
PART E3	**LIFT INSTALLATIONS**		
E3.1	Lift Installations	Applies	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1. Manufacturers specifications and design certification is to be provided to the Principal Certifying Authority. **Capable of complying**
E3.2	Stretcher facility in lifts	N/A	(a) A stretcher facility in accordance with (b) must be provided— (i) in at least one emergency lift required by E3.4; or (ii) where an emergency lift is not required, if passenger lifts are installed to serve any storey above an effective height of 12 m, in

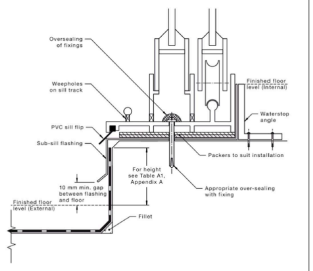
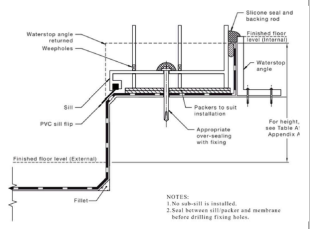
Item	Description	Status	Comments
			at least one of those lifts to serve each floor served by the lifts. (b) A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level. **Comments**: The effective height is 16.4m approx. The lift is to be designed to accommodate stretcher facilities. Manufacturers specifications and design certification is to be provided to the Principal Certifying Authority.
E3.3	Warning against use of lifts in fire 	Applies	**Capable of complying**
E3.4	Emergency lifts	N/A	(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; and (ii) in a Class 9a building serving a patient care area— (A) have minimum dimensions, measured clear of all obstructions, including handrails, etc complying with Table E3.4; and

Item	Description	Status	Comments
			(B) be connected to a standby power supply system where installed; and (iii) if the building has an effective height of more than 75 m, have a rating of at least— (A) 600 kg if not provided with a stretcher facility; or (B) 900 kg if provided with a stretcher facility.
E3.5	Landings	Applies	Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Section D. **Capable of complying**
E3.6	Facilities for people with disabilities 	Applies	The lift design is to comply with E3.6 and AS1735.12-1999. **Comments:** Manufacturers specifications and design certification is to be provided to the Principal Certifying Authority. **Capable of complying**
E3.7	Fire service controls	N/A	Where lifts serve any storey above an effective height of 12m, the following must be provided: (a) A fire service recall control switch complying with E3.9 for— (i) a group of lifts; or (ii) a single lift not in a group that serves the storey. (b) A lift car fire service drive control switch complying with E3.10 for every lift. **Comments**: Manufacturers specifications and design certification is to be provided to the Principal Certifying Authority.
E3.8	Aged care buildings	N/A	N/A
E3.9	Fire service recall control switch	N/A	See E3.7 in the report to be included in the manufacturers specification and design certificate.
E3.10	Lift car fire service drive control	N/A	See E3.7 in the report to be included in the manufacturers specification and design certificate.
PART E4	**EMERGENCY LIGHTING, EXIT SIGNS & WARNING SYSTEMS**		

Item	Description	Status	Comments
E4.2	Emergency lighting requirements **Note**: The treads of stairways are to achieve a minimum of 1Lux.	Applies	Emergency lighting is to be provided in common corridors, stairways and public areas including car park to comply with AS2293.1-2018. **Comments**: Electrical details and design certificate are to be provided prior to issue of the Construction Certificate. **Capable of complying**
E4.5	Exit signs  Braille tactile **EXIT** signage 	Applies	The building is to be provided with exit lighting to assist occupant in identifying the exits to comply with AS2293.1-2018. **Comments**: Electrical details and design certificate are to be provided prior to issue of the Construction Certificate. **Note**: Braille and tactile signage complying with **Specification D3.6** must— (i) incorporate the international symbol of access or deafness, as appropriate, in accordance with AS 1428.1 and identify each— (A) sanitary facility, except a sanitary facility within a *sole-occupancy unit* in a Class 1b or Class 3 building; and (B) space with a hearing augmentation system; and (ii) identify each door *required* by **E4.5** to be provided with an *exit* sign and state— (A) "**Exit**"; and (B) "**Level**" ; and either (aa) the floor level number; or (bb) a floor level descriptor; or (cc) a combination of **(aa)** and **(bb)** **Example below;**  **Comments**: The CC plans to confirm compliance in the form of door schedule. **Capable of complying**
E4.6	Directional exit signs 	Applies	The building is to be provided with directional exit lighting to assist occupant in identifying the exits to comply with AS2293.1-2018. **Comments**: Electrical details and design certificate are to be provided prior to issue of the Construction Certificate. **Capable of complying**
E4.7	Class 2 and 3 buildings and Class 4 parts: exemptions	N/A	N/A

Item	Description	Status	Comments
E4.9	Sound systems and intercom systems for emergency purposes	N/A	A sound system and intercom system for emergency purposes complying where applicable with AS 1670.4 must be installed— (a) in a building with an effective height of more than 25 m; and (b) in a Class 3 building having a rise in storeys of more than 2 and used as— (i) the residential part of a school; or (ii) accommodation for the aged, children or people with a disability; and (c) in a Class 3 building used as a residential aged care building, except that the system— (i) must be arranged to provide a warning for occupants; and (ii) in areas used by the residents, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of residents; and (d) in a Class 9a building having a floor area of more than 1000 m2 or a rise in storeys of more than 2, and the system— (i) must be arranged to provide a warning for occupants; and (ii) in a ward area, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of patients; and (e) in a Class 9b building— (i) used as a school and having a rise in storeys of more than 3; or (ii) used as a theatre, public hall, or the like, having a floor area more than 1000 m2 or a rise in storeys of more than 2.
SECTION F	**HEALTH & AMENITY**	Applies	**Capable of complying**
PART F1	**DAMP & WEATHERPROOFING**		
F1.0	Deemed-to-Satisfy Provisions	Applies	(a)*Performance Requirement* FP1.4, for the ***prevention of the penetration of water through external walls, must be complied with***. (b)Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* FP1.1 to FP1.3 and FP1.5 to FP1.7are satisfied by complying with F1.1 to F1.13. (c)Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2.2(3) and A2.4(3) as applicable.

Item	Description	Status	Comments
			Comments: The architect or façade engineer is to demonstrate that the construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements. **Requirements**: To demonstrate that the construction of the external walls prevent the penetration of water, evidence of suitability under BCA A5.2 is required via the following methods; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory, or d) a certificate or report from a professional engineer. And through a Performance Solution prepared by a suitably qualified consultant or company. **Performance Solution**
F1.1	Stormwater Drainage	Applies	Stormwater drainage must comply with AS/NZS3500.3. **Comments**: Stormwater details and design statement are to be provided to demonstrate compliance with F1.1 and AS/NZS3500.3. **Capable of complying**
F1.4	External above ground membranes	N/A	*Waterproofing* membranes for external above ground use must comply with AS 4654.1 and AS 4654.2. **Comments**: The architect and structural engineer are to provide sections demonstrating compliance with AS 4654.1 and AS 4654.2 with particular attention to detail on the stepdown/termination heights. **Note:** Refer to wind classification to determine the balcony stepdown/termination heights. Openings onto external areas required to have an above-ground external waterproofing membrane are required to have an external termination and set-down or hob providing a vertical surface of sufficient dimension in accordance with AS 4654.2-2012, Table A1, Appendix A.

Item	Description	Status	Comments
	Typical Details of Membrane Termination at External Opening Doors  *Opening higher than sill upward termination*  *Sill – No Sub-Sill* **VERTICAL UPWARD TERMINATION HEIGHTS** Wind class Regions A and B (non-cyclonic) AS 4055 / Wind class Regions C and D (cyclonic) AS 4055 / Ultimate limit state wind speed ($V_{u,d}$) AS/NZS 1170.2 / Termination height mm N1 — 34 40 N2 — 40 50 N3 C1 50 70 N4 C2 61 100 N5 C3 74 150 N6 C4 86 180		- 40mm termination height - N1 Wind Class - Ultimate Wind Speed 34 m/s - 50mm termination height - N2 Wind Class - Ultimate Wind Speed 40 m/s - 70mm termination height - N3 Wind Class - Ultimate Wind Speed 50 m/s - 100mm termination height - N4 Wind Class - Ultimate Wind Speed 61 m/s - 150mm termination height - N5 Wind Class - Ultimate Wind Speed 74 m/s - 180mm termination height - N6 Wind Class - Ultimate Wind Speed 86 m/s
F1.5	Roof Coverings	Applies	A roof must be covered with— (a) concrete roofing tiles complying with AS 2049 and fixed, except in cyclonic areas, in accordance with AS 2050, as appropriate; or (b) terracotta roofing tiles complying with AS 2049 and fixed, except in cyclonic areas, in accordance with AS 2050; or (c) cellulose cement corrugated sheeting complying with AS/NZS 2908.1 and installed in accordance with AS/NZS 1562.2; or (d) metal sheet roofing complying with AS 1562.1; or (e) plastic sheet roofing designed and installed in accordance with AS/NZS 4256.1, AS/NZS 4256.2, AS/NZS 4256.3, AS/NZS 4256.5 and AS/NZS 1562.3; or (f) Terracotta, fibre-cement and timber slates and shingles designed and installed in accordance with AS 4597, except in cyclonic areas. **Comments**: All roof coverings must be covered with concrete, terracotta tiles or cellulose cement corrugated sheeting, metal sheeting or plastic sheeting in accordance with the above Australian Standards. The architect is to provide plans and specifications including manufacture details and specifications to demonstrate compliance. **Capable of complying**
F1.6	Sarking	Applies	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. **Capable of complying**

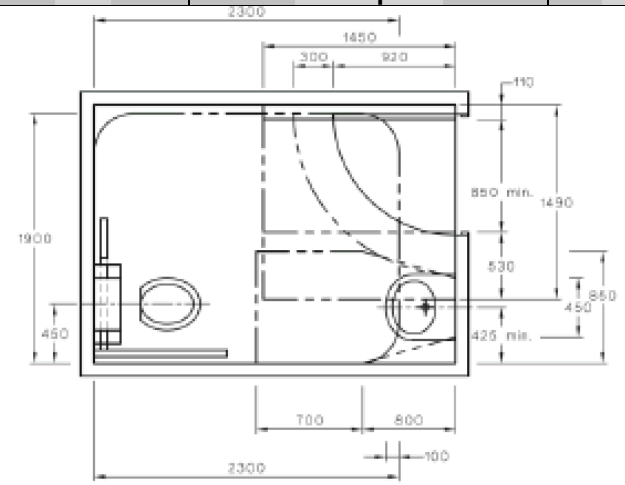
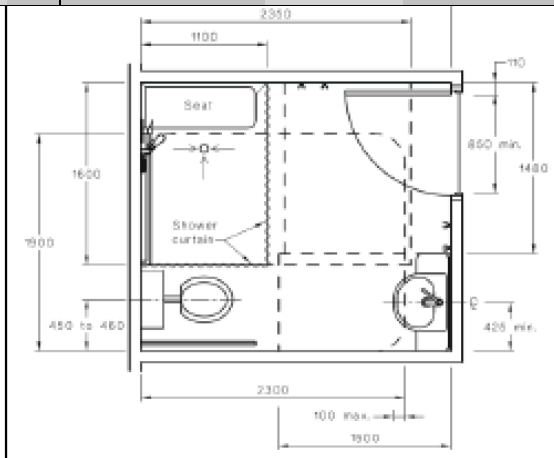
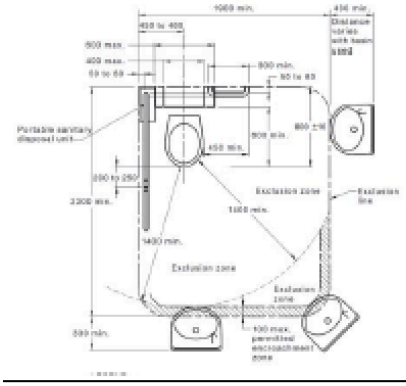
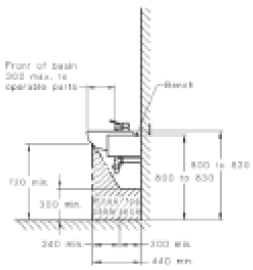
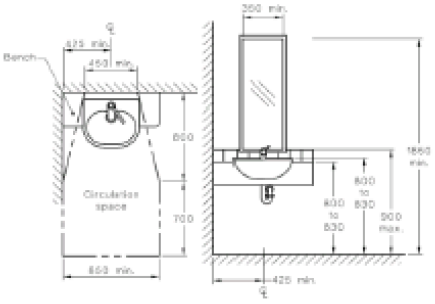
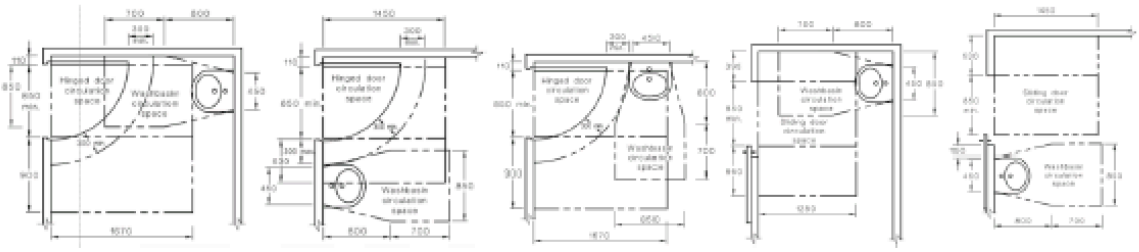
Item	Description	Status	Comments
F1.7	Waterproofing of wet areas in buildings	Applies	In a Class 5, 6, 7, 8 or 9 building elements in wet areas must be water resistant or water proof in accordance with Table F1.7 and comply with AS3740. **Note**: Grades to floor wastes are to be provided within enclosed showers and other areas within the room in accordance with the following; Shower (enclosed) = 1:80 to floor waste Other areas within the room = 1:100 to floor wastes. **Capable of complying**
F1.11	Floor Wastes	N/A	In a Class 2 or 3 building and a Class 4 part, building, a bathroom or laundry located at any level above a sole-occupancy unit or public space must have – (b) A floor waste; and (c) The floor graded to the floor waste to permit drainage of water.
F1.13	Glazed Assemblies	Applies	(a)Subject to (b) and (c), the following glazed assemblies in an *external wall*, must comply with AS 2047 requirements for resistance to water penetration: (i)Windows. (ii)Sliding and swinging glazed doors with a frame, including french and bi-fold doors with a frame. (iii)Adjustable louvres. (iv)Shopfronts. (v)Window walls with one piece framing. (b)The following buildings need not comply with (a): (i)A Class 7 or 8 building where in the particular case there is no necessity for compliance. (ii)A garage, tool shed, *sanitary compartment*, or the like, forming part of a building used for other purposes, except where the construction of the garage, tool shed, *sanitary compartment* or the like contributes to the weatherproofing of the other part of the building. (iii)An *open spectator stand* or *open-deck carpark*. (c)The following glazed assemblies need not comply with (a): (i)All glazed assemblies not in an *external wall*. (ii)Revolving doors. (iii)Fixed louvres. (iv)Skylights, roof lights and windows in other than the vertical plane.

Item	Description	Status	Comments
			(v)Sliding and swinging glazed doors without a frame. (vi)Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047. (vii)Second-hand windows, re-used windows and recycled windows. (viii)Heritage windows. **Capable of complying**
PART F2	**SANITARY & OTHER FACILITIES**		
F2.1	Facilities in Residential Buildings	N/A	**Each sole-occupancy unit is required to have**; • Sink • Bath • Closet pan • Laundry – Separate Tub • Heat drying
F2.3	Facilities in Class 3 to 9 Buildings	Applies	Facilities for staff and visitors are to be provided in accordance with this clause, including a uni-sex accessible facility and ambulant facilites for both male/female and the total number of each facility to be determined by D1.13 and Table F2.3. **Office –** 98 occupants Required Facilites 49 Male = 3 x Pan, 2 x Urinal and 2 x Basins 49 Female = 4 x Pan and 2 x Basin **Workshop/Production -** 40 occupants Required Facilites 20 Male = 1 x Pan, 1 x Urinal and 1 x Basin 20 Female = 2 x Pan and 1 x Basin **Comments:** Sanitary facility details are to be provided to demonstrate compliance. Plans scaled to 1:50 are to be provided for the sanitary facilities. **Capable of complying**
F2.4	Accessible sanitary facilities	Applies	A uni-sex accessible facility is to be provided. **Comments:** Details are to be provided. Plans scaled to 1:50 are to be provided for the sanitary facilities.

Item	Description	Status	Comments
	    		**Note**: Where existing accessible toilets are provided, the use of existing 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 and via a 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. **Capable of complying**

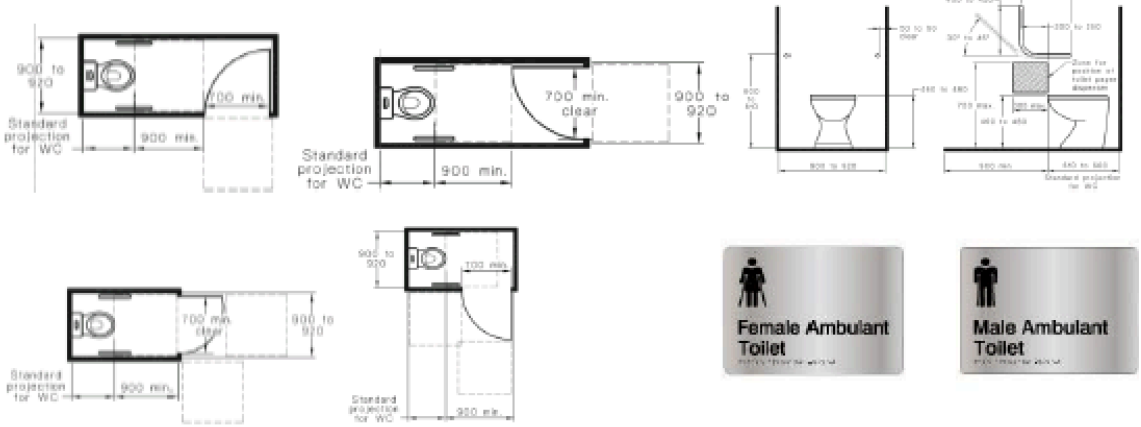
Details for an Accessible Toilet: (Checklist)

— 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.
o Located above the sink,
o 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.

Item	Description	Status	Comments
	     		

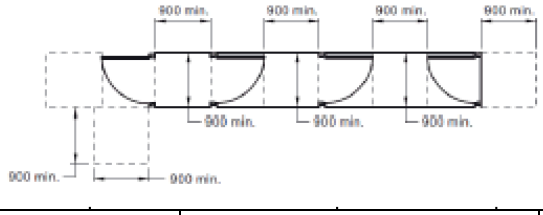
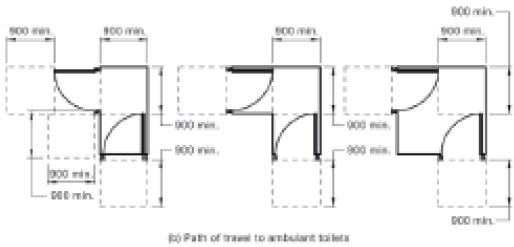
Ambulant Cubicle
Any toilet block is also to accommodate at least one ambulant cubical in **both** the *Male* and *Female* banks. Final details to accompany the Construction Certificate Plans.

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.

Item	Description	Status	Comments
			
F2.5	Construction of sanitary compartments	Applies	**Capable of complying**
F2.8	Waste	N/A	N/A
F2.9	Accessible adult change facilities	N/A	N/A
Spec F2.9	Accessible adult change facilities	N/A	N/A
PART F3	**ROOM HEIGHTS**		
F3.1	Height of rooms and other spaces	Applies	The height of rooms and other spaces must be not less than – (b)In a Class 5, 6, 7 or 8 building – (i) Except as allowed in (ii) and (F) – 2.4m; and (ii) A corridor, passageway or the like – 2.1m. **Comments:** The height of rooms must not be less than 2.4m in habitable rooms (excl. kitchen/bathroom which must not be less than 2.1m). **Capable of complying**
PART F4	**LIGHT AND VENTILATION**		
F4.2	Methods and extent of natural light	N/A	(a) Required natural light must be provided by – (i) windows, excluding roof lights, that – (A) have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and (B) are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (ii) roof lights, that – (A) have an aggregate light transmitting area measured

Item	Description	Status	Comments
			exclusive of framing members, glazing bars or other obstructions of not less than 3% of the floor area of the room; and (B) are open to the sky; or (iii) a proportional combination of windows and roof lights required by (i) and (ii). (b) Except in a Class 9c building, in a Class 2, 3 or 9 building or Class 4 part of a building a required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must not be less than a horizontal distance from that boundary or wall that is the greater of – (i) Generally – 1m; and (ii) In a patient care area or other room used for sleeping purposes in a Class 9a building – 3m; and (iii) 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill. (c) In a Class 9c building, a required window must be transparent and located – (i) in an external wall with the window sill not more than 1 m above the floor level; and (ii) where the window faces an adjoining allotment, another building or another wall of the same building, it must not be less than a horizontal distance of 3 m from the adjoining allotment, other building or wall.
F4.4	Artificial lighting	Applies	(a) Artificial lighting must be provided – (i) in required stairways, passageways, and ramps; and (ii) if natural light of a standard equivalent to that required by F4.2 is not available, and the periods of occupation or use of the room or space will create undue hazard to occupants seeking egress in an emergency, in – (A) Class 4 parts of a building — to sanitary compartments, bathrooms, shower rooms, airlocks and laundries; and (B) Class 2 buildings — to sanitary compartments, bathrooms, shower rooms, airlocks, laundries, common stairways

Item	Description	Status	Comments
			and other spaces used in common by the occupants of the building; and (C) Class 3, 5, 6, 7, 8 and 9 buildings — to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress. (d) The artificial lighting system must comply with AS/NZS 1680.0. (e) The system may provide a lesser level of illumination to the following spaces during times when the level of lighting would be inappropriate for the use: (i) A theatre, cinema or the like, when performances are in progress, with the exception of aisle lighting required by Part H1. (ii) A museum, gallery or the like, where sensitive displays require low lighting levels. (iii) A discotheque, nightclub or the like, where to create an ambience and character for the space, low lighting levels are used. **Capable of complying**
F4.5	Ventilation of rooms	Applies	A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have – (a) Natural ventilation complying with F4.6; or NSW F4.5(b) (b) A mechanical ventilation or air-conditioning system complying with AS1668.2 and AS/NZS3666.1. **Capable of complying**
F4.8	Restriction and location of sanitary compartments	Applies	Sanitary compartments must not open directly into – (a) A kitchen or pantry; or (b) a public dining room or restaurant; or (c) a dormitory in a Class 3 building; or (d) a room used for public assembly (which is not an early childhood centre, primary school or open spectator stand); or (e) a workplace normally occupied by more than one person. **Capable of complying**
F4.9	Airlocks	Noted	**Note**: Airlocks must comply with the set

Item	Description	Status	Comments
			distances under AS1428.1 :2009
		 (c) Path of travel to ambulant toilets	
F4.11	Car parks	N/A	Every storey of a carpark, except an open-deck carpark, must have – (a) a system of mechanical ventilation complying with AS 1668.2; or (b) a system of natural ventilation complying with Section 4 of AS 1668.4. **Comments:** Mechanical engineer's details and design certificate is to be provided to demonstrate that the system of ventilation complies with F4.11.
F4.12	Commercial Kitchen Exhaust	N/A	A commercial kitchen must be provided with a kitchen exhaust hood complying with AS1668.1 and AS1668.2.
PART F5	**SOUND TRANSMISSION AND INSULATION**		
F5.2	Determination of airborne sound insulation ratings	N/A	A form of construction required to have an airborne sound insulation rating must— (a) have the required value for weighted sound reduction index (Rw) or weighted sound reduction index with spectrum adaptation term (Rw + Ctr) determined in accordance with AS/NZS 1276.1or ISO717.1using results from laboratory measurements; or (b) comply with Specification F5.2. **Comments:** A system for sound insulation is to be provided on plans to demonstrate compliance with F5.2 & F5.3.
F5.3	Determination of impact sound insulation ratings	N/A	(a) A floor in a building required to have an impact sound insulation rating must – (i) have the required value for weighted normalized impact sound pressure level (Ln,w) determined in accordance with ASISO717.2 using results from laboratory measurements; or (ii) comply with Specification F5.2. (b) A wall in a building required to have an impact sound insulation rating must – (i) for a Class 2 or 3 building be of discontinuous construction; and (ii) for a Class 9c building, must – (A) for other than masonry, be two or more separate leaves

Item	Description	Status	Comments
			without rigid mechanical connection except at the periphery; or (B) be identical with a prototype that is no less resistant to the transmission of impact sound when tested in accordance with Specification F5.5 than a wall listed in Table 2 of Specification F5.2. (c) For the purpose so of this Part, discontinuous construction means a wall having a minimum 20mm cavity between 2 separate leaves, and (i) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (ii) for other than masonry, there is no mechanical linkage between leaves except at the periphery. **Comments:** A system for sound insulation is to be provided on plans to demonstrate compliance with F5.2 & F5.3.
F5.4	Sound insulation rating of floors	N/A	(a) A floor in a Class 2 or 3 building must have an Rw + Ctr (airborne) not less than 50 and an Ln,w (impact) not more than 62 if it separates – (i) sole-occupancy units; or (ii) a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification. (b) A floor in a Class 9c building separating sole-occupancy units must have an Rw not less than 45. **Comments:** A system for sound insulation of the floors is to be provided on plans to demonstrate compliance with F5.2, F5.3 & F5.4.
F5.5	Sound insulation rating of walls	N/A	(a) A wall in a Class 2 or 3 building must – (i) have an Rw + Ctr (airborne) not less than 50, if it separates sole-occupancy units; and (ii) have an Rw (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and (iii) comply with F5.3(b) if it separates –

Item	Description	Status	Comments
			(A) a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or (B) a sole-occupancy unit from a plant room or lift shaft. (b) A door may be incorporated in a wall in a Class 2 or 3 building 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. (c) A wall in a Class 9c building must have an Rw not less than 45 if it separates – (i) sole-occupancy units; or (ii) a sole-occupancy unit from a kitchen, bathroom, sanitary compartment (not being an associated ensuite), laundry, plant room or utilities room. (d) In addition to (c), a wall separating a sole-occupancy unit in a Class 9c building from a kitchen or laundry must comply with F5.3(b). (e) Where a wall required to have sound insulation has a floor above, the wall must continue to – (i) the underside of the floor above; or (ii) a ceiling that provides the sound insulation required for the wall. (f) Where a wall required to have sound insulation has a roof above, the wall must continue to – (i) the underside of the roof above; or (ii) a ceiling that provides the sound insulation required for the wall. **Comments:** A system for sound insulation of the walls is to be provided on plans to demonstrate compliance with F5.5.
F5.6	Sound insulation rating of internal services	N/A	(a)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*.

Item	Description	Status	Comments
			(b)If a storm water pipe passes through a *sole-occupancy unit* it must be separated in accordance with (a)(i) and (ii). **Comments**: Provide a system for sound insulation (lagging) to 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.*
PART F6	**CONDENSATION MANAGEMENET**		Part F6 aims to limit the amount of condensation that can accumulate within a building by requiring that water vapour be extracted to a point external to the building. It only applies to residential building classifications which are considered to be more susceptible to the accumulation of moisture due to the building's intended function and use.
F6.1	Application of Part	N/A	Only applies to sole-occupancy units of a Class 2 building and a Class 4 part of building.
F6.2	Pliable building membrane **Definitions** ***Pliable building membrane*** – means a water barrier as classified by AS/NZS 4200.1. - pliable building membranes (also known as sarking or underlay), when used either independently or as a facing to other materials, such as insulation materials, and as control functions for water, thermal vapour or air control. ***Water control layer*** – means a *pliable building membrane* or the exterior cladding when no *pliable building membrane* is present. ***Water sensitive materials*** – means materials that have an inherent capacity to absorb water vapour and include timber, plasterboard, plywood, oriented strand board and	N/A	(a)Where a *pliable building membrane* is installed in an *external wall*, it must— (i)comply with AS/NZS 4200.1; and (ii)be installed in accordance with AS 4200.2; and (iii)be a vapour permeable membrane for *climate zones* 6, 7 and 8; and (iv)be located on the exterior side of the primary insulation layer of wall assemblies that form the external envelope of a building. (b)Except for single skin masonry and single skin concrete, where a pliable building membrane is not installed in an external wall, the primary water control layer must be separated from water sensitive materials by a drained cavity. **Comments**: A detailed specification is to be provided to demonstrate compliance.

Item	Description	Status	Comments
	the like.		
F6.3	Flow rate and discharge or exhaust systems	N/A	(a)An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of – (i) 25L/s for a bathroom or sanitary compartment; and (ii) 40 L/s for a kitchen or laundry. (b)Exhaust from a kitchen must be discharged directly or via a shaft or duct to outdoor air. (c)Exhaust from a bathroom, sanitary compartment or laundry must be discharged- (i)directly or via a shaft or duct to outdoor air or (ii)to a roof space that is ventilated in accordance with F6.4. **Comments**: Provide details including a design statement is to be provided to demonstrate compliance with the flow rate and discharge (kitchen, bathroom, sanitary compartment of laundry) or exhaust systems in F6.3.
F6.4	Ventilation of roof space	N/A	(a)Where an exhaust system covered by F6.3 discharges directly or via a shaft or duct into a roof space, the roof space must be ventilated to outdoor air through evenly distributed openings. (b)Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is greater than 22 degrees, or 1/150 of the respective ceiling area if the roof pitch is less than or equal to 22 degrees. **Comments**: Details including a design statement is to be provided to demonstrate compliance with F6.4.
SECTION G	**ANCILLARY PROVISIONS**	N/A	N/A
PART G1	**Minor structures and components**		
G1.2	Refrigerated chambers, strong-rooms and vaults	N/A	(a)A refrigerated or cooling chamber, strong room or vault which is of sufficient size for a person to enter must have— (i)a door which is capable of being opened by hand from inside without a key; and (ii)internal lighting controlled only by a switch which is located adjacent to the entrance doorway inside the chamber, strong room or vault; and (iii)an indicator lamp positioned outside the chamber, strong room or vault which is illuminated when the interior lights *required* by (a)(ii) are switched on; and (iv)an alarm that is—

Item	Description	Status	Comments
			(A)located outside but controllable only from within the chamber, strong room or vault; and (B)able to achieve a sound pressure level outside the chamber, strong room or vault of 90 dB(A) when measured 3 m from the sounding device. (b)A door *required* by (a)(i) in a refrigerated or cooling chamber must have a doorway with a clear width of not less than 600 mm and a clear height not less than 1.5 m.
G1.3	Outdoor play spaces – **Early childhood centre**	N/A	(a)Any outdoor play space in a Class 9b *early childhood centre* must be enclosed on all sides with a barrier which complies with AS 1926.1. (b)For the purposes of (a), AS 1926.1 is applied as if there is a *swimming pool* located outside the outdoor play space, so that the barrier restricts children from exiting the premises without the knowledge of staff in the centre. (c)The requirements of (a) do not apply to a wall, including doors and *windows*, which form part of the Class 9b *early childhood centre*. *NSW G1.101*
NSW G1.101	Provision for cleaning windows	N/A	(a)A building must provide for a safe manner of cleaning any *windows* located **3 or more *storeys* above ground level**. (b)A building satisfies (a) where— (i)the *windows* can be cleaned wholly from within the building; or (ii)provision is made for the cleaning of the *windows* by a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.
PART G3	**Atrium construction**	N/A	N/A
Spec G3.8	**Fire and smoke control systems in buildings containing atriums**	N/A	N/A
SECTION H	**Special Use Buildings**	N/A	N/A

4.0 CONCLUSION

The proposed development is capable of complying with the performance requirements of the Building Code of Australia (BCA).

Recommendations: That the following options are recommended to ensure BCA Deemed to Satisfy (DTS) compliance;

1. Section B – Structural engineers details and a design statement is to be provided for all structural elements of the development to demonstrate compliance with the structural provisions of B1.1 (Resistance to actions), B1.2 (Determination of individual actions), B1.4 (Determination of structural resistance of materials and forms of construction) and B1.6 (Construction of buildings in flood hazard areas) (if applicable).

2. Spec C1.1 – The building is to be designed to comply with Type B & C Construction.
3. C1.9 – The following elements and their components are required to be non-combustible:
   - External walls and common walls, including all components incorporated in them including the façade covering, framing and insulation.
   - Non-loadbearing internal walls where they are required to be fire-resisting.
   The architect is to provide evidence of suitability under BCA A5.2 via the following;
   a) a current CodeMark certificate,
   b) a current certificate of Accreditation,
   c) a report issued by an Accredited Testing Laboratory or a certificate, or
   d) a report from a professional engineer for each non-combustible ancillary element.
4. C1.10, Spec C1.10 (NSW) & A5.5 - The fire hazard properties for all floor linings and coverings, wall and ceiling linings are to be provided by the manufacture in the form of the following;

   a) a current CodeMark certificate,
   b) a current certificate of Accreditation,
   c) a report issued by an Accredited Testing Laboratory
5. C1.10 & Spec C1.10 - The rigid and flexible air-handling ductwork must comply with the relevant fire hazard properties set out in AS4254.1 and AS4254.2 in the form of the following;

   a) a current CodeMark certificate,
   b) a current certificate of Accreditation,
   c) a report issued by an Accredited Testing Laboratory
6. C1.14 - An ancillary elements must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it complies with the allowable points in C1.14. The architect/structural engineer is to provide evidence of suitability under BCA A5.2 via the following;
   a) a current CodeMark certificate,
   b) a current certificate of Accreditation,
   c) a report issued by an Accredited Testing Laboratory or a certificate, or
   d) a report from a professional engineer for each non-combustible ancillary element.
7. C3.12, C3.15 & Spec C3.15 – Provide plans including the approved system for each service penetration that pass through a building element i.e. floor, wall, ceiling or shaft to maintain the FRL. The approved system is to be in the form of the following;

   a) a current CodeMark certificate,
   b) a current certificate of Accreditation,
   c) a report issued by an Accredited Testing Laboratory
8. D1.2 – Two (2) exits are required to serve the Class 8 Workshop buildings within each tenancy.
9. D1.4 – Workshop - No point on a floor must be more than 20 m from an *exit*, or a point from which travel in different directions to 2*exits* is available, in which case the maximum distance to one of those *exits* must not exceed 40 m.
10. D1.5 – Exits are not to be located closer than 9m apart nor greater than 60m apart.
11. D1.10 – Exits are not to be obstructed by vehicles. Suitable bollards are to be nominated on the plans to prevent obstructions by vehicles.
12. D2.13, D2.14 & D2.15 - A stair detail and section is to be provided to confirm compliance.
13. D2.17 – Handrails in fire isolated exits are to be continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand-hold.
14. D2.17 - Handrails are to be located on both sides of ramps and stairways in required exits where they are required to be accessible to comply with Clause 12 of AS1428.1-2009.
15. D2.19 - The required exit automatic sliding door leading from the lobby must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and as it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere within the compartment.
16. D2.20 – Exits are to be designed to swing in the direction of egress.
17. D2.21 – Lever downward action door hardware are to be provided to required exits and paths of travel doors and are to be openable without a key from the side seeking egress.
18. D2.21 - Doorways serving areas required to be accessible in accordance with D3 BCA are to be provided with lever downward action door hardware that the hand of a person who cannot grip will not

slip from the handle during operation of the latch and have clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm.

19. D3.1 – Access for people with a disability is to be provided to all areas normally accessed by the occupants.
20. D3.2 - Access and AS1428.1-2009
    - Access is to be provided via walkway, ramp or lift from street to the principal entrance/s of the building.
    - The shared area adjacent to the accessible car space is to be provided with a bollard to prevent vehicles parking (AS2890.6).
    - A level walkway 1m wide is to be provided from the shared accessible car space to the principle entrance of the building.
    - All door openings on the ground floor are to have a clear opening of 850mm (920mm) door, with exception the W.C and storage areas.
    - Circulation spaces to doorways are to comply with AS1428.1-2009.
    - Tactile ground surface indicators are to be installed on top and bottom of landings of the required non fire – isolated stairways and ramps.
21. D3.3 - Parts of the building required to be accessible;
    – every ramp and stairway must comply with Cl10 (ramps) and Cl11 (stairs) of AS1428.1; circulation spaces must comply with AS1428.1. **Note** : Except for a fire isolated stairway, only Cl11.1(f) and (g) of AS1428.1 applies.
    – every passenger lift must comply with E3.6
22. D3.5 - A shared accessible car space is to be provided in the car park with access to lift to serve all storeys provided.
23. D3.6 - The accessible car space is to be suitably signed with the international symbol in accordance with AS1428.1.
24. D3.8 - External and internal stairways and ramps leading to the principal entrance of the building are to be provided with suitable tactile indicators (excluding required fire isolated stairways).
25. E1.3 – Hydraulic details and design certificate is to be provided from an accredited practitioner (fire safety) to confirm compliance with AS2419-2005.
26. E1.4 – Hydraulic details and design certificate is to be provided from an accredited practitioner (fire safety) to confirm compliance with AS2441-2005.
27. E3.1, E3.2 & E3.6 – The lift design is to comply with E3.1, E3.2 & E3.6 and AS1735.12-1999 and manufacturer details and specifications are to be provided.
28. E4.2, E4.5 & E4.6 – Emergency lighting, exit sign and direction signs are required in common corridors, required non and fire-isolated stairways, lift and public areas. Electrical details and design certificate are required to confirm compliance.
29. F1.7 - A detailed specification is to be provided by the architect that demonstrates the type of water proofing membrane/system for each application i.e. wet areas (internal), external membranes (balconies/podiums) and tanking membranes in accordance with AS3740.
30. F1.13 - Provide a specification from the window manufacture to demonstrate that the glazed assemblies in the external wall comply with AS2047 requirements for resistance to water penetration.
31. F2.3 & F2.4 – The design of sanitary facilities and accessible sanitary facilities are to comply with the requirements of F2.3 & F2.4. Scaled 1:50 detail of the uni-sex accessible facilities including ambulant facilities.
32. F3.1 – The height of rooms must not be less than 2.4m in habitable rooms (excl. kitchen/bathroom which must not be less than 2.1m).
33. F5.4, F5.5 & F5.6– A system for sound insulation of the floors/walls is to be provided on plans to demonstrate compliance with F5.4 & F5.5 and also specify the fire rating level (FRL's) in accordance with BCA Spec C1.1 and Table 3.
34. Section J – A report is required to demonstrate that the energy efficiency of the proposed building comply with the relevant clauses. **Note**: The section J commitments are to be illustrated on the final CC plans.

A list of existing, modified or proposed fire safety measures has been created and can be found in Appendix A of the Report.

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APPENDIX A – DRAFT FIRE SAFETY SCHEDULE

Lot 109 No.1 Williamtown Drive, Williamtown – Office and Workshop Buildings

Fire Safety Measures	Existing Standard of Performance	Modified Standard of Performance	Proposed Standard of Performance
Automatic fail-safe devices			BCA 2019 Amdt 1 D2.19 & D2.21
Emergency lighting			BCA 2019 Amdt E4.2, E4.4 & AS/NZS2293.1-2018
Exit signs			BCA 2019 Amdt E4.5, E4.6, E4.8 & AS/NZS2293.1-2018
Fire windows			BCA 2019 Amdt 3.4 & Specification C3.4
Fire doors			BCA 2019 Amdt Spec C3.4, C3.5 & AS1905.1-2015 & AS1905.2-2005
Fire hydrant systems			BCA 2019 Amdt E1.3 & AS2419.1-2005 Amtd 1
Fire seals protecting openings in fire resisting components of the building			BCA 2019 Amdt C3.12, C3.15 & Spec C3.15 & AS1530.4-2014
Hose reel system (Workshop)			BCA 2019 Amdt E1.4 & AS2441-2005 Amdt 1
Portable fire extinguishers			BCA 2019 Amdt E1.6 & AS2444-2001
Wall wetting sprinkler & drencher system			BCA 2019 Amdt C3.4 & AS2118.2-2017
Warning and operational signs			EPA Regulation (reg 138), BCA 2019 Amdt E3.3 (lifts) & D2.2.3 (signs on exit doors)
Performance Solution			Performance Solution Report No.xxxx Rev:xxxx Dated: xxxx, Prepared by xxxx to permit -
Other fire safety measures			

APPENDIX B – TABLE 3,4 or 5 TYPE A,B or C CONSTRUCTION FRL OF BUILDING ELEMENTS

Specification C1.1 – Fire-resisting construction

1. Scope

This Specification contains requirements for the *fire-resisting construction* of building elements.

2. General Requirements

2.1 Exposure to fire-source features

(a)A part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the *fire-source feature*, or vertical projection of the feature, is not obstructed by another part of the building that—

(i)has an FRL of not less than 30/–/–; and

(ii)is neither transparent nor translucent.

(b)A part of a building element is not exposed to a *fire-source feature* if the *fire-source feature* is—

(i)an *external wall* of another building that stands on the allotment and the part concerned is more than 15 m above the highest part of that *external wall*; or

(ii)a side or rear boundary of the allotment and the part concerned is below the level of the finished ground at every relevant part of the boundary concerned.

(c)If various distances apply for different parts of a building element—

(i)the entire element must have the FRL applicable to that part having the least distance between itself and the relevant *fire-source feature*; or

(ii)each part of the element must have the FRL applicable according to its individual distance from the relevant *fire-source feature*,

but this provision does not override or permit any exemption from Clause 2.2.

2.2 Fire protection for a support of another part

(a)Where a part of a building *required* to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part, subject to (b), must—

(i)have an FRL not less than that *required* by other provisions of this Specification; and

(ii)if located within the same *fire compartment* as the part it supports have an FRL in respect of *structural adequacy* the greater of that *required*—

(A)for the supporting part itself; and

(B)for the part it supports; and

(iii)be *non-combustible*—

(A)if *required* by other provisions of this Specification; or

(B)if the part it supports is *required* to be *non-combustible*.

(b)The following building elements need not comply with (a)(ii) and (a)(iii)(B):

(i)An element providing lateral support to an *external wall* complying with Clause 5.1(b) or C1.11.

(ii)An element providing support within a *carpark* and complying with Clause 3.9, 4.2 or 5.2.

(iii)A roof providing lateral support in a building—

(A)of Type A construction if it complies with Clause 3.5(a), (b) or (d); and

(B)of Type B and C construction.

(iv)A column providing lateral support to a wall where the column complies with Clause 2.5(a) and (b).

(v)An element providing lateral support to a *fire wall* or *fire-resisting* wall, provided the wall is supported on both sides and failure of the element on one side does not affect the fire performance of the wall.

2.3 Lintels

A lintel must have the FRL *required* for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire *window* or fire shutter, and—

(a)it spans an opening in—

(i)a wall of a building containing only one *storey*; or

(ii)a non-*loadbearing* wall of a Class 2 or 3 building; or

(b)it spans an opening in masonry which is not more than 150 mm thick and—

(i)not more than 3 m wide if the masonry is non-*loadbearing*; or

(ii)not more than 1.8 m wide if the masonry is *loadbearing* and part of a solid wall or one of the leaves of a cavity wall.

2.4 Method of attachment not to reduce the fire-resistance of building elements
The method of attaching or installing a finish, lining, *ancillary element* or service installation to the building element must not reduce the fire-resistance of that element to below that *required*.

2.5 General concessions
(a)**Steel columns** — A steel column, other than one in a *fire wall* or *common wall*, need not have an FRL in a building that contains—
(i)only 1 *storey*; or
(ii)2 *storeys* in some of its parts and 1 *storey* only in its remaining parts if the sum of the *floor areas* of the upper *storeys* of its 2 *storey* parts does not exceed the lesser of—
(A)1/8 of the sum of the *floor areas* of the 1 *storey* parts; or
(B)in the case of a building to which one of the maximum *floor areas* specified in Table C2.2 is applicable — 1/10 of that area; or
(C)in the case of a building to which two or more of the maximum *floor areas* specified in Table C2.2 is applicable — 1/10 of the lesser of those areas.
(b)**Timber columns** — A timber column may be used in a single *storey* building if—
(i)in a *fire wall* or *common wall* the column has an FRL not less than that listed in the appropriate Table 3, 4 or 5; and
(ii)in any other case where the column is *required* to have an FRL in accordance with Table 3, 4 or 5, it has an FRL of not less than 30/–/–.
(c)**Structures on roofs** — A *non-combustible* structure situated on a roof need not comply with the other provisions of this Specification if it only contains—
(i)lift motor equipment; or
(ii)one or more of the following:
(A)Hot water or other water tanks.
(B)Ventilating ductwork, ventilating fans and their motors.
(C)Air-conditioning chillers.
(D)*Window* cleaning equipment.
(E)Other service units that are *non-combustible* and do not contain flammable or combustible liquids or gases.
(d)**Curtain walls and panel walls** — A requirement for an *external wall* to have an FRL does not apply to a *curtain wall* or *panel wall* which is of *non-combustible* construction and fully protected by *automatic* external wall-wetting sprinklers.
(e)* * * * *
(e)* * * * *
(f)**Balconies and verandahs** — A balcony, verandah or the like and any incorporated supporting part, which is attached to or forms part of a building, need not comply with Tables 3, 4 and 5 if—
(i)it does not form part of the only path of travel to a *required exit* from the building; and
(ii)in Type A construction—
(A)it is situated not more than 2 *storeys* above the lowest *storey* providing direct egress to a road or *open space*; and
(B)any supporting columns are of *non-combustible* construction.

2.6 Mezzanine floors: Concession
(a)This Clause does not apply to a Class 9b building that is a spectator stand or audience viewing area accommodating more than 100 persons as calculated according to D1.13.
(b)A *mezzanine* and its supports need not have an FRL or be *non-combustible* provided—
(i)the total *floor area* of all the *mezzanines* in the same room does not exceed 1/3 of the *floor area* of the room or 200 m2, whichever is the lesser; and
(ii)the FRL of each wall and column that supports any other part of the building within 6 m of the *mezzanine* is increased by the amount listed in Table 2.6.

Table 2.6 Increased FRLs — Construction surrounding mezzanines

Level otherwise *required* for any FRL criterion (mins)	Increase in level to not less than (mins):
30	60
60	90
90	120
120	180
180	240

Note to Table 2.6: The increase in level applies to each FRL criterion (*structural adequacy*, *integrity* or *insulation*) relevant to the building element concerned.

2.7 Enclosure of shafts

Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that *required* for the walls of a non-*loadbearing shaft* in the same building, except that these provisions need not apply to—

(a)the top of a *shaft* extending beyond the roof covering, other than one enclosing a *fire-isolated stairway* or *ramp*; or

(b)the bottom of a *shaft* if it is *non-combustible* and laid directly on the ground.

2.8 Carparks in Class 2 and 3 buildings

(a)If a Class 2 building contains not more than 4 *storeys* of which—

(i)one *storey* is Class 7 used solely for the purpose of parking motor vehicles or for some other purpose that is ancillary to a Class 2; and

(ii)the remaining *storeys* are of Class 2,

the *carpark storey* is regarded as Class 2 only for the purpose of determining the relevant *fire-resisting* requirements of this Specification.

(b)If a Class 3 building or a building of Class 2 and 3 contains not more than 3 *storeys* of which—

(i)one *storey* is Class 7 used solely for the purpose of parking motor vehicles or for some other purpose that is ancillary to the other *storeys*; and

(ii)the remaining *storeys* are of Class 2 or 3,

the *carpark storey* is regarded as Class 2 or 3 only for the purpose of determining the relevant *fire-resisting* requirements of this Specification.

2.9 Residential care building: Concession

(a)In a Class 3 building protected with a sprinkler system complying with Specification E1.5 and used as a *residential care building*, any FRL criterion prescribed in Tables 3, 4 or 5—

(i)for any floor and any *loadbearing* wall, may be reduced to 60, except any FRL criterion of 90 for an *external wall* must be maintained when tested from the outside; and

(ii)for any non-*loadbearing internal wall*, need not apply if—

(A)it is lined on each side with standard grade plasterboard not less than 13 mm thick or similar *non-combustible* material; and

(B)it extends—

(aa)to the underside of the floor next above; or

(bb)to the underside of a ceiling lined with standard grade plasterboard not less than 13 mm thick or a material with at least an equivalent level of fire protection; or

(cc)to the underside of a *non-combustible* roof covering; and

(C)any insulation installed in the cavity of the wall is *non-combustible*; and

(D)any construction joint, space or the like between the top of the wall and the floor, ceiling or roof is smoke sealed with intumescent putty or other suitable material.

(b)The concession described at (a) does not apply to *fire-protected timber* building elements.

3. Type A Fire-Resisting Construction

3.1 Fire-resistance of building elements

In a building *required* to be of Type A construction—

(a)each building element listed in Table 3 and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and

(b)* * * * *

(c)any *internal wall required* to have an FRL with respect to *integrity* and *insulation* must extend to—

(i)the underside of the floor next above; or

(ii)the underside of a roof complying with Table 3; or

(iii)if under Clause 3.5 the roof is not *required* to comply with Table 3, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or

(iv)a ceiling that is immediately below the roof and has a *resistance to the incipient spread of fire* to the roof space between the ceiling and the roof of not less than 60 minutes; and

(d)a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be constructed from—

(i)concrete; or

(ii)masonry; or

(iii)*fire-protected timber*, provided that—

(A)the building is—

(aa)a separate building; or

(bb)a part of a building—

(AA)which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or

(BB)which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and

(B)the building has an *effective height* of not more than 25 m; and

(C)the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification E1.5; and

(D)any insulation installed in the cavity of the timber building element *required* to have an FRL is *non-combustible*; and

(E)cavity barriers are provided in accordance with Specification C1.13; or

(iv)any combination of (i) to (iii); and

(e)* * * * *

(f)the FRLs specified in Table 3 for an external column apply also to those parts of an internal column that face and are within 1.5 m of a *window* and are exposed through that *window* to a *fire-source feature*.

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
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

3.2 Concessions for floors

A floor need not comply with Table 3 if—

(a)it is laid directly on the ground; or

(b)in a Class 2, 3, 5 or 9 building, the space below is not a *storey*, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or

(c)it is a timber *stage* floor in a Class 9b building laid over a floor having the *required* FRL and the space below the *stage* is not used as a dressing room, store room, or the like; or

(d)it is within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part of a building; or

(e)it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the *required* FRL.

3.3 Floor loading of Class 5 and 9b buildings: Concession

If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3 kPa—

(a)the floor next above (including floor beams) may have an FRL of 90/90/90; or

(b)the roof, if that is next above (including roof beams) may have an FRL of 90/60/30.

3.4 Roof superimposed on concrete slab: Concession

A roof superimposed on a concrete slab roof need not comply with Clause 3.1 as to *fire-resisting construction* if—

(a)the superimposed roof and any construction between it and the concrete slab roof are *non-combustible* throughout; and

(b)the concrete slab roof complies with Table 3.

3.5 Roof: Concession

A roof need not comply with Table 3 if its covering is *non-combustible* and the building—

(a)has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 installed throughout; or

(b)has a *rise in storeys* of 3 or less; or

(c)is of Class 2 or 3; or

(d)has an *effective height* of not more than 25 m and the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes.

3.6 Roof lights

If a roof is *required* to have an FRL or its covering is *required* to be *non-combustible*, roof lights or the like installed in that roof must—

(a)have an aggregate area of not more than 20% of the roof surface; and

(b)be not less than 3 m from—

(i)any boundary of the allotment other than the boundary with a road or public place; and

(ii)any part of the building which projects above the roof unless that part has the FRL *required* of a *fire wall* and any openings in that part of the wall for 6 m vertically above the roof light or the like are protected in accordance with C3.4; and

(iii)any roof light or the like in an adjoining *sole-occupancy unit* if the walls bounding the unit are *required* to have an FRL; and

(iv)any roof light or the like in an adjoining fire-separated section of the building; and

(c)if a ceiling with a *resistance to the incipient spread of fire* is *required*, be installed in a way that will maintain the level of protection provided by the ceiling to the roof space.

3.7 Internal columns and walls: Concession

For a building with an *effective height* of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the *storey* immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and *internal walls* other than *fire walls* and *shaft* walls may have—

(a)in a Class 2 or 3 building: FRL 60/60/60; or

(b)in a Class 5, 6, 7, 8 or 9 building—

(i)with *rise in storeys* exceeding 3: FRL 60/60/60; or

(ii)with *rise in storeys* not exceeding 3: no FRL.

3.8 Open spectator stands and indoor sports stadiums: Concession

In an *open spectator stand* or indoor sports stadium, the following building elements need not have the FRL specified in Table 3:

(a)The roof if it is *non-combustible*.

(b)Columns and *loadbearing* walls supporting only the roof if they are *non-combustible*.

(c)Any non-*loadbearing* part of an *external wall* less than 3 m—

(i)from any *fire-source feature* to which it is exposed if it has an FRL of not less than –/60/60 and is *non-combustible*; or

(ii)from an *external wall* of another *open spectator stand* if it is *non-combustible*.

3.9 Carparks

(a)Notwithstanding Clause 3.1, a *carpark* may comply with Table 3.9 if it is an *open-deck carpark* or is protected with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 and is—

(i)a separate building; or

(ii)a part of a building—

(A)which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or

(B)which is located above or below another classification, and the floor separating the classifications complies with C2.9; or

(C)which is located above another Class 7 part of the building not used for carparking, and the floor separating the parts complies with Table 3 for a Class 7 part other than a *carpark*; or

(D)which is located below another Class 7 part of the building not used for carparking, and the floor separating the parts complies with Table 3.9.

(b)For the purposes of this Clause, a *carpark*—

(i)includes—
(A)an administration area associated with the functioning of the *carpark*; and
(B)where the *carpark* is sprinklered, is associated with a Class 2 or 3 building and provides carparking for separate *sole-occupancy units*, each carparking area with an area not greater than 10% of its *floor area* for purposes ancillary to the *sole-occupancy units*; but
(ii)excludes—
(A)except for (b)(i), any area of another classification, or other part of a Class 7 building not used for carparking; and
(B)a building or part of a building specifically intended for the parking of trucks, buses, vans and the like.

Table 3.9 Requirements for carparks

Building element				**FRL (not less than) *Structural adequacy/Integrity/Insulation*** **ESA/M (not greater than)**
Wall				
(a)	*external wall*			
	(i)	less than 3 m from a *fire-source feature* to which it is exposed:		
			Loadbearing	60/60/60
			Non-*loadbearing*	–/60/60
	(ii)	3 m or more from a *fire-source feature* to which it is exposed		–/–/–
(b)	*internal wall*			
	(i)	*loadbearing*, other than one supporting only the roof (not used for carparking)		60/–/–
	(ii)	supporting only the roof (not used for carparking)		–/–/–
	(iii)	non-*loadbearing*		–/–/–
(c)	*fire wall*			
	(i)	from the direction used as a *carpark*		60/60/60
	(ii)	from the direction not used as a *carpark*		as *required* by Table 3
Column				
(a)	supporting only the roof (not used for carparking) and 3 m or more from a *fire-source feature* to which it is exposed			–/–/–
(b)	steel column, other than one covered by (a) and one that does not support a part of a building that is not used as a *carpark*			60/–/– or 26 m^2/tonne
(c)	any other column not covered by (a) or (b)			60/–/–
Beam				
(a)	steel floor beam in continuous contact with a concrete floor slab			60/–/– or 30 m^2/tonne
(b)	any other beam			60/–/–
Fire-resisting lift and stair shaft (within the *carpark* only)				60/60/60
Floor slab and vehicle ramp				60/60/60
Roof (not used for carparking)				–/–/–

Notes to Table 3.9:

1. ESA/M means the ratio of exposed surface area to mass per unit length.
2. Refer to Specification E1.5 for special requirements for a sprinkler system in a *carpark* complying with Table 3.9 and located within a multi-classified building.

3.10 Class 2 and 3 buildings: Concession

(a) In a Class 2 or 3 building with a *rise in storeys* of not more than 3—
(i) notwithstanding C1.9(a) and (b) and C2.6, timber framing may be used for—
(A) *external walls*; and
(B) *common walls*; and
(C) the floor framing of lift pits; and

(D) non-*loadbearing internal walls* which are *required* to be *fire-resisting*; and
(E) non-*loadbearing shafts*, except *shafts* used for the discharge of hot products of combustion; and
(F) spandrels or horizontal construction provided for the purposes of C2.6; and
(ii) notwithstanding Clause 3.1(d) of Specification C1.1, for *loadbearing internal walls* and *loadbearing fire walls*—
(A) timber framing may be used; and
(B) *non-combustible* materials may be used.
(b)A Class 2 or 3 building having a *rise in storeys* of not more than 4 may have the top three *storeys* constructed in accordance with (a) provided—
(i)the lowest *storey* is used solely for the purpose of parking motor vehicles or for some other ancillary purpose; and
(ii)the lowest *storey* is constructed of concrete or masonry including the floor between it and the Class2 or 3 part of the building above; and
(iii)the lowest *storey* and the *storey* above are separated by construction having an FRL of not less than90/90/90 with no openings or penetrations that would reduce the *fire-resisting* performance of that construction except that a doorway in that construction may be protected by a –/60/30 *self-closing* fire door.
(c)In a Class 2 or 3 building complying with (a) or (b) and fitted with a sprinkler system (other than a FPAA101Dor FPAA101H system) complying with Specification E1.5, any FRL criterion prescribed in Table 3—
(i)for any floor and any *loadbearing* wall, may be reduced to 60, except any FRL criterion of 90 for an *external wall* must be maintained when tested from the outside; and
(ii)for any non-*loadbearing internal wall*, need not apply if—
(A)it is lined on each side with 13 mm standard grade plasterboard or similar *non-combustible* material; and
(B)it extends—
(aa)to the underside of the floor next above; or
(bb)to the underside of a ceiling with a *resistance to the incipient spread of fire* of 60 minutes; or
(cc)to the underside of a *non-combustible* roof covering; and
(C)any insulation installed in the cavity of the wall is *non-combustible*; and
(D)any construction joint, space or the like between the top of the wall and the floor, ceiling or roof is smoke sealed with intumescent putty or other suitable material; and
(E)any doorway in the wall is protected by a *self-closing*, tight fitting, solid core door not less than 35 mm thick.

4. Type B Fire-Resisting Construction
4.1 Fire-resistance of building elements
In a building *required* to be of Type B construction—
(a)each building element listed in Table 4, and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and
(b)* * * * *
(c)if a stair *shaft* supports any floor or a structural part of it—
(i)the floor or part must have an FRL of 60/–/– or more; or
(ii)the junction of the stair *shaft* must be constructed so that the floor or part will be free to sag or fall in a fire without causing structural damage to the *shaft*; and
(d)any *internal wall* which is *required* to have an FRL with respect to *integrity* and *insulation*, except a wall that bounds a *sole-occupancy unit* in the topmost (or only) *storey* and there is only one unit in that *storey*, must extend to—
(i)the underside of the floor next above if that floor has an FRL of at least 30/30/30; or
(ii)the underside of a ceiling having a *resistance to the incipient spread of fire* to the space above itself of not less than 60 minutes; or
(iii)the underside of the roof covering if it is *non-combustible* and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or
(iv)450 mm above the roof covering if it is *combustible*; and
(e)a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be constructed from—
(i)concrete; or
(ii)masonry; or
(iii)*fire-protected timber*, provided that—

(A)the building is—
(aa)a separate building; or
(bb)a part of a building—
(AA)which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or
(BB)which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and
(B)the building has an *effective height* of not more than 25 m; and
(C)the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification E1.5; and
(D)any insulation installed in the cavity of the timber building element *required* to have an FRL is *non-combustible*; and
(E)cavity barriers are provided in accordance with Specification C1.13; or
(iv)any combination of (i) to (iii); and
(f)* * * * *
(g)in a Class 5, 6, 7, 8 or 9 building, in the *storey* immediately below the roof, internal columns and *internal walls* other than *fire walls* and *shaft* walls, need not comply with Table 4; and
(h)* * * * *
(i)in a Class 2 or 3 building, except where within the one *sole-occupancy units*, or a Class 9a *health-care building* or a Class 9b building, a floor separating *storeys* or above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, must—
(i)be constructed so that it is at least of the standard achieved by a floor/ceiling system incorporating a ceiling which has a *resistance to the incipient spread of fire* to the space above itself of not less than 60 minutes; or
(ii)have an FRL of at least 30/30/30; or
(iii)have a *fire-protective covering* on the underside of the floor, including beams incorporated in it, if the floor is *combustible* or of metal; and
(j)in a Class 9c building a floor above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, and any column supporting the floor must—
(i)be constructed so that it is at least of the standard achieved by a floor/ceiling system incorporating a ceiling which has a *resistance to the incipient spread of fire* to the space above itself of not less than 60 minutes; or
(ii)have an FRL of at least 30/30/30; or
(iii)have a *fire-protective covering* on the underside of the floor, including beams incorporated in it, if the floor is *combustible* or of metal.

4. Type B Construction

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/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/–	120/ 30/–	180/ 60/–	240/ 60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
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/ 30	–/ 90/ 60	–/120/ 90	–/180/120
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—				
For *loadbearing* columns—				
less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non-*loadbearing* columns—				
	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240

Table 4 TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS — *continued*

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
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Fire-resisting stair *shafts*—				
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	60/–/–	120/–/–	180/–/–	240/–/–
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

4.2 Carparks

(a)Notwithstanding Clause 4.1, a *carpark* may comply with Table 4.2 if it is an *open-deck carpark* or is protected with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 and is—

(i)a separate building; or

(ii)a part of a building, and if occupying only part of a *storey*, is separated from the remaining part by a *fire wall*.

(b)For the purposes of this Clause, a *carpark*—

(i)includes—

(A)an administration area associated with the functioning of the *carpark*; and

(B)where the *carpark* is sprinklered, is associated with a Class 2 or 3 building and provides carparking for separate *sole-occupancy units*, each carparking area with an area not greater than 10% of its *floor area* for purposes ancillary to the *sole-occupancy units*; but

(ii)excludes—

(A)except for (b)(i), any area of another classification, or other part of a Class 7 building not used for carparking; and

(B)a building or part of a building specifically intended for the parking of trucks, buses, vans and the like.

Table 4.2 Requirements for carparks

Building element				**FRL (not less than) *Structural adequacy/Integrity/Insulation* ESA/M (not greater than)**
Wall				
(a)	*external wall*			
	(i)	less than 3 m from a *fire-source feature* to which it is exposed:		
			Loadbearing	60/60/60
			Non-*loadbearing*	–/60/60
	(ii)	3 m or more from a *fire-source feature* to which it is exposed		–/–/–
(b)	*internal wall*			
	(i)	*loadbearing*, other than one supporting only the roof (not used for carparking)		60/–/–
	(ii)	supporting only the roof (not used for carparking)		–/–/–
	(iii)	non-*loadbearing*		–/–/–
(c)	*fire wall*			
	(i)	from the direction used as a *carpark*		60/60/60
	(ii)	from the direction not used as a *carpark*		as *required* by Table 4
Column				
(a)	supporting only the roof (not used for carparking) and 3 m or more from a *fire-source feature* to which it is exposed			–/–/–
(b)	steel column, other than one covered by (a)			60/–/– or 26 m^2/tonne
(c)	any other column not covered by (a) or (b)			60/–/–
Beam				
(a)	less than 3 m from a *fire-source feature*:			
	(i)	steel floor beam in continuous contact with a concrete floor slab		60/–/– or 30 m^2/tonne
	(ii)	any other beam		60/–/–
(b)	3 m or more from a *fire-source feature*			–/–/–
Lift shaft				–/–/–
Fire-resisting stair shaft (within the *carpark* only)				60/60/60
Roof, floor slab and vehicle ramp				–/–/–

Note to Table 4.2: ESA/M means the ratio of exposed surface area to mass per unit length.

4.3 Class 2 and 3 buildings: Concession

(a)In a Class 2 or 3 building with a *rise in storeys* of not more than 2 –

(i) notwithstanding C1.9(a) and (b) and C2.6, timber framing may be used for—
(A) *external walls*; and
(B) *common walls*; and
(C) the floor framing of lift pits; and
(D) non-*loadbearing internal walls* which are *required* to be *fire-resisting*; and
(E) non-*loadbearing shafts*, except *shafts* used for the discharge of hot products of combustion; and
(F) spandrels or horizontal construction provided for the purposes of C2.6; and
(ii) notwithstanding Clause 4.1(e) of Specification C1.1, for *loadbearing internal walls* and *loadbearing fire walls*—
(A) timber framing may be used; and
(B) *non-combustible* materials may be used.
(b)A Class 2 or 3 building having a *rise in storeys* of not more than 2 may have the top *storey* constructed in accordance with (a) provided—
(i)the lowest *storey* is used solely for the purpose of parking motor vehicles or for some other ancillary purpose; and
(ii)the lowest *storey* is constructed of concrete or masonry including the floor between it and the Class 2 or 3 part of the building above; and
(iii)the lowest *storey* and the *storey* above are separated by construction having an FRL of not less than 90/90/90 with no openings or penetrations that would reduce the *fire-resisting* performance of that construction except that a doorway in that construction may be protected by a –/60/30 *self-closing* fire door.
(c)In a Class 2 or 3 building complying with (a) or (b) and fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5, any FRL criterion prescribed in Table 4—
(i)for any *loadbearing* wall, may be reduced to 60, except any FRL criterion of 90 for an *external wall* must be maintained when tested from the outside; and
(ii)for any non-*loadbearing internal wall*, need not apply, if—
(A)it is lined on both sides with 13 mm standard grade plasterboard or similar *non-combustible* material; and
(B)it extends—
(aa)to the underside of the floor next above if that floor has an FRL of at least 30/30/30 or is lined on the underside with a *fire-protective covering*; or
(bb)to the underside of a ceiling with a *resistance to the incipient spread of fire* of 60 minutes; or
(cc)to the underside of a *non-combustible* roof covering; and
(C)any insulation installed in the cavity of the wall is *non-combustible*; and
(D)any construction joints, spaces and the like between the top of the wall and the floor, ceiling or roof is smoke sealed with intumescent putty or other suitable material.

5. Type C Fire-Resisting Construction
5.1 Fire-resistance of building elements
In a building *required* to be of Type C construction—
(a)a building element listed in Table 5 and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and
(b)an *external wall* that is *required* by Table 5 to have an FRL need only be tested from the outside to satisfy the requirement; and
(c)a *fire wall* or an *internal wall* bounding a *sole-occupancy unit* or separating adjoining units must comply with Specification C1.8 if it is of *lightweight construction* and is *required* to have an FRL; and
(d)in a Class 2 or 3 building, an *internal wall* which is *required* by Table 5 to have an FRL must extend—
(i)to the underside of the floor next above if that floor has an FRL of at least 30/30/30 or a *fire-protective covering* on the underside of the floor; or
(ii)to the underside of a ceiling having a *resistance to the incipient spread of fire* to the space above itself of not less than 60 minutes; or
(iii)to the underside of the roof covering if it is *non-combustible*, and except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or
(iv)450 mm above the roof covering if it is *combustible*; and
(e)in a Class 2 or 3 building, except where within the one *sole-occupancy unit*, or a Class 9a *health-care building*, or a Class 9b building, a floor separating *storeys*, or above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, and any column supporting the floor, must—
(i)have an FRL of at least 30/30/30; or

(ii)have a *fire-protective covering* on the underside of the floor including beams incorporated in it and around the column, if the floor or column is *combustible* or of metal; and
(f)in a Class 9c building a floor above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, and any column supporting the floor, must—
(i)have an FRL of at least 30/30/30; or
(ii)have a *fire-protective covering* on the underside of the floor including beams incorporated in it and around the column, if the floor or column is *combustible* or of metal.

Type C Construction

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 within it) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	–/–/–	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
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 1.5 m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3 m	–/–/–	60/–/–	60/–/–	60/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS—				
Bounding *public corridors*, public lobbies and the like—	60/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—	60/ 60/ 60	–/–/–	–/–/–	–/–/–
Bounding a stair if *required* to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

5.2 Carparks
(a)Notwithstanding Clause 5.1, a *carpark* may comply with Table 5.2 if it is an *open-deck carpark* or is protected with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 and is—
(i)a separate building; or
(ii)a part of a building, and if occupying only part of a *storey*, is separated from the remaining part by a *fire wall*.
(b)For the purposes of this Clause, a *carpark*—
(i)includes—
(A)an administration area associated with the functioning of the *carpark*; and
(B)where the *carpark* is sprinklered, is associated with a Class 2 or 3 building and provides carparking for separate *sole-occupancy units*, each carparking area with an area not greater than 10% of its *floor area* for purposes ancillary to the *sole-occupancy units*; but
(ii)excludes—
(A)except for (b)(i), any area of another classification, or other part of a Class 7 building not used for carparking; and
(B)a building or part of a building specifically intended for the parking of trucks, buses, vans and the like.

Table 5.2 Requirements for carparks

Building element				FRL (not less than) *Structural adequacy*/*Integrity*/*Insulation* ESA/M (not greater than)
Wall				
(a)	*external wall*			
	(i)	less than 1.5 m from a *fire-source feature* to which it is exposed:		
			Loadbearing	60/60/60
			Non-*loadbearing*	–/60/60
	(ii)	1.5 m or more from a *fire-source feature* to which it is exposed		–/–/–
(b)	*internal wall*			–/–/–
(c)	*fire wall*			
	(i)	from the direction used as a *carpark*		60/60/60
	(ii)	from the direction not used as a *carpark*		90/90/90
Column				
(a)	steel column less than 1.5 m from a *fire-source feature*			60/–/– or 26 m^2/tonne
(b)	any other column less than 1.5 m from a *fire-source feature*			60/–/–
(c)	any other column not covered by (a) or (b)			–/–/–
Beam				
(a)	less than 1.5 m from a *fire-source feature*			
	(i)	steel floor beam in continuous contact with a concrete floor slab		60/–/– or 30 m^2/tonne
	(ii)	any other beam		60/–/–
(b)	1.5 m or more from a *fire-source feature*			–/–/–
Roof, floor slab and vehicle ramp				–/–/–

Note to Table 5.2: ESA/M means the ratio of exposed surface area to mass per unit length.

APPENDIX C – TYPE A VERTICAL SEPERATION

Buildings of Type A construction

C2.6 generally applies to buildings of Type A construction and Class 9a buildings of Type B construction, because they are the only buildings required to provide fire separation between floors. This separation is achieved by the floor being required to have a fire-resistance level (FRL). It applies to openings above one another in different storeys if they are within a horizontal distance of 450 mm of each other.

It does not apply to:

- sprinkler protected buildings because the sprinklers should prevent the fire developing to the stage where it could spread to the floor above;
- openings in a fire-isolated stair shaft. This is because the stair shaft is not considered to be separate storeys and it is assumed that fire spread between floors will not occur via the stairway; or
- open-deck carparks and open spectator stands. This is because it is unlikely that fire would spread between floors in these types of buildings as their open construction allows the dissipation of the effects of fire.

In addition, Class 9a buildings of Type B construction require openings in external walls to be vertically separated in accordance with C2.6 as if the building was Type A construction (see C2.5(a)(iv)). This can be achieved either by the construction methods outlined below or the installation of sprinklers in the building. The reason for this is that it is important to inhibit the spread of fire between floors in Class 9a buildings.

Protection of vertically separated openings

C2.6 requires the vertical separation of openings in external walls (see C2.6(a) and (b)) of buildings of Type A construction which do not have a sprinkler system complying with Specification E1.5. The vertical separation of openings can be achieved by either of the following methods:

- a non-combustible spandrel or other non-combustible vertical construction having an overall height of 900 mm or more, extending at least 600 mm or more above the upper surface of the intervening floor, and having an FRL of 60/60/60 (see C2.6(a)(i)) as shown in Figure C2.6(1); or
- a non-combustible horizontal projection having an outwards projection from the external face of the wall of 1 100 mm or more, an extension along the wall beyond the openings of at least 450 mm, and having an FRL of 60/60/60 (see C2.6(a)(iv)) as shown in Figure C2.6(2).

If the external wall of the building is a glass curtain wall, C2.6(a)(iii) contains specific provisions to stop or limit the spread of fire and smoke between the glass and the edge of the concrete floor. The details are shown in Figure C2.6(3).

Although it could be argued that the spandrel or vertical projection should have the same FRL as the floor separating the storeys, this has not been found to be necessary.

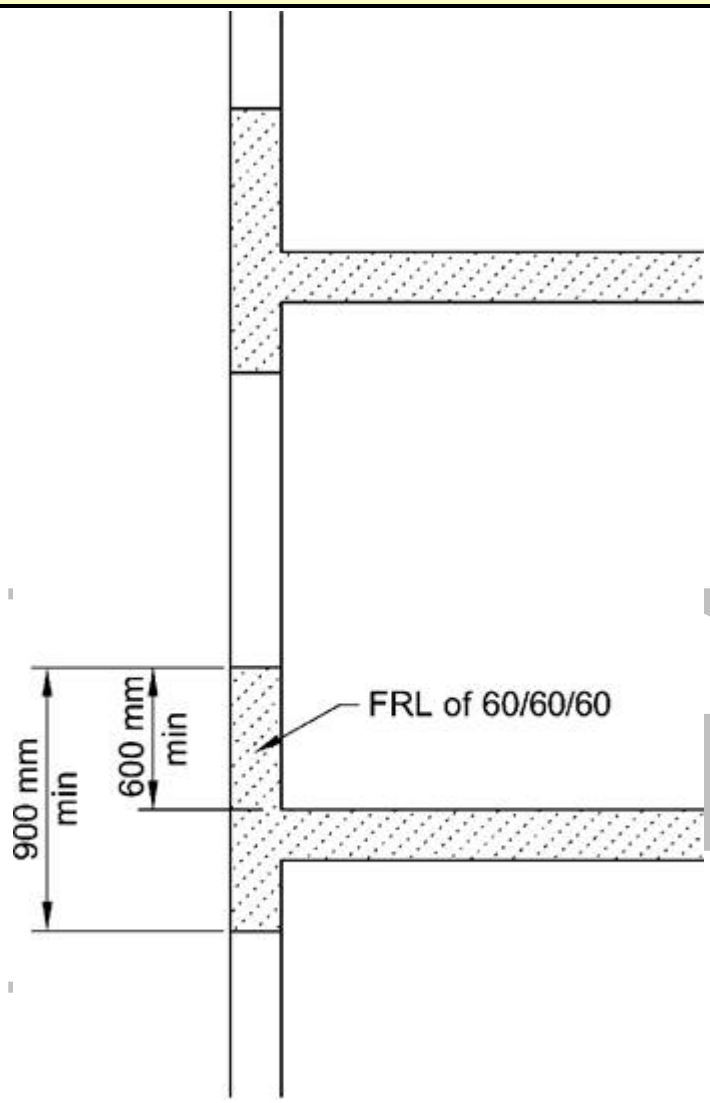
Meaning of "window or other opening"

C2.6(c) explains the meaning of the term "window or other opening" as used in C2.6(a). Basically, the term is used to describe a part of the external wall which does not have an FRL of at least 60/60/60 to limit the spread of fire from one storey to another by passing out through the window or opening and then re-entering the building through a similar opening (i.e. one without an FRL of at least 60/60/60) on the storey above. Examples of such openings include:

- windows;
- glass curtain walls;
- non-fire rated panels; and
- other parts of the wall that do not have an FRL of at least 60/60/60.

Figure C2.6(1)

SECTION SHOWING USE OF SPANDREL TO SEPARATE EXTERNAL WINDOW OPENINGS



Section

Figure C2.6(2)

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

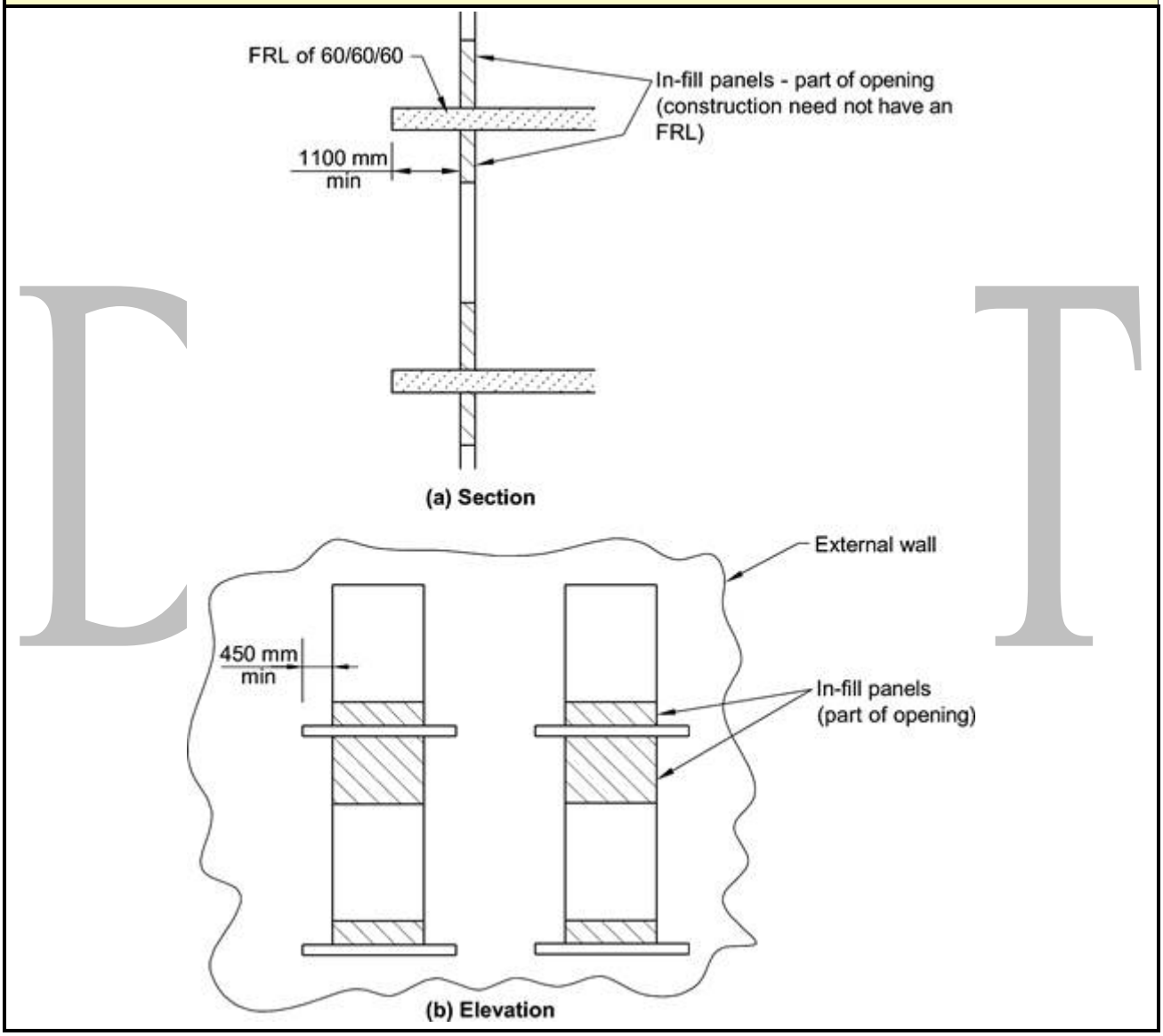
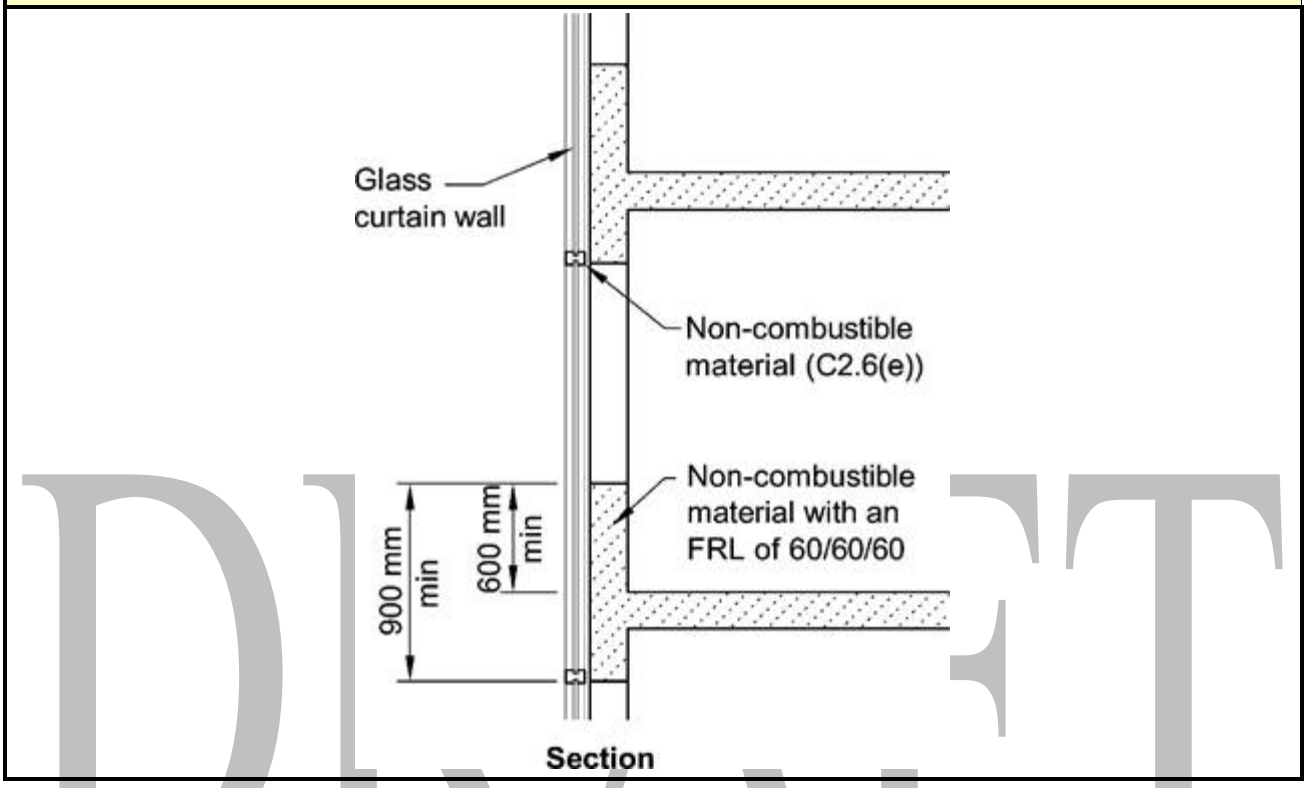


Figure C2.6(3)

SECTION SHOWING SEPARATION OF EXTERNAL WINDOW OPENINGS IN A CURTAIN WALL



APPENDIX D – SPECIFICATIONS E1.5 AND E1.5a

Spec E1.5 – Fire Sprinkler Systems

Specification E1.5 Fire sprinkler systems

Deemed-to-Satisfy Provisions

1. Scope

This Specification sets out requirements for the design and installation of fire sprinkler systems.

2. Application of automatic fire sprinkler standards

Vic Spec E1.5 2.

Subject to this Specification, an *automatic* fire sprinkler system must comply with—

(a) for all building classifications: AS 2118.1; or

(b) for a Class 2 or 3 building with an *effective height* of not more than 25 m and a *rise in storeys* of 4 or more: Specification E1.5a and the relevant provisions of this Specification as applicable; or

(c) for Class 5, 6, 7, 8, 9a (other than a *residential care building*) or 9b parts of a building with an *effective height* not more than 25 m, which also contains Class 2 or 3 parts: a sprinkler system in accordance with Specification E1.5a as for a Class 2 or 3 building and the relevant provisions of this Specification except—

(i) a FPAA101D sprinkler system cannot be used where the Class 5, 6, 7, 8, 9a (other than a *residential care building*) or 9b parts—

(A) contain more than 2 *storeys*; or

(B) are more than 25% of the total floor area of the building; or

(C) are located above the fourth *storey*; and

(ii) a FPAA101D or FPAA101H sprinkler system cannot be used where the Class 7a part (other than an *open-deck carpark*) accommodates more than 40 vehicles; or

(d) for a combined sprinkler and fire hydrant system: AS 2118.6; or

(e) for a Class 9a *health-care building* used as a *residential care building*: AS 2118.4 as applicable; or

(f) for a Class 2, 3 or 9c building: AS 2118.4 as applicable.

3. Separation of sprinklered and non-sprinklered areas

Where a part of a building is not protected with sprinklers, the sprinklered and non-sprinklered parts must be fire-separated with a wall or floor which must—

(a) comply with any specific requirement of the *Deemed-to-Satisfy Provisions* of the BCA; or

(b) where there is no specific requirement, comply with the relevant part of AS 2118, FPAA101D or FPAA101H.

4. Protection of openings

Any openings, including those for service penetrations, in construction separating sprinklered and non-sprinklered parts of a building, including the construction separating the areas nominated for omitted protection in AS 2118.1, must be protected in accordance with the *Deemed-to-Satisfy Provisions* of Part C3.

5. Fast response sprinklers

Fast response sprinklers may be installed only if they are suitable for the type of application proposed and it is demonstrated that the sprinkler system is designed to accommodate their use.

6. Sprinkler valve enclosures

(a) Sprinkler alarm valves must be located in a secure room or enclosure which has direct egress to a road or open space.

(b) All sprinkler valve rooms and enclosures must be secured with a system suitable for use by the *fire brigade*.

7. Water supply

(a) A *required* sprinkler system must be provided with at least one water supply.

(b) A *required* sprinkler system in a building greater than 25 m in *effective height* must be provided with dual water supply except that a secondary water supply storage capacity of 25,000 litres may be used if—

(i) the storage tank is located at the topmost *storey* of the building; and

(ii) the building occupancy is classified as no more hazardous than Ordinary Hazard 2 (OH2) under AS 2118.1; and

(iii) an operational *fire brigade* service is available to attend a building fire.

8. Building occupant warning system

A *required* sprinkler system, except a FPAA101D sprinkler system, must be connected to and activate a building occupant warning system complying with Clause 7 of Specification E2.2a.

9. Connection to other systems

Where a smoke hazard management system is installed and is actuated by smoke detectors, the sprinkler system must, wherever practicable, be arranged to also activate the smoke hazard management system.

10. Anti-tamper devices

(a) Where a sprinkler system is installed—

(i) over any *stage* area in a theatre, public hall or the like, visual and audible status indication of sprinkler valves must be provided at the location normally used by the *stage* manager; or

(ii) in a space housing lift electrical and control equipment (including machine rooms, secondary floors and sheave rooms), any valves provided to control sprinklers in these spaces must be located adjacent to the space.

(b) Any valves provided to control sprinklers required by (a) must be fitted with anti-tamper monitoring devices connected to a monitoring panel.

11. Sprinkler systems in carparks

A sprinkler system protecting a *carpark* complying with Table 3.9 of Specification C1.1 in a multi-classified building must—

(a) be independent of the sprinkler system protecting any part of the building not used as a *carpark*; or

(b) if forming part of a sprinkler system protecting a part of the building not used as a *carpark*, be designed such that the section protecting the non-*carpark* part can be isolated without interrupting the water supply or otherwise affecting the effective operation of the section protecting the *carpark*.

12. Residential care buildings

In addition to the provisions of AS 2118.4, a sprinkler system in—

(a) a Class 3 building used as a *residential care building*; or

(b) a Class 9a *health-care building* used as a *residential care building*; or

(c) a Class 9c building,

must—

(d) be provided with a monitored main stop valve in accordance with AS 2118.1; and

(e) be permanently connected with a direct data link or other approved monitoring system to a fire station or fire station dispatch centre.

13. Sprinkler systems in lift installations

(a) Where sprinklers are installed in a space housing lift electrical and control equipment, including machine rooms, secondary floors and sheave rooms, sprinklers in these spaces must—

(i) have heads protected from accidental damage by way of a guard that will not impair the performance of the head; and

(ii) be capable of being isolated and drained, either separately or collectively, without isolating any other sprinklers within the building.

(b) Valves provided to control sprinklers referred to in (a) must be installed in accordance with Clause 10(b).

Spec E1.5a – Class 2 and 3 buildings not more than 25m in effective height

Specification E1.5a	Class 2 and 3 buildings not more than 25 m in effective height

Deemed-to-Satisfy Provisions

1. Scope and application

This Specification sets out requirements for the design and installation of fire sprinkler systems, and concessions for Class 2 and 3 buildings not more than 25 m in *effective height* with a *rise in storeys* of 4 or more. The *Deemed-to-Satisfy Provisions* of this Specification take precedence where there is a difference to the *Deemed-to-Satisfy Provisions* of Sections C, D and E.

2. System requirements

Vic Spec E1.5a 2(a)

(a) A *required automatic* fire sprinkler system installed in a Class 2 or 3 building with an *effective height* of not more than 25 m and a *rise in storeys* of 4 or more must comply with—

(i) AS 2118.1; or

(ii) AS 2118.4, as applicable; or

(iii) FPAA101D, except for *residential care buildings; or*

(iv) FPAA101H, except for *residential care buildings*.

(b) A Class 2 or 3 building not more than 25 m in *effective height* with a *rise in storeys* of 4 or more provided with an *automatic* fire sprinkler system under Clause 2(a)(i) or 2(a)(ii) may be constructed in accordance with Clause 3(a), as applicable, provided—

(i) the *automatic* fire sprinkler system is permanently connected to a fire alarm monitoring system connected to a fire station or fire station dispatch centre in accordance with Specification E2.2d if—

(A) the system has more than 100 sprinkler heads; or

(B) in the case of a *residential care building*, the building will accommodate more than 32 residents; and

(ii) the *automatic* fire sprinkler system is fitted with sprinklers complying with clauses 4.4, 4.5 and 5.5.2 of AS 2118.4 in bedrooms; and

(iii) an *automatic* smoke detection and alarm system is installed in accordance with Specification E2.2a except that it need not be connected to a fire alarm monitoring system connected to a fire station or fire station dispatch centre, and in the case of a *residential care building* it must be installed in accordance with—

(A) Specification E2.2a Clause 4; or

(B) both—

(aa) Specification E2.2a Clause 3, provided Specification E2.2a Clause 3(a)(ii) is applied as if the building was not protected with a sprinkler system; and

(bb) Specification E2.2d; and

(iv) in a *residential care building*, the *automatic* smoke detection and alarm system and the *automatic* fire sprinkler system are connected to a local fire indicator panel provided in accordance with Specification E2.2d; and

(v) fire orders are provided in a Class 3 building in accordance with G4.9 as for a building in an *alpine area*.

3. Permitted concessions

(a) The following concessions are permitted for Class 2 and 3 buildings provided with a *required automatic* fire sprinkler system in accordance with Clause 2(a)(i) or 2(a)(ii):

(i) The FRL for *self-closing* fire doors, as *required* by C3.8 and C3.11, may be reduced to not less than -/30/30.

(ii) The FRL for—

(A) all non-*loadbearing internal walls* and *shafts* constructed of *fire-protected timber*, as *required* by

Specification C1.1 to have FRLs greater than -/60/60, may be reduced to -/60/60 and service penetrations through non-*loadbearing internal walls* and *shafts* constructed of *fire-protected timber*, as *required* by C3.15, may be reduced to not less than -/60/15; and

(B) all other non-*loadbearing internal walls*, as *required* by Specification C1.1, may be reduced to -/45/45 and the FRL for service penetrations through internal non-*loadbearing* walls and *shafts*, as *required* by C3.15, may be reduced to -/45/15.

(iii) The FRL for *fire-isolated stairways* enclosed with non-*loadbearing* construction, as required by D1.3, may be reduced to -/45/45.

(iv) Except in a *residential care building*, the maximum distance of travel, as *required* by D1.4(a)(i)(A), may be increased from 6 m to 12 m.

(v) The maximum distance of travel from a single *exit* serving the *storey* at the level of egress to a road or *open space*, as *required* by D1.4(a)(i)(B), may be increased from 20 m to 30 m.

(vi) The maximum distance between alternative *exits*, as *required* by D1.5(c)(i), may be increased from 45 m to 60 m.

(vii) Internal fire hydrants in accordance with E1.3 are not *required* where—

(A) the building is served by external fire hydrants that provide compliant coverage installed in accordance with E1.3, except that in a *residential care building* the nozzle at the end of the length of hose need only reach the entry door of any *sole-occupancy unit* to be considered as covering the area within the *sole-occupancy unit*; or

(B) a dry fire hydrant system that otherwise complies with AS 2419.1 is installed in the building and—

(aa) each fire hydrant head is located in accordance with E1.3 and fitted with a blank end cap or plug; and

(bb) the pipework is installed in accordance with E1.3 (as for a *required* fire main) except that it need not be connected to a water supply; and

(cc) a hydrant booster inlet connection is provided in accordance with E1.3; and

(dd) an external street or feed hydrant capable of providing the *required* system flow is located within 60 m of the hydrant booster connection.

(viii) An emergency warning and intercom system need not be provided in a *residential care building* in accordance with E4.9 if a warning system with an override public address facility is installed in accordance with Specification E2.2d.

(b) The following concessions are permitted for Class 2 and 3 buildings provided with a *required automatic* fire sprinkler system in accordance with Clause 2(a)(iii):

(i) Window openings need not be protected in accordance with C3.11(g) provided the room served by the window is sprinkler protected.

(ii) The FRL for—

(A) service penetrations through non-*loadbearing internal walls* and *shafts*, as *required* by C3.15, may be reduced to -/60/15; and

(B) non-*loadbearing fire-resisting* lift and stair *shafts*, as *required* by Specification C1.1, may be reduced to -/60/60.

(iii) The maximum distance of travel, as *required* by D1.4(a)(i)(A), may be increased from 6 m to 12 m.

(iv) The maximum distance of travel from a single *exit* serving the *storey* at the level of egress to a road or *open space*, as *required* by D1.4(a)(i)(B), may be increased from 20 m to 30 m.

(v) The maximum distance between alternative *exits*, as *required* by D1.5(c)(i), may be increased from 45 m to 60 m.

(vi) Internal fire hydrants in accordance with E1.3 are not *required* where—

(A) the building is served by external fire hydrants that provide compliant coverage installed in accordance with E1.3; or

(B) a dry fire hydrant system that otherwise complies with AS 2419.1 is installed in the building except—

(aa) the system pipework is not connected to the water supply; and

(bb) an on-site fire pumpset is not *required*; and

(cc) the minimum fire hydrant outlet flow of 6 L/s may be achieved when boosted by a *fire brigade* pumping appliance; and

(dd) the minimum pipe sizes specified in AS 2419.1 do not apply,

and—

(ee) each fire hydrant head is located in accordance with E1.3 and fitted with a blank end cap or plug; and

(ff) a hydrant booster inlet connection is provided in accordance with E1.3; and

(gg) an external street or feed hydrant capable of providing the *required* system flow is located within 60 m of the hydrant booster connection.

(c) The following concessions are permitted for Class 2 and 3 buildings provided with a *required automatic* fire sprinkler system in accordance with Clause 2(a)(iv):

(i) Window openings need not be protected in accordance with C3.11(g) provided the room served by the window is sprinkler protected.

(ii) The FRL for—

(A) service penetrations through non-*loadbearing internal walls* and *shafts*, as *required* by C3.15, may be reduced to -/60/15; and

(B) non-*loadbearing fire-resisting* lift and stair *shafts*, as *required* by Specification C1.1, may be reduced to -/60/60.

(iii) The maximum distance of travel, as *required* by D1.4(a)(i)(A), may be increased from 6 m to 12 m.

(iv) The maximum distance of travel from a single *exit* serving the *storey* at the level of egress to a road or *open space*, as *required* by D1.4(a)(i)(B), may be increased from 20 m to 30 m.

(v) The maximum distance between alternative *exits*, as *required* by D1.5(c)(i), may be increased from 45 m to 60 m.