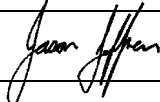
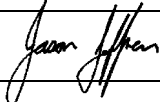


Stages 2 & 3, Site 3, Sydney Olympic Park

Client	Site 3 Development Co Pty Limited
Report number	SY100363
Revision	CFSS1.0
Report issued	4/04/2011



Amendment schedule

Version	Date	Information relating to report			
CFSS1.0	04/04/2011	Reason for issue	Report issued to Site 3 Development Co Pty Limited for submission with the development application.		
			Prepared by	Reviewed by	Approved by
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1. Introduction

This report documents the fire safety strategy for the development at Stages 2 & 3, Site 3, Sydney Olympic Park. Defire has developed this report at the request of Site 3 Development Co Pty Limited.

The purpose of the report is to identify the fire safety measures that are likely to be required for the building to achieve compliance with the performance requirements of the Building Code of Australia 2010 (BCA)¹. Should the detailed fire safety engineering assessment reveal that the proposed systems do not satisfy the identified performance requirements of the BCA, additional fire safety systems or modifications to the fire safety strategy may be required. This may require further assessment.

2. Description of the building and alternative solutions

2.1 Building description

The project is a development of two residential towers located above a mixed-use podium level and four levels of basement carpark. Tower 1 contains 24 storeys and tower 2 includes 30 storeys. The development comprises a total of 545 apartments and a total floor area of approximately 54,000m². The site is bounded by Australia Avenue to the west and a rail corridor to the east.

A description of the main characteristics of the building for the purpose of determining compliance with the BCA is given in Table 1². The proposed use and classification of the building or part in accordance with clause A3.2 of the BCA is described in Table 2.

Characteristic	BCA clause	Description
Effective height	A1.1	Greater than 50m
Type of construction required	C1.1	Type A
Rise in storeys	C1.2	31

Table 1 Main building characteristics

Part of building	Use	Classification (A3.2)
Basement 1 to 4	Car parking and storage	Class 7a – assuming storage is less than 10% of floor area
Ground level	Retail, car parking, storage, loading dock and community room/s	Class 6, 7a, 7b and 9b
Levels 1 to 30	Residential	Class 2

Table 2 Use and classification

¹ Building Code of Australia 2010, Australian Building Codes Board, Australia, 2010.

² BCA report 05900 dated 2 March 2011 prepared by McKenzie Group Consulting (NSW) Pty Ltd.



2.2 Major fire safety measures

The building will be provided with the major fire safety measures required by the DTS provisions of the BCA listed as follows³. A comprehensive list of fire safety measures is to be provided by the certifier as part of the building approval process. Additional fire safety measures required as part of the alternative solution are listed within section 4.

- Automatic fail safe devices
- Automatic shutdown of mechanical air handling systems
- Automatic sprinkler system
- Emergency lifts
- Emergency lighting
- Exit signs
- Fire control room
- Fire dampers
- Fire doors
- Fire hose reel system
- Fire hydrant system
- Fire rated construction bounding the units
- Fire resisting shafts with protected openings
- Fire seals (protecting openings in fire resisting components of the building)
- Smoke alarms in the units
- Smoke detection system in public areas
- Sound system and intercom systems for emergency purposes
- Stair pressurising system in fire stairs

2.3 Occupant characteristics

The characteristics of the occupants expected to be in the building are listed in Table 3.

Characteristic	Description
Familiarity	Residential – Occupants in the residential sole-occupancy units are expected to be long-term residents who are familiar with the building layout and exit locations. Retail – Occupants are expected to be primarily shoppers who may not be familiar with the layout of the building and location of fire exits. A limited number of staff are also expected to be present which are familiar with the layout of the building. Carpark – Occupants are mainly expected to be residents and be within the carpark for short periods.
Awareness	Residential – Occupants may be asleep at the time of a fire which could delay their response time for evacuation. Retail and carpark – Occupants are expected to be awake and alert to a potential emergency event such as a fire in the building.
Mobility	Occupants are assumed to have the same level of mobility as the general population. This may include a limited proportion of mobility impaired occupants. These occupants may require crutches, a wheelchair or similar to evacuate on their own or need assistance from other occupants.
Age	Occupants of all ages may be present within the building.
Language	Although occupants may have English as their second language, they are expected to understand signs and verbal instructions in English to the degree necessary to not adversely impact upon evacuation.
Occupant load	Population densities used in this assessment are based upon table D1.13 of the BCA which specifies 30m ² /person for carparks and 3m ² /person for retail use. The population within the residential levels are based on two persons per bedroom per unit.

Table 3 Occupant characteristics

³ BCA report 05900 dated 2 March 2011 prepared by McKenzie Group Consulting (NSW) Pty Ltd.



2.4 Alternative solutions

The design of the building includes areas that do not comply with the DTS provisions of the BCA. We intend to use a performance-based fire safety engineering approach to develop alternative solutions to the DTS provisions of the BCA. Table 4 describes the BCA requirements associated with the alternative solutions.

No	Description of alternative solutions	DTS provision	Performance requirements (A0.10)	Method of meeting performance requirements	Assessment method
1.	The minimum fire rating required for the retail areas within the ground floor is to be reduced to 120 minutes in lieu of 180 minutes.	Clauses C1.1, C2.8 and C2.9 and specification C1.1	CP1 and CP2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
2.	The maximum travel distance to a point of choice from the residential levels is to be extended to 10m in lieu of 6m.	Clause D1.4	DP4 and EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
3.	The maximum travel distance to the nearest exit within the basement carpark levels is to be extended to 60m in lieu of 40m.	Clause D1.4	DP4 and EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
	The maximum travel distance between alternative exits within the basement carpark levels is to be extended to 100m in lieu of 60m.	Clause D1.5			
4.	Zone smoke control is proposed to be omitted from the ground floor of the building.	Table E2.2a	EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
5.	The sound system and intercommunication system for emergency purposes within the carpark portions of the building will not comply with AS 1670.4-2004 in terms of voice intelligibility.	Clause E4.9	EP4.3	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
6.	The basement carpark mechanical ventilation system is propose to comply with AS 1668.2-2002 in lieu of AS 1668.2-1991 referenced in the BCA.	Clause E2.2	EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)

Table 4 BCA requirements associated with the alternative solutions



3. Scope and assumptions

3.1 Scope

- The scope of this report is limited to the alternative solutions described in section 2.4.
- The scope of this report is limited to the fire safety aspects of the performance requirements of the BCA. Matters such as property protection (other than protection of adjoining property), business interruption, public perception, environmental impacts and broader community issues – such as loss of a major employer and impact on tourism – have not been considered as they are outside the scope of the BCA.
- This report considers single point arson as a source of ignition. Arson involving accelerants or multiple ignition sources is not considered in this assessment as it is outside the scope of the BCA.
- The scope of our works is limited to considering evacuation and fire safety issues for people with disabilities to the same degree as the DTS provisions of the BCA. Specifically, consideration of evacuation from the building by people with disabilities under the provisions of the Disability Discrimination Act 1992 is excluded.
- If there are building alterations or additions, a change in use or changes to the fire safety systems in the future, a reassessment will be needed to verify consistency with the assessment in this report.
- The documentation that forms the basis for this report is listed within Appendix A.
- This report has been prepared based upon information provided by others. Defire has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated into this report as a result.

3.2 Assumptions

- The design complies with the current DTS provisions of the BCA except for the specific alternative solutions described within section 2.4.
- All of the fire safety systems are assumed to be designed, installed and operate in accordance with the appropriate Australian standards, other design codes, legislation and regulations relevant to the project unless specifically stated otherwise.
- For a satisfactory level of fire safety to be achieved, regular testing and maintenance of all fire safety systems and measures, including management-in-use systems, is essential and is assumed in this report.



4. Fire safety measures

The following fire safety measures are proposed for the building as a starting point for the fire safety engineering assessment to achieve compliance with the relevant performance requirements of the BCA.

4.1 General

1. The design must comply with the current DTS provisions of the BCA unless specifically mentioned. This section does not provide a comprehensive list of fire safety measures required by the DTS provisions of the BCA. The fire safety measures listed within this section relate only to the alternative solutions. The fire safety measures must be read in conjunction with the DTS provisions of the BCA.

4.2 Structural fire resistance

4.2.1 Fire resistance and stability

2. The fire resistance levels (FRLs) of the building elements must comply with the requirements of specification C1.1 of the BCA for a building of type A construction with the exception that the maximum FRL criteria for any element within the ground floor is 120 minutes – eg if an element is required to achieve an FRL of 180/120/90 it can be reduced to 120/120/90.
3. The storage areas within the basement carpark levels and the ground floor must not exceed 10% of the floor area of the storey. If exceeded, the storage areas will need to be fire separated from the remainder of the building with walls and floors which achieve a minimum fire rating of 240 minutes in accordance with table 3 of specification C1.1 of the BCA for class 7b buildings of type A construction.

4.2.2 Compartmentation and separation

4. All essential plant spaces, switchrooms and the like are to be enclosed in construction which achieves an FRL of not less than 120/120/120 or as directed by the utility authority who may have more onerous requirements.
5. All unit entry doors and other doors opening onto corridors required by clause C3.11 of the BCA on the residential levels with extended travel distance must be fitted with smoke seals complying with clause 3 of specification C3.4 of the BCA. The smoke seals must achieve the following additional criteria:
 - a. be medium temperature rated – ie capable of resisting exposure to 200°C for 30 minutes
 - b. be fitted to the top edge and both sides of the door
 - c. have the following maximum smoke leakage rates when tested as a complete system for 30 minutes in accordance with AS 1530.7-2007.
6. Any openings that penetrate walls required to achieve a FRL are to be protected in accordance with clauses C3.12 and C3.15 of the BCA.

Please note that current technical advice to the marketplace suggests that not all fire rated collars available adequately comply with AS 4072.1-2005, in particular parts 4.6.1-4.6.4. We recommend the type of fire collar be investigated by the relevant installer to ensure they comply before purchasing.



4.3 Access and egress

4.3.1 Provision of escape

7. Travel distances within the building must comply with clauses D1.4 and D1.5 of the BCA unless otherwise noted within this report.
8. The maximum travel distance to a point of choice within the residential levels must not exceed 10m.
9. The following maximum travel distances apply within the basement carpark levels of the building:
 - a. 20m to a single exit or point of choice
 - b. 60m to the closest of two or more alternative exits
 - c. 100m between alternative exits
10. The following maximum travel distances apply within the ground floor of the building:
 - a. 20m to a single exit or point of choice
 - b. 40m to the closest of two or more alternative exits
 - c. 60m between alternative exits
11. All exits and paths of travel to exits must be not less than 1m in clear width in accordance with clause D1.6 of the BCA.

4.3.2 Construction of exits

12. All doorways which form part of a required exit within the building must be made to swing in the direction of travel to the fire isolated exit and from the exit to the discharge point from the building in accordance with clause D2.20 of the BCA.
13. A single handed downward action from a lever action handle in accordance with clause D2.21 of the BCA is to be provided to all required exits and doors in the paths of travel to required exits.

4.4 Services and equipment

4.4.1 Fire fighting equipment

14. A fire hydrant system must be installed throughout the building in accordance with the requirements of clause E1.3 of the BCA and AS 2419.1-2005.

Note: The hydrants are to be fitted with Storz hose couplings which comply with clause 7.1 of AS 2419.1-2005. This clause states in part: "hose couplings shall be compatible with those used by the fire brigade serving the area." Storz hermaphrodite fire hose couplings must be fitted to all fire hydrants and fire hydrant booster assembly connections as required by Appendix E of AS 2419.1-2005. The Storz fittings must be manufactured to DIN 14303, aluminium alloy delivery couplings, in accordance with Appendix A of AS 2419.2-1994. Blank caps must be provided in accordance with clause 2.8 of AS 2419.2-1994.

15. The hydrant system must be provided with a ring main in accordance with AS 2419.1-2005.
16. The fire brigade booster assembly must be located to comply with the requirements under clause 7.3 of AS 2419.1-2005 which states:



- a. 'They are readily accessible to firefighters.
 - b. They are operable by fire brigade pumping appliances located within 8 m.
 - c. If within, or affixed to, the external wall of the building, the booster shall be—
 - (i) within sight of the main entrance to the building; and
 - (ii) separated from the building by a construction with a fire resistance rating of not less than FRL 90/90/90 for a distance of not less than 2 m each side of and 3 m above the upper hose connections in the booster assembly
 - d. If remote from the building, the booster shall be—
 - (i) at the boundary of the site and be within sight of the main entrance of the building;
 - (ii) adjacent to the principal vehicular access to the site; and
 - (iii) located not less than 10 m from the external wall of any building served
 - e. The booster enclosure shall only contain firefighting pipework and equipment'.
17. A sprinkler system in accordance with the requirements of specification E1.5 of the BCA and AS 2118.1-1999 must be provided throughout the building. The sprinkler system must have the following additional characteristics:
- a. All sprinkler heads within the basement carpark levels must be fast response with an RTI of 50 (ms)^{1/2} or less in accordance with the requirements of AS 2118.1-1999.
 - b. Activation temperature of 68°C except where otherwise required by AS 2118.1-1999 such as under glazed skylights and roof areas.
 - c. The sprinkler system must be permanently connected with a direct data link or other approved monitoring system to a fire station or fire station dispatch centre in accordance with AS 2118.1-1999.
 - d. Sprinkler booster connections must be provided and located to allow ready access for the fire brigade – ie in close proximity to the fire control room.
 - e. The sprinkler system is to be provided with a grade 1 water supply as set-out in AS 2118.1-1999.
18. Portable fire extinguishers must be provided in accordance with clause E1.6 of the BCA and AS 2444-2001.
19. A fire control room must be provided in accordance with specification E1.8 of the BCA. Refer to Appendix B for the detail requirements.



4.4.2 Smoke hazard management

20. The building must be provided with an automatic detection system in accordance with specification E2.2a of the BCA and AS 1670.1-2004 and comply with the following:
 - a. The residential portion of the building may be provided with a combination of a smoke alarm system complying with clause 3 within sole-occupancy units and a smoke detection system complying with clause 4 in areas not within the sole-occupancy units.
21. Smoke detectors required to activate air pressurisation systems for fire-isolated exits must:
 - a. be installed in accordance with AS/NZS 1668.1-1998, and
 - b. have additional smoke detectors installed adjacent to each bank of lift landing doors set back horizontally from the door openings by a distance of not more than 3m.
22. All air-handling systems capable of recycling air between the fire/smoke compartments – including between class 2 sole-occupancy units – must be provided with fire/smoke dampers where the air-handling ducts penetrate any elements separating the fire/smoke compartments served in accordance with clause E2.2 of the BCA. The system must be arranged such that the air-handling system is automatically shut down and the fire/smoke dampers close by smoke detectors complying with clause 4.10 of AS/NZS 1668.1-1998.
23. The ground floor of the building is not required to be provided with a zone smoke control system in accordance with AS/NZS 1668.1-1998.
24. All fire-isolated stairs, passages and lobbies must be provided with a stair pressurisation system in accordance with table E2.2a and AS/NZS 1668.1-1998.

4.4.3 Basement carpark mechanical ventilation system

25. The mechanical ventilation system of the basement carpark must be designed in accordance with the requirements of clause F4.11 and table E2.2a of the BCA, with the exception that the system may be designed in accordance AS 1668.2-2002 in lieu of AS 1668.2-1991. The following requirements of table E2.2a of the BCA are also applicable:
 - a. Fans with metal blades suitable for operation at normal temperature may be used.
 - b. The electrical power and control cabling need not be fire rated.
26. Assessment of performance requirements FP4.3 and FP4.4 of the BCA related to the adequacy of the air quality is to be provided by the mechanical engineer for the project.
27. The carpark ventilation system is to be designed in accordance with clause 5.5 of AS/NZS 1668.1-1998 which states:
 - a. Any mechanical components of the ventilation system located outside the car park fire compartment and within another fire compartment shall be isolated from that fire compartment with construction to maintain the required FRL.
 - b. To enable manual control by authorized fire personnel, each fan shall be provided with an ON-AUTO-OFF control device installed in the FFCP in compliance with clause 4.13.2 of AS 1668.1-1998.
 - c. Smoke detectors in accordance with clause 4.10.1 shall be installed in the supply air system in accordance with clause 4.10.5(b) of AS 1668.1-1998.
 - d. Exhaust air systems shall continue to operate in the event of fire in the car park. Where the system incorporates variable airflow rates, it shall automatically switch to its full capacity on



activation of any fire alarm or sprinkler system in the car park. Supply air systems shall shut down upon the receipt of a fire alarm signal from the supply air detector.

4.4.4 Emergency lighting, exit signs and warning systems

28. Exit signs and direction signs must be installed throughout the building in accordance with clauses E4.5, E4.6 and E4.8 of the BCA and AS 2293.1-2005.
29. Exit signage throughout the building must be illuminated and comply with clause E4.5 of the BCA – ie the concession for non-illuminated exit signage in class 2 buildings granted by clause E4.7 of the BCA is not applicable.
30. A sound system and intercom system for emergency purposes in accordance with clause E4.9 of the BCA and AS 1670.4-2004 with pre-recorded verbal evacuation message must be provided, with the exception that the carpark areas will not comply with the voice intelligibility requirements of clause 4.3.6 of AS 1670.4-2004.

4.5 Fire safety management and training

31. A fire safety management-in-use plan must be developed and implemented for the building within three weeks of occupation incorporating as minimum the following requirements:
 - a. Development and implementation of an emergency management plan in accordance with AS 3745-2010.
 - b. Maintenance of the fire safety measures identified on the fire safety schedule for the building in accordance with the relevant Australian standards and the Environmental Planning and Assessment Regulation 2000.
 - c. Isolation of any of the fire safety measures for the building should be the subject of an approval process controlled by the owners / management. This should include procedures to ensure the systems are reinstated after completion of the works.
 - d. All 'Hot Work' such as welding, oxyacetylene cutting, paint stripping, vinyl laying etc and being conducted outside the confines of a dedicated workshop should be the subject of an approval process managed by building management.



4.6 Commissioning of fire safety strategy

32. A holistic commissioning scheme for the fire safety strategy must be developed in consultation with and undertaken under the supervision of an appropriately qualified fire safety engineer and the relevant stakeholders.

This must include, but is not limited to, simulation of fire scenarios by initiation of fire safety systems through a point smoke source – eg approved cold smoke spray – which initiates a detection device and set the building into fire mode.

As a minimum the following will be required:

Fire safety measures	Documentation required	Inspection / testing
Exits and paths of travel	NA	Visual spot check.
Emergency lighting and exit signage	Installation certificate.	Visual spot check.
Smoke detection system	Installation certificate.	Simulate smoke detection and sprinkler flow switch activation to activate building occupant warning system, smoke hazard management systems and signal to FIP. Holistic check of general air movements for design scenarios.
Building occupant warning system	Installation certificate.	
Smoke hazard management system	Installation certificate.	
Sprinkler system	Installation certificate.	Visual spot check.
Fire hydrant system	Installation certificate.	Visual spot check.
Fire hose reel system	Installation certificate.	Visual spot check.
Fire safety management-in-use plan	Undertaking that plans will be developed.	NA

Table 5 Required certificates and testing



Appendix A Drawings and information

Drawing title	Dwg no	Date	Drawn
Basement 004	DA02.100 P5	25/03/2011	Bates Smart Architects
Basement 003	DA02.101 P5	25/03/2011	Bates Smart Architects
Basement 002	DA02.102 P5	25/03/2011	Bates Smart Architects
Basement 001	DA02.103 P5	25/03/2011	Bates Smart Architects
Ground level	DA02.200 P5	25/03/2011	Bates Smart Architects
Level 01	DA02.201 P5	25/03/2011	Bates Smart Architects
Level 02	DA02.202 P5	25/03/2011	Bates Smart Architects
Level 09	DA02.209 P5	25/03/2011	Bates Smart Architects
Level 12	DA02.212 P5	25/03/2011	Bates Smart Architects
Level 13	DA02.213 P5	25/03/2011	Bates Smart Architects
Level 22	DA02.222 P5	25/03/2011	Bates Smart Architects
Level 24	DA02.224 P5	25/03/2011	Bates Smart Architects
Level 25	DA02.225 P5	25/03/2011	Bates Smart Architects
Level 27	DA02.227 P5	25/03/2011	Bates Smart Architects
Level 30	DA02.230 P5	25/03/2011	Bates Smart Architects
Roof level	DA02.231 P5	25/03/2011	Bates Smart Architects
Elevation north and south	DA05.001 P5	25/03/2011	Bates Smart Architects
Elevation west	DA05.002 P5	25/03/2011	Bates Smart Architects
Elevation east	DA05.003 P5	25/03/2011	Bates Smart Architects
Section AA	DA06.001 P5	25/03/2011	Bates Smart Architects
Section BB	DA06.002 P5	25/03/2011	Bates Smart Architects
Section CC	DA06.003 P5	25/03/2011	Bates Smart Architects
Section DD	DA06.004 P5	25/03/2011	Bates Smart Architects

Other information	Ref no	Date	Prepared by
BCA report	05900	02/03/2011	McKenzie Group Consulting (NSW) Pty Ltd



Appendix B Specification E1.8 of the BCA

1. Scope

This Specification describes the construction and content of *required* fire control centres and rooms. A fire control room is a fire control centre in a dedicated room with additional specific requirements. Clauses 2 to 5 apply to fire control centres (including fire control rooms). Clauses 6 to 12 apply additional requirements to fire control rooms.

2. Purpose and content

A fire control centre must—

- (a) provide an area from which fire-fighting operations or other emergency procedures can be directed or controlled; and
- (b) contain controls, panels, telephones, furniture, equipment and the like associated with the *required* fire services in the building; and
- (c) not be used for any purpose other than the control of—
 - (i) fire-fighting activities; and
 - (ii) other measures concerning the occupant safety or security.

3. Location of fire control centre

A fire control centre must be so located in a building that egress from any part of its floor, to a public road or *open space*, does not involve changes in level which in aggregate exceed 300 mm.

4. Equipment not permitted within a fire control centre

An internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings must not be located in a fire control centre, but may be located in rooms accessed through the fire control centre.

5. Ambient sound level for a fire control centre

- (a) The ambient sound level within the fire control centre measured when all fire safety equipment is operating in the manner in which it operates in an emergency must not exceed 65 dB(A).
- (b) The measurement must be taken for a sufficient time to characterize the effects of all sound sources. Where there is not a great variation in noise level, a measurement time of 60 seconds may be used.

6. Construction of a fire control room

A fire control centre in a building more than 50 m in *effective height* must be in a separate room where—



- (a) the enclosing construction is of concrete, masonry or the like, sufficiently impact resistant to withstand the impact of any likely falling debris, and with an FRL of not less than 120/120/120; and
- (b) any material used as a finish, surface, lining or the like within the room complies with the requirements of **Specification C1.10** or **Specification C1.10a** for fire-isolated *exits*; and
- (c) services, pipes, ducts and the like that are not directly *required* for the proper functioning of the fire control room do not pass through it; and
- (d) openings in the walls, floors or ceiling which separate the room from the interior of the building are confined to doorways, ventilation and other openings for services necessary for the proper functioning of the facility.

7. Protection of openings in a fire control room

Openings permitted by **Clause 6** must be protected as follows:

- (a) Openings for *windows*, doorways, ventilation, service pipes, conduits and the like, in an *external wall* of the building that faces a public road or *open space*, must be protected in accordance with the *Deemed-to-Satisfy Provisions* of **Part C3**.
- (b) Openings in the floors, ceilings and *internal walls* enclosing a fire control room must, except for doorways, be protected in accordance with the *Deemed-to-Satisfy Provisions* of **Part C3**.
- (c) A door opening in the *internal walls* enclosing a fire-control room, must be fitted with a *self closing* –/120/30 smoke sealed fire door.
- (d) Openings associated with natural or mechanical ventilation must—
 - (i) not be made in any ceiling or floor immediately above or below the fire control room; and
 - (ii) be protected by a –/120/– fire damper if the opening is for a duct through a wall *required* to have an FRL, other than an *external wall*.

8. Doors to a fire control room

- (a) *Required* doors to a fire control room 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.
- (b) The fire control room must be accessible via two paths of travel—
 - (i) one from the front entrance of the building; and
 - (ii) one direct from a public place or *fire-isolated passageway* which leads to a public place and has a door with an FRL of not less than –/120/30.

9. Size and contents of a fire control room

- (a) A fire control room must contain—
 - (i) a Fire Indicator Panel and necessary control switches and visual status indication for all *required* fire pumps, smoke control fans and other *required* fire safety equipment installed in the building; and
 - (ii) a telephone directly connected to an external telephone exchange; and



- (iii) a blackboard or whiteboard not less than 1200 mm wide x 1000 mm high; and
 - (iv) a pin-up board not less than 1200 mm wide x 1000 mm high; and
 - (v) a raked plan layout table of a size suitable for laying out the plans provided under (vi); and
 - (vi) colour-coded, durable, tactical fire plans.
- (b) In addition, a fire control room may contain—
- (i) master emergency control panels, lift annunciator panels, remote switching controls for gas or electrical supplies and emergency generator backup; and
 - (ii) building security, surveillance and management systems if they are completely segregated from all other systems.
- (c) A fire control room must—
- (i) have a *floor area* of not less than 10 m² and the length of any internal side must be not less than 2.5 m; and
 - (ii) if only the minimum prescribed equipment is installed — have a net *floor area* of not less than 8 m² with a clear space of not less than 1.5 m² in front of the Fire Indicator Panel; and
 - (iii) if additional equipment is installed — have an additional area of not less than 2 m² net *floor area* for each additional facility and a clear space of not less than 1.5 m² in front of each additional control or indicator panel,
- and the area *required* for any path of travel through the room to other areas must be provided in addition to the requirements (ii) and (iii).

10. Ventilation and power supply for a fire control room

A fire control room must be ventilated by—

- (a) natural ventilation from a *window* or doorway in an *external wall* of the building which opens directly into the fire control room from a roadway or *open space*; or
- (b) a pressurisation system that only serves the fire control room, and—
 - (i) is installed in accordance with AS/NZS 1668.1 as though the room is a *fire-isolated stairway*; and
 - (ii) is activated *automatically* by operation of the fire alarm, or sprinkler system complying with **Specification E1.5**, installed in the building and manually by an over-riding control in the room; and
 - (iii) provides a flow of fresh air through the room of not less than 30 air changes per hour when the system is operating and any door to the room is open; and
 - (iv) has fans, motors and ductwork that form part of the system but not contained within the fire control room protected by enclosing construction with an FRL of not less than 120/120/120; and
 - (v) has any electrical supply to the fire control room or equipment necessary for its operation connected to the supply side of the main disconnection switch for the building,



and no openable devices other than necessary doorways, pressure controlled relief louvres and *windows* that are openable by a key, must be constructed in the fire control room.

11. Sign for a fire control room

The external face of the door to the fire control room must have a sign with the words—

FIRE CONTROL ROOM

in letters of not less than 50 mm high and of a colour which contrasts with that of the background.

12. Lighting for a fire control room

Emergency lighting in accordance with the *Deemed to Satisfy Provisions* of **Part E4** must be provided in a fire control room, except that an illumination level of not less than 400 lux must be maintained at the surface of the plan table.