Concept fire safety strategy

Defire
Innovative fire safety

Marrickville Metro Shopping Centre expansion, 13-55 Edinburgh Road, Marrickville

Client	Lend Lease
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Amendment schedule

Version	Date	Information relating to report			
CFSSR3.0	12/12/2012	Reason for issue	Draft report issued to Lend Lease, AMP, FJMT and Steve Watson and Partners for review and comment. This report supersedes all previous concept reports issued by Defire for the building.		
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CFSSR3.1	14/12/2012	Reason for issue	Report updated to incorporate comments from Lend Lease. Report issued to Lend Lease, AMP, FJMT and Steve Watson and Partners for inclusion in Section 75W application.		
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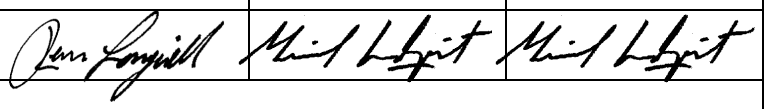
		Signature			
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Contents

1. Introduction

This report documents the concept fire safety strategy for the proposed expansion of the Marrickville Metro Shopping Centre at 13-55 Edinburgh Road, Marrickville. Defire has developed this report at the request of Lend Lease acting on behalf of AMP Capital Investors.

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 National Construction Code 2012 Volume One – Building Code of Australia (BCA). 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.

This report has been prepared to accompany an application to modify the existing Concept Plan Approval under Section 75W of the Environmental Planning & Assessment Act 1979. This application seeks to modify the existing Major Project Approval No. 09_0191, relating to the Stage 1 development of the Marrickville Metro Shopping Centre.

Concept Plan Approval was granted on 19 March 2012 for:

"…use of the existing building for retail premises and business premises, and expand the Marrickville Metro Shopping Centre including a first floor addition to the existing building at 34 Victoria Road, a new 2 level retail building at 13-55 Edinburgh Road and two levels of rooftop parking above each building."

A proposal to introduce a first floor retail extension over the existing Marrickville Metro Shopping Centre together with additional carparking at rooftop level at 34 Victoria Road has previously been explored by Defire. In November 2010 we prepared a staged concept fire safety strategy addressing both the construction of the new building at 13-55 Edinburgh Road – phase 1 – and the alternations and additions to the existing centre at 34 Victoria Road – phase 2. This report supersedes all previous concept reports issued by Defire for the building.

The proposed Section 75W amended development application relates only to Stage 1 of the project involving the redevelopment of the existing industrial land south of Smidmore Street – 13-55 Edinburgh Road – to create a two level free-standing retail addition to the shopping centre with roof top car parking.

The proposed modifications seek to refine the approved design, enhancing its design quality both internally and externally and its relationship with the public domain. There is no proposed increase in floor area arising from the proposed modifications and vehicle egress locations will remain unaltered. While the building design and façade composition will be amended, the overall height of the approved development will be marginally reduced in scale.

2. Description of the building and alternative solutions

2.1 Building description

The project comprises the construction of a new free-standing two level retail centre including carparking above at 13-55 Edinburgh Road.

The land at 13-55 Edinburgh Road is located to the south of Smidmore Street is highlighted in Figure 1. This site is currently used as a warehouse with associated ground level car parking. The existing warehouse is to be demolished to allow the construction of the new shopping centre.

The new shopping centre building will have a total floor area of approximately 30,740m^2 including the carpark and plant levels [1]. The building is proposed to be treated as a large isolated building and be sprinkler protected throughout in accordance with specification E1.5 of the BCA.

The new building will consist of retail on ground and level 1. Level 2 will consist of an undercover carpark. Additional rooftop carparking facilities will be provided on the level 2A rooftop. The level 2A rooftop carpark contains a small under cover area with a floor area of approximately 349m^2. This requires the entire level to be counted in the rise in storeys and is proposed to be assessed on a performance basis.

A description of the main characteristics of the building for the purpose of determining compliance with the BCA is given in Table 1 [1]. 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	Less than 25m
Type of construction required	C1.1	Type B proposed (type A required)
Rise in storeys	C1.2	Three proposed (Technically RIS of four due to partially covered rooftop carpark. To be assessed on a performance basis.)

Table 1 Main building characteristics

Part of building	Use	Classification (A3.2)
Ground floor	Retail	Class 6
Level 1	Retail	Class 6
Level 2	Carpark	Class 7a
Level 2A - rooftop	Carpark	Class 7a

Table 2 Use and classification

[1] BCA Assessment Report for Development Application – Concept Stage, 2012/1356 R1.2 by Steve Watson and Partners dated December 2012.

Figure 1 Site plan

2.2 Major fire safety measures

The fire safety measures provided in the building are listed on the fire safety statement attached in Appendix B. Additional fire safety measures required as part of the alternative solution are listed in section 3.

2.3 Occupant characteristics

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

Characteristic	Description
Familiarity	Occupants within the retail tenancies 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 who are familiar with the layout of the building. Occupants in the carparking areas are mainly expected to be associated with the retail tenancies and be within the carpark for short periods.
Awareness	Occupants in retail tenancies and carpark areas 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	The total building population is estimated to be 1573 plus an additional 200 people on the rooftop [2].

Table 3 Occupant characteristics

2.4 Alternative solutions

The design of the building includes areas which 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.

The full extent of the non-compliances with the DTS provisions of the BCA will be identified within a finalised BCA assessment. The requirements of this concept fire safety strategy will be further reviewed and developed once this assessment has been undertaken to determine whether additional fire safety measures may be required.

No	Description of alternative solutions	DTS provision	Performance requirements (A0.10)	Method of meeting performance requirements	Assessment method
1.	The level 2A rooftop carpark contains a small under cover area (349m^2) which requires the entire level to be counted in the rise in storeys. The building is proposed to be designed in accordance with the requirements for a building with a rise in storey of three in lieu of four, ie type B construction in lieu of type A.	Clauses C1.1 and C1.2 and specification C1.1	CP1 and CP2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)

[2] BCA Assessment Report for Development Application – Concept Stage, 2012/1356 R1.0 by Steve Watson and Partners dated December 2012.

No	Description of alternative solutions	DTS provision	Performance requirements (A0.10)	Method of meeting performance requirements	Assessment method
2.	The maximum travel distance to a point of choice is proposed to be extended to 25m from the individual smaller tenancies (<1,000m^2).	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 to a nearest exit are proposed to be extended to: • 60m within the mall areas • 65m within the major tenancy • 70m within carpark portions • 80m from individual smaller tenancies exiting via the mall.				
	The maximum travel distance between alternative exits when measured through a point of choice are proposed to be extended to: • 100m within mall areas and from individual smaller tenancies exiting via the mall. • 115m within the major tenancy • 120m within the carpark portions.	Clause D1.5			
3.	The ground floor entry/exits leading to open space are proposed to be permanently open during trading hours and secured with shutters after-hours in lieu of doors.	Clause D2.21	DP2 and DP4	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
4.	Smoke hazard management including: • performance based smoke exhaust rates • performance based smoke reservoirs • smoke exhaust is not to be provided in the back of house areas.	Table E2.2a	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

2.5 Scope

- The scope of this report is limited to the new free-standing building and 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 – eg interconnecting the new building with the existing Marrickville Metro shopping centre – 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.

2.6 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.

3. 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.

3.1 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.
2. This report and the requirements listed in this section must be implemented into the design and identified on the fire safety schedule for the building. They must be maintained and certified in accordance with the Environmental Planning and Assessment Regulations 2000 and relevant Australian standards.

3.2 Rise in storeys

3. The building is proposed to be designed in accordance with the requirements for a building with a rise in storey of three.
4. The partially covered area on level 2A must not exceed 10% of the level 2A floor plate.

3.3 Structural fire resistance

5. The fire resistance levels (FRLs) of the building elements must be designed in accordance with the requirements of specification C1.1 of the BCA for a building of type B construction, except where specifically addressed by this alternative solution report.
6. The rooftop carpark floor structure must achieve an FRL of not less than 120/120/120 and not have any rooflights or other openings within 3m of the path of travel of persons using the exits in accordance with clause D2.12 of the BCA to protect people during evacuation from the building.
7. The level 2 carpark must be a separate fire compartment to the retail areas below separated by fire rated construction achieving an FRL of not less than 180/180/180.

   Reduced FRL and drencher protected glazing may be added as an alternative solution. If drencher protected glazing is to be employed, items 8 and 9 will also be applicable.
8. The level 2 carpark separation highlighted in Figure 8 may include glazed portions in lieu of the fire rated construction provided the following criteria is achieved:
   a. All parts of the separation above a false ceiling or below a raised floor must be fire rated and is not permitted to be glazed and protected by sprinklers.
   b. The glass must be toughened or laminated with a minimum thickness of 2x6mm with a plastic polyvinylbutral (pvb) interlayer not less than 0.38mm thick.
   c. The glass must have polished edges to mitigate the risk of failure of the glass at low temperatures due to imperfections at the glass edge.
   d. The maximum height of the glass must not exceed 3.96m.

e. Frames must be non-combustible with no horizontal transoms or mullions. Butt-joints sealed with an appropriate silicone based sealant capable of withstanding at least 200°C may be used between the individual frameless panes.

f. The glazing must be protected by wall-wetting sprinklers in accordance with item 9.

g. Bollards and/or wheel stops must be provided around the glazed walls preventing the closest point of vehicles from being parked within 1.0m of these walls. The set-back location must take account of different vehicle types.

h. Any doors within the glazed separation must be self-closing or automatic closing in the event of the activation of either a smoke detector or sprinkler head and complying with the following:

- Smoke detectors must be located within 1.5m of either side of each automatically closing door in accordance with clause C3.5(b)(ii) of the BCA.
- Any automatic closing device fitted to the doors within the glazed separation must also be deactivated to fail safe in the closed position.

9. The glazing must be fully protected on both sides by quick response vertical or horizontal sidewall sprinkler heads. The water supply to the sprinkler heads must be capable of protecting the glass for not less than 60min – or the time required for the sprinkler supply whichever is the greatest – at the same time as the general sprinkler system is operating. Further requirements for the wall-wetting sprinkler protection to the glazing are to be developed in due course.

3.4 Access and egress

3.4.1 Provision of escape

10. The building must be provided with exits as indicated in Figure 2 to Figure 5.

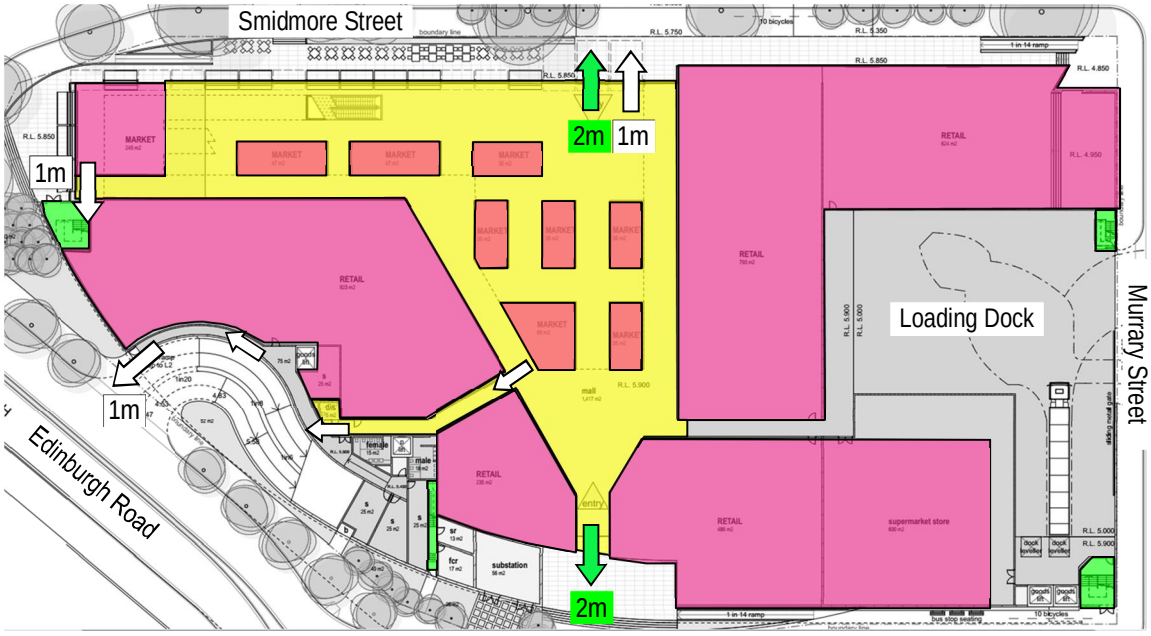
11. The northern and southern main mall entries identified in Figure 2 are to be operable and available during trading hours but may be closed and locked after-hours.

12. At all times – including during after-hours when the security shutters behind the main mall entries are closed – the mall is to be provided with dedicated exits for after-hours staff. The approximate location of these exits is identified in Figure 2. These exits may involve roller shutters which can be opened by staff without the use of a key. The operation of latch hardware to the roller shutters need not comply with clause D2.21 of the BCA.

    The travel distances within the mall areas during after-hours are to comply with item 18.

13. During after-hours security staff are to be provided keys to open the level 1 mall entry doors to the major supermarket tenancy to facilitate a path of travel from the mall to the fire-isolated stairs within the tenancy. The intent of this requirement is to avoid a 50m travel distance to a point of choice within the northern portion of the mall during after-hours.

14. To allow occupants to pass through the auto entry sliding doors between the mezzanine above the retail void on level 2 and the carpark, a green push button must be located adjacent to the sliding doors on retail void side to open the doors. Signage must be located above the button stating ‘PUSH TO OPEN’ with the lettering having a colour contrasting with the background and a height of 25mm or more. The height of the push button must be consistent with clause D2.21 of the BCA which requires a door to be openable by a device located between 900mm and 1.1m from the floor.



Legend

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- Approximate location of mall main entries to be operable and available during trading hours / not available after-hours
- Approximate location of dedicated exits for after-hours staff / exits available during trading hours
- Fire-isolated stair
- Mall areas
- Specialty tenancies (<1000m^2)

Figure 2 Proposed ground floor mall exit locations

Figure 3 Proposed location of level 1 exits

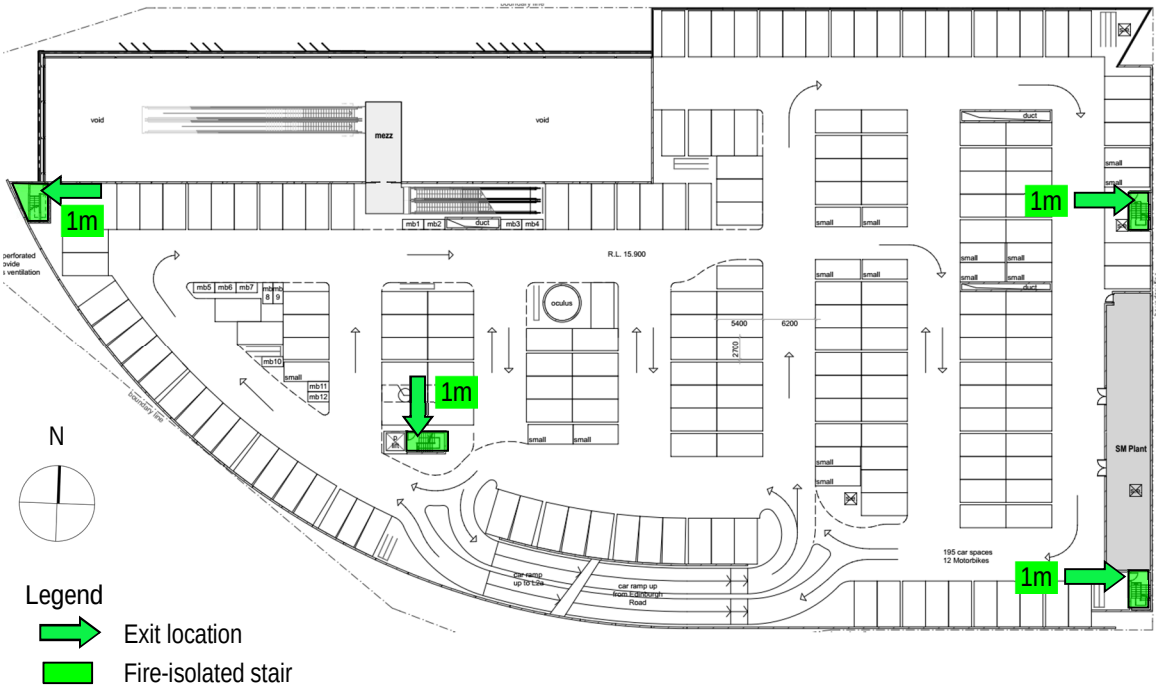


Figure 4 Proposed location of level 2 exits

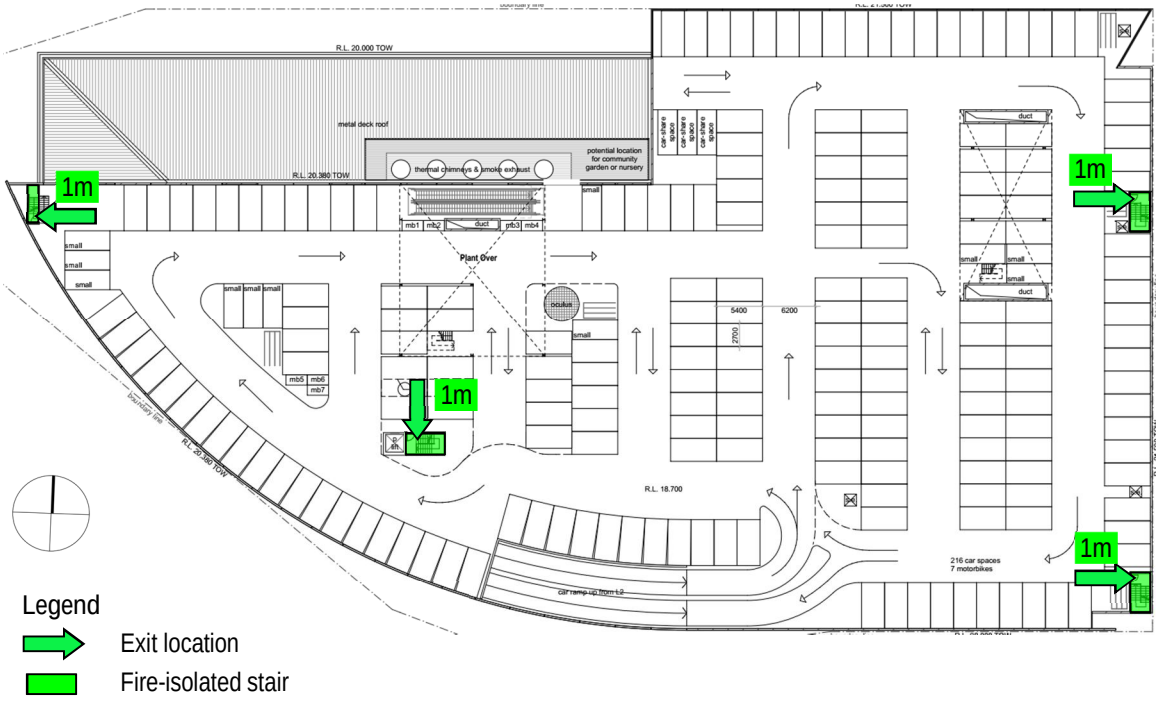


Figure 5 Proposed location of level 2A rooftop exits

15. The stairs serving as required exits from the above ground storeys of the building must be constructed as fire-isolated stairs in accordance with the BCA. It is noted the travel distances described in section 3.4.2 are measured to the entry doorway of a fire-isolated stair.

16. A minimum unobstructed exit width of 3m must be maintained throughout the malls areas on level 1 past displays, kiosks and other obstructions.

3.4.2 Travel distances

17. It is proposed to apply the following maximum travel distances on the carpark levels:

    a. 20m to a point of choice

    b. 70m to the closest of two or more alternative exits

    c. 120m between alternative exits when measured through point of choice.

18. It is proposed to apply the following maximum travel distances in the mall areas with dedicated smoke exhaust:

    a. 20m to a point of choice

    b. 60m to the closest of two or more alternative exits

    c. 100m between alternative exits measured via a direct path and not back through the point of choice.

19. It is proposed to apply the following maximum travel distances in the major supermarket tenancy on level 1 (>1,000m^2) with dedicated smoke exhaust:

    a. 20m to a point of choice

    b. 65m to the closest of two or more alternative exits

    c. 115m between alternative exits when measured through point of choice.

20. It is proposed to apply the following maximum travel distances in the individual smaller tenancies egressing via the mall (<1,000m^2):
    a. 25m to a point of choice in the mall where travel in different directions to two exits is available
    b. 80m to the closest of two or more alternative exits located in the mall.
    c. 100m between alternative exits within the mall.

3.5 Smoke hazard management

3.5.1 Smoke detection and occupant warning

21. A smoke detection system in accordance with clause 5 of specification E2.2a of the BCA must be provided throughout the building and
    a. be spaced not more than 20m apart and not more than 10m from any wall, bulkhead or smoke curtain
    b. in enclosed malls and walkways in a class 6 building be spaced not more than 15m apart and not more than 7.5m from any wall, bulkhead or curtain
    c. have a sensitivity
        i. in accordance with AS/NZS 1668.1-1998 in areas other than the multi-storey walkway and mall in the class 6 parts of the building; and
        ii. not exceeding 0.5% smoke obscuration per metre with compensation for external airborne contamination as necessary in the multi-storey walkway and mall in within the class 6 parts of the building.

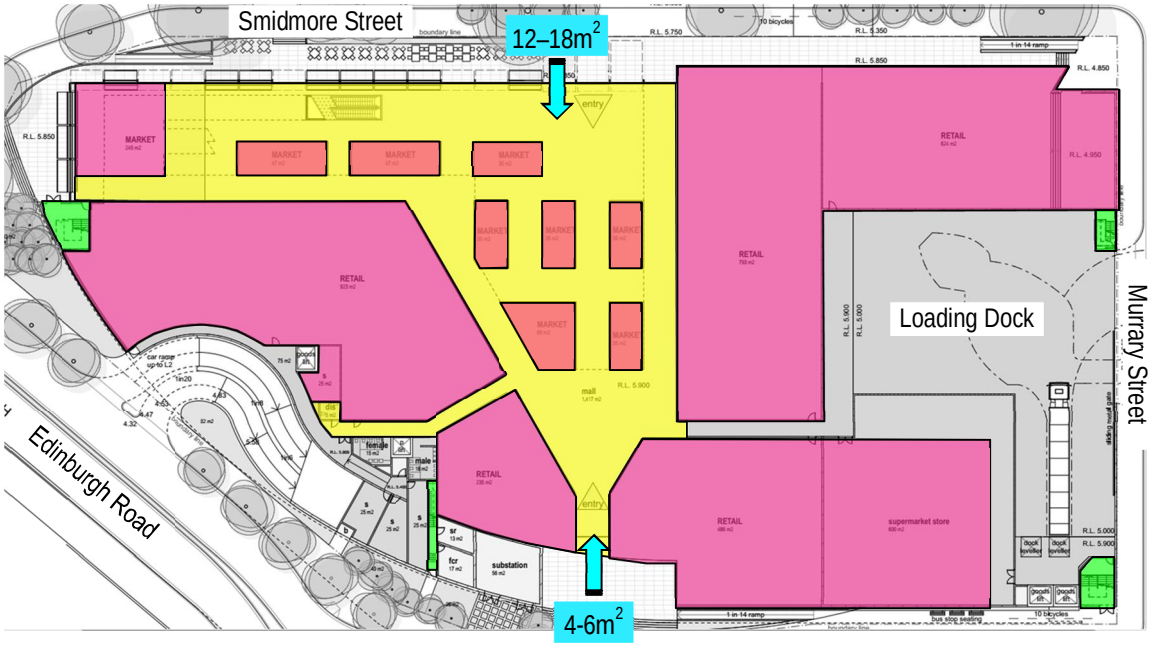
22. A building occupant warning system (BOWS) in accordance with clause 6 of specification E2.2a and complying with clause 3.22 of AS 1670.1-2004 with a pre-recorded verbal evacuation message must be provided. The building occupant warning system must be audible throughout the building, including the carpark areas and loading dock if evacuation back into the building is required.

3.5.2 Smoke exhaust system

23. Smoke exhaust must be provided within the smoke zones as described in Table 5 and outlined in Figure 6 to Figure 8. Note: These are indicative numbers only and may vary when a more detailed assessment is undertaken.

Smoke zone	Total exhaust rate required (m^3/sec)	Comment
Level 1 supermarket	24 – 30	Three exhaust points of 8 – 10m^3/s each to be provided. Refer to Figure 7.
Level 2 mall void area	40 – 60	Two exhaust point of 20 – 30m^3/s to be exhausted at the roof level of level 2. Refer to Figure 8.

Table 5 Smoke exhaust rates for smoke zones



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- Make-up air during business hours
- Smoke exhaust vents
- Fire-isolated stair
- Mall areas
- Specialty tenancies (<1000m²)

Figure 6 Proposed smoke exhaust and make-up air on ground floor

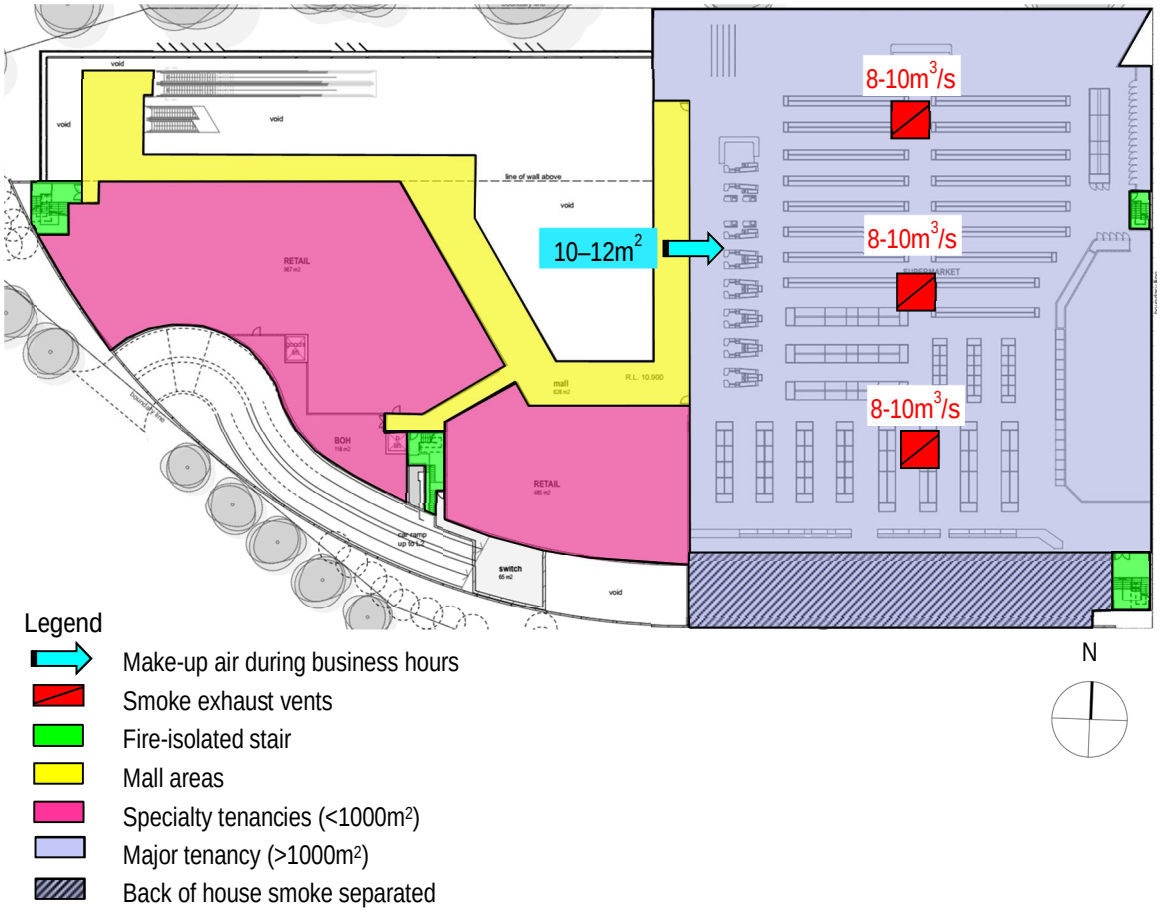

Figure 7 Proposed smoke exhaust and make-up air on level 1

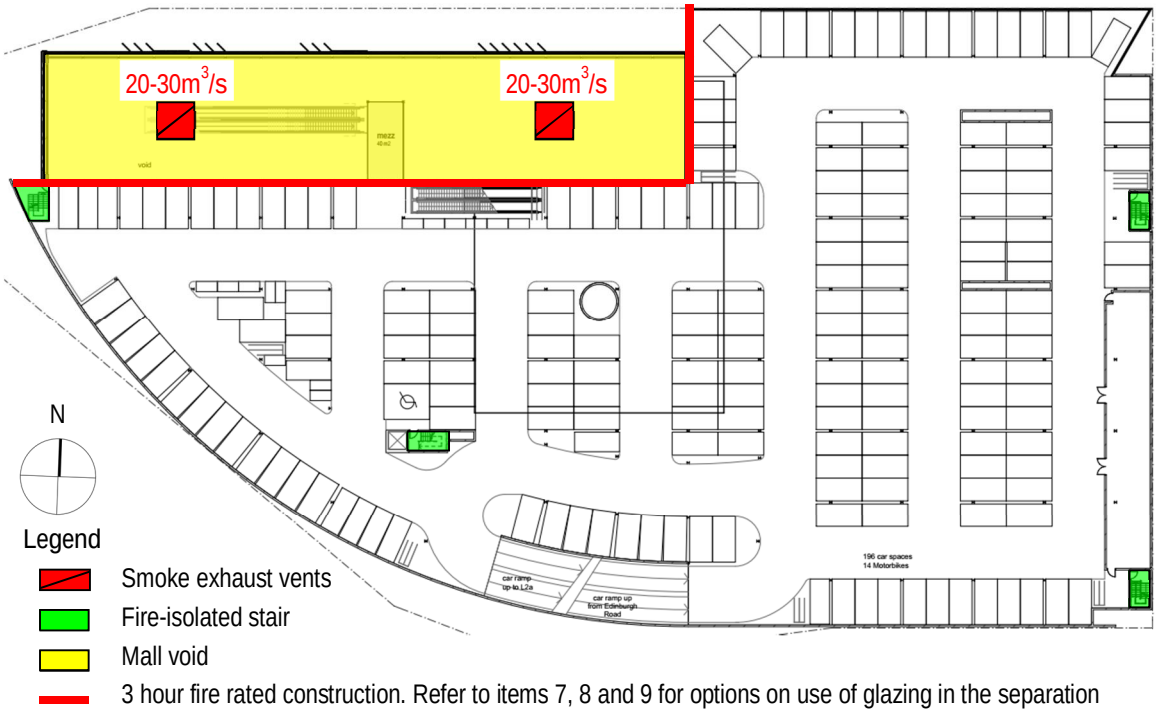

Figure 8 Proposed smoke exhaust and make-up air on level 2

24. Smoke exhaust is not required to be provided from the back of house areas associated with the level 1 major supermarket tenancy but smoke detection must be provided.

25. Smoke exhaust fans must be located to discharge directly to outdoor with a velocity of not less than 5m/s, at a suitable point on the roof not less than 6m from any air intake point or exit.

26. To reduce 'plugholing' – ie fresh air being drawn through the smoke layer – smoke exhaust inlets must be sized so that the air velocity into the vents does not exceed 5m/s. This includes the level 2 doors between the carpark and the void above the retail portion.

    It is noted the results of preliminary smoke modelling has indicated this is unlikely to be an issue.

3.5.3 Smoke zones

27. Smoke compartment walls and baffles must be provided to separate the level 1 major supermarket tenancy from the rest of the building including the mall areas with the following characteristics:

    a. The floor slabs above and below the level 1 major supermarket tenancy must be smoke sealed.

    b. Smoke walls must comply with clause 3 of specification C2.5 of the BCA.

    c. The main mall entry to the supermarket must have a baffle with a minimum depth of 1m below the general ceiling height with a maximum height of 3m above finished floor level. Note a minimum clear height of 2m must be maintained for egress purposes. The baffles can be formed by the bulkheads at the front of the tenancy.

    d. The baffles must be of non-shatterable and non-combustible construction. If glass baffles are provided they must be constructed of toughened laminated glass with a minimum thickness of 2x6mm.

    e. At the front of the level 1 major tenancy the baffles can be formed by either permanent glass baffles or a roller shutter with the following characteristics:

        i. The roller shutter must be non-combustible construction

        ii. During trading hours the shutters must automatically lower upon activation of the smoke hazard management system to a minimum depth of 1m below the general ceiling height

        iii. During afterhours the closed shutters must be perforated to provide make-up air – see section 3.5.4 – and must be of solid construction for a distance of not less than:

            - 1m from general ceiling level when in the fully closed position
            - 1m below the general ceiling height with a maximum height of 3m above finished floor level when partially closed upon activation of the smoke hazard management system. Note a minimum clear height of 2m must be maintained for egress purposes.

    f. The correct operation of the roller shutters are to be identified as a critical fire safety measure on the Fire Safety Schedule for the building.

    Figure 9 indicates a typical shutter assembly incorporating the required solid and perforated construction. The solid construction required beneath ceiling level is interchangeable with permanent glass baffles fixed either in front or behind the roller shutter.

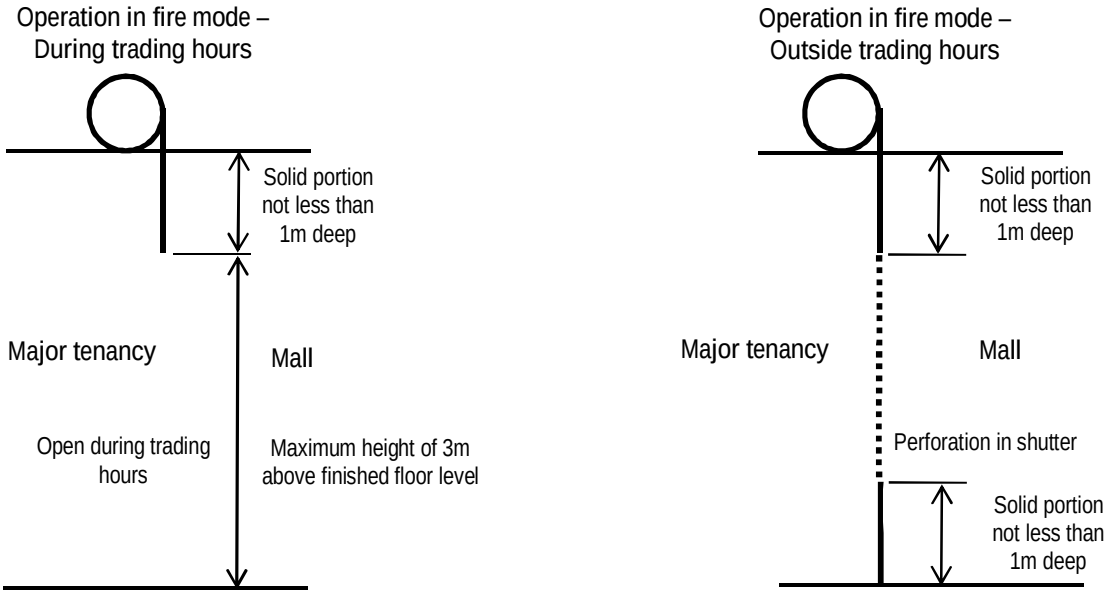

Figure 9 Non-combustible smoke baffle between major tenancies and mall

3.5.4 Make-up air

28. The proposed location and distribution of make-up air is outlined in Figure 6 and Figure 7. Make-up air for the smoke exhaust is proposed to be provided as follows during business hours to maintain air velocities through the openings at approximately 2.5m/s or less:
    a. a minimum 12 – 18m^2 free area via automatic awning windows / doors to the ground floor entrance from Smidmore Street
    b. a minimum 4 – 6m^2 free area via automatic awning windows / doors to the ground floor entrance from Edinburgh Road
    c. a minimum of 10 – 12m^2 free area to level 1 major supermarket tenancy via open shopfront from the mall.
29. Reduced make-up air for the smoke exhaust is acceptable after business hours with up to 5m/s:
    a. a minimum 6 – 9m^2 free area via automatic awning windows / doors to the ground floor entrance from Smidmore Street
    b. a minimum 2 – 3m^2 free area via automatic awning windows / doors to the ground floor entrance from Edinburgh Road
    c. a minimum of 5 – 6m^2 free area to level 1 major supermarket tenancy via open shopfront from the mall.
30. Openings required for make-up air must open automatically upon activation of the smoke detection system and must fail-safe in the open position in the event of power failure.
31. The smoke exhaust system must be activated by the smoke detection system and the sprinkler system without any delay. Both the detection system and the sprinkler system must be zoned in accordance with item 23.

3.5.5 Emergency lighting and exit signs

32. An emergency lighting system must be installed throughout the building in accordance with clauses E4.2 and E4.4 of the BCA and AS 2293.1-2005.

33. 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.

3.6 Fire fighting equipment

34. 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. The hydrant system must be provided with a ring main.

35. A fire hose reel system must be installed throughout the building in accordance with the requirements of clause E1.4 of the BCA and AS 2441-2005.

36. 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 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. Concealed, re-cessed or flush-mounted sprinkler heads must not be used as it may delay sprinkler activation and not achieve fast response activation. Semi-recessed sprinkler heads are considered acceptable provided they achieve a fast response rating.

    c. Activation temperature of 68°C except where otherwise required by AS 2118.1-1999 such as under glazed skylights and roof areas.

    d. Activation of the sprinkler system must operate the smoke hazard management systems of that area and activate the BOWS as appropriate.

    e. The sprinkler system must be zoned to match the zoning of the smoke exhaust system.

    f. 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.

    g. System component fault monitoring must be provided in accordance with clause 3.4 of AS 2118.1-1999.

    h. Records must be maintained such that there will be no confusion as to which sprinkler head belongs to which sprinkler valve.

    i. 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.

    j. The sprinkler system is to be provided with a grade 3 water supply as set-out in AS 2118.1-1999.

37. Activation of the sprinkler system must operate the smoke hazard management systems of that area and activate the building occupant warning system.

38. A fire control centre in accordance with clause E1.8 and specification E1.8 of the BCA is to be provided on Edinburgh Road between the carpark entrance ramp and the mall entrance.

3.7 Commissioning of fire safety strategy

39. 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 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 and test system by opening a hydrant landing valve and observe pressure and water flow.
Fire hose reel system	Installation certificate.	Visual spot check.

Table 6 Required certificates and testing

Appendix A Drawings and information

Drawing title	Dwg no	Date	Drawn
Ground floor plan	160496:EA106 Rev 01	14/12/2012	FJMT
Level 1 floor plan	160496:EA107 Rev 01		
Level 2 floor plan	160496:EA108 Rev 01		
Level 2A floor plan	160496:EA109 Rev 01		

Other information	Ref no	Date	Prepared by
BCA Assessment Report for Development Application – Concept Stage	2012/1356 R1.2	13/12/2012	Steve Watson & Partners

Appendix B Fire safety schedule

Schedule of Statutory Fire Safety Measures

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of sprinkler activation in accordance with BCA2012 Clause D2.21.
Automatic Fire Detection and Alarm System (smoke detection system to activate smoke exhaust system)	BCA2012 Clause 5 of Specification E2.2a
Emergency lighting	BCA2012 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2012 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire control centre	BCA2012 Specification E1.8
Fire dampers	BCA2012 Clause C3.15 and AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Fire hydrants systems	BCA2012 Clause E1.3 and AS 2419.1 – 2005
Hose reel system	BCA2012 Clause E1.4 and AS 2441 – 2005
Mechanical air handling system *(automatic smoke exhaust system)*	BCA2012 Specification E2.2b
Perimeter vehicle access for emergency vehicles	BCA2012 Clause C2.4
Portable fire extinguishers	BCA2012 Clause E1.6 and AS 2444 – 2001
Warning and operational signs	BCA2012 Clauses , D1.17 and E3.3,