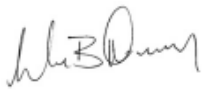
STEVE WATSON & PARTNERS

Marrickville Metro Extension and Refurbishment (Stage 1 and 2)

BCA Assessment Report for Development Application – Concept Stage

REPORT 2010/0116 R3.0

November 2010

Prepared by:	Luke Denny		03.11.2010
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EXECUTIVE SUMMARY

Marrickville Metro Shopping Centre is located at 34 Victoria Road, Marrickville. The existing shopping centre fronts Victoria Road to the north, Murray Street to the east and Smidmore Street to the south and is adjoined by single storey residential dwellings to the west. The shopping centre is predominantly a single level retail building and comprises major tenants being Kmart, Woolworths and Aldi as well as a range of speciality stores. Car parking is located at roof top level with existing vehicle ramp access via Smidmore Street and Murray Street.

AMP Capital Investors proposes to upgrade and expand Marrickville Metro Shopping Centre to accommodate additional retail floor space, improved facilities and services, as well as enhance convenience and accessibility for the community.

Stage 1 will involve the redevelopment of the industrial site at 13-55 Edinburgh Road to accommodate the new two level retail centre including car parking above. This work will also incorporate the refurbishment of the existing shopping centre building fronting the northern side of Smidmore Street.

Stage 2 will involve the first floor level retail extension over the existing shopping centre building with the proposed additional car parking at roof top level.

The Stage 1 works associated with the industrial site will form a standalone structure and as such will be treated as a separate building in terms of BCA compliance. Works associated with the refurbishment of the existing shopping centre building fronting the northern side of Smidmore Street will not trigger a BCA upgrade of the existing building. Compliance issues associated with the existing centre will remain however no reduction in the current level of fire safety afforded to the existing centre will be permitted.

This document is to be read in conjunction with the Staged Fire Safety Strategy prepared by Defire which outlines the performance based approach to fire safety in the design and construction of the proposed building works.

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1. INTRODUCTION

This report presents the findings of an assessment of the design of against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia (BCA).

It has been prepared by building regulations consultants and certifiers Steve Watson and Partners for AMP Capital Investors (AMPCI)

2. PURPOSE

The purpose of this report is to provide an assessment of the design documentation for the proposed project against the current requirements of the BCA.

This report forms part of a Preferred Project Report (PPR) prepared on behalf of AMP Capital Investors (AMPCI) in respect to the Concept Plan Application under Part 3A of the NSW Environmental Planning and Assessment Act 1979 for the proposed redevelopment of the Marrickville Metro Shopping Centre.

This report has been prepared in response to the letter from the Department of Planning (DOP) dated 14 October 2010 requesting that a Preferred Project Report (PPR) be prepared. The letter requests that the proponent respond to the issues raised by the submissions and for the PPR to identify how the issues raised by the submissions including those of the DOP have been addressed and how the PPR minimises the environmental impacts of the proposal.

The Preferred Project includes the following key amendments to the original proposal:

- The adoption of the "alternative proposal" for Smidmore Street as outlined in section 5.6 of the Environmental Assessment Report, meaning that all proposed development within the Smidmore Street road reserve has been deleted from the proposal and the road will remain open to vehicle traffic.
- Removal of the draft VPA from the PPR following Marrickville Council's decision not to grant owner's consent for the inclusion of Smidmore Street in the application.
- Accompanying refinements to the design of the buildings fronting Smidmore Street to address the existing street interface, optimise pedestrian access between the two buildings and maximise street front retail activation and pedestrian amenity.
- A reduction in the gross leasable floor space of the new development from 21,470sqm to 16,767sqm (a reduction of 22% in floor area).
- A reduction in the number of new car parking spaces from 715 to 528.
- A significant reduction in the new building footprint above the existing shopping centre within the north-east section of the site, including the removal the spiral ramp near the corner of Victoria Road and Murray Street.
- Retention of the existing vehicle ramp location within Murray Street and the relocation of the access from Murray Street to the new loading dock 3 further to the south.
- A public domain 'concept vision' for Smidmore Street which will be subject to the further agreement of Marrickville Council.
- Retention of all existing mature Lemon Scented Gums in Smidmore Street.
- Revised Statement of Commitments

3. SCOPE AND LIMITATIONS

3.1. SCOPE

The scope of this assessment is limited to the design documentation referenced in Appendix C of this report.

3.2. LIMITATIONS

The following limitations apply to the assessment:

- The plans are assessed to the extent necessary to issue a construction certificate under Part 4a of The Act. This means that the design has been assessed as able to comply with the BCA ie – the submitted plans are consistent with the BCA but certain design details may be not specified at this stage.
- Details in regard to access for people with disabilities have been assessed to the extent of the deemed-to-satisfy provisions of the BCA only. The assessment does not consider the requirements for people with disabilities under the provisions of the Disabilities Discrimination Act 1992.
- The assessment does not consider the requirements of legislation other than the nominated sections of the EP&A Act which might address building works such as OH&S, Construction Safety or the like.

4. STATUTORY FRAMEWORK

The following table summarises the key statutory issues relating to fire safety and the BCA in relation to the certification of new building works.

4.1. NEW WORK

Clause 145 of the Environmental Planning and Assessment Regulation 2000 (EPAR) requires that all new work comply with the current requirements of the BCA.

This means that all works proposed in the plans are required to comply but that existing features of an existing building need not comply with the BCA unless required to under other clauses of the legislation.

4.2. NO CHANGE OF BUILDING USE - STRUCTURAL STRENGTH & FIRE SAFETY

Clause 143 (3) of the Environmental Planning and Assessment Regulation 2000 (EPAR) prevents a certifying authority from issuing a construction certificate if the proposed new work will result in a reduction to the fire protection and structural capacity of the building.

5. DESCRIPTION OF PROPOSED DEVELOPMENT

Marrickville Metro Shopping Centre is located at 34 Victoria Road, Marrickville. The existing shopping centre fronts Victoria Road to the north, Murray Street to the east and Smidmore Street to the south and is adjoined by single storey residential dwellings to the west. The shopping centre is predominantly a single level retail building and comprises major tenants being Kmart, Woolworths and Aldi as well as a range of speciality stores. Car parking is located at roof top level with existing vehicle ramp access via Smidmore Street and Murray Street.

The land at 13-55 Edinburgh Road is located to the south of Smidmore Street and is bounded by Edinburgh Road and Murray Street. This site is currently used as a warehouse with associated ground level car parking. The warehouse is to be demolished to allow the construction of the new 2 storey shopping centre.

The shopping centre is located within an established residential and industrial precinct surrounded by small lot residential housing to the north and west, and predominantly industrial land comprising larger allotments and larger building scales to the south and east.

AMPCI proposes to upgrade and expand Marrickville Metro Shopping Centre to accommodate additional retail floor space, improved facilities and services, as well as enhance convenience and accessibility for the community.

The proposal has three key elements:

- Redevelopment of the existing industrial land south of Smidmore Street (13-55 Edinburgh Road) to create a standalone two level retail building with car parking above;
- An extension of retail floor area at the first floor level above the existing shopping centre building with further additional roof top parking above;
- The retention of Smidmore Street's vehicular operation with active retail frontage improving the public domain.

The additional retail floor area will primarily accommodate a discount department store, supermarket, mini major and specialty retail space. The development will incorporate additional car parking as well as improved vehicle access and loading facilities.

The proposal includes works to the public domain in order to improve the pedestrian, cycling and public transport connections to and from the site and enhance pedestrian and patron safety.

6. CONSTRUCTION STAGING DETAILS

Owing to the scale of the project and the need to undertake the development whilst maintaining a safe and functional retail centre, it is proposed that construction will occur over at least two discrete stages.

Stage 1 will involve the redevelopment of the industrial site at 13-55 Edinburgh Road to accommodate the new two level retail centre including car parking above. This work will also incorporate the creation of the pedestrian crossing on Smidmore Street linking the two retail buildings and the refurbishment of the existing shopping centre building fronting the northern side of Smidmore Street.

Stage 2 will involve the first floor level retail extension over the existing shopping centre building with the proposed additional car parking at roof top level and reconfiguration of the Smidmore Street ramp.

The Stage 1 works associated with the industrial site will form a standalone structure and as such will be treated as a separate building in terms of BCA compliance. Works associated with the refurbishment of the existing shopping centre building fronting the northern side of Smidmore Street will not trigger a BCA upgrade of the existing building. Compliance issues associated with the existing centre will remain however no reduction in the current level of fire safety afforded to the existing centre will be permitted.

7. ASSESSMENT DATA SUMMARY

The following basic assessment data has been drawn from the provisions of the BCA 2010.

7.1. ASSUMPTIONS

Assumptions made in the preparation of this report are listed below:

1. The buildings have a effective height of approximately 13.10m and 13.50m

7.2. INTERPRETATIONS

A number of issues within the BCA are recognised to be interpretive in nature. Where these issues are encountered, interpretations are made that are consistent with Standard Industry Practise and/or Steve Watson & Partners policy formulated in regard of each issue.

1. Population numbers and egress widths for the **retail portions (excluding loading docks)** of the buildings have been calculated based on the figures recommended in Project 6 "Fire Safety in Shopping Centres" prepared by the Fire Code Reform Centre.
2. Population numbers and egress width for the **carpark and loading dock portions** of the buildings have been calculated based upon table D1.13 of the BCA.

7.3. BUILDING CHARACTERISTICS

The following assessment data has been drawn from the provisions of the BCA.

7.3.1. Classification

The significant spaces in the proposed design have been classified in accordance with the requirements of Clause A3.2 of the BCA and are summarised in the table below:

Stage 1

Floor	***Space***	***Classification***
Ground Level	Retail & Dock	Class 6
Level 1	Retail	Class 6
Level 2	Carpark	Class 7a
Level 2a	Roof top Carpark	Class 7a

Stage 2

Floor	***Space***	***Classification***
Ground Level	Retail & Dock	Class 6
Level 1	Retail	Class 6
	Carpark	Class 7a
Level 2	Carpark	Class 7a
Mezzanine (in DDS)_	Retail	Class 6
Level 2a	Roof top Carpark	Class 7a

7.3.2. Summary of construction determination

The type of construction required for the proposed design is summarised in the table below.

Stage 1

Classification	Class 6 & 7a
Number of storeys contained	3
Rise in storeys	3
Type of construction required	Type B (Large Isolated)
Effective height	<25m

Stage 2

Classification	Class 6 & 7a
Number of storeys contained	4
Rise in storeys	4 (includes DDS Mezzanine)
Type of construction required	Type A (Large Isolated)
Effective height	<25m

7.4. FLOOR AREAS AND VOLUMES

Stage 1

Floor	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Ground	7,698m^2	Not determined	The existing centre has not been included in this assessment.
Level 1	7,698m^2	Not determined	
Level 2	7, 726m^2	Not determined	
Level 2a	7, 726m^2	Not determined	

Stage 2

Floor	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Ground	32,084m^2	Not determined	
Level 1	28,309m^2	Not determined	
Level 2	12,935m^2	Not determined	
Mezzanine	Not detailed at this stage		
Level 2a	12,935m^2	Not determined	

7.5. NOMINATED FIRE COMPARTMENTS

Stage 1

Compartment	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Ground, Level 1 & 2	22,176m2	Not applicable	Large isolated building - The existing centre has not been included in this assessment.

Stage 2

Compartment	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Ground, Level 1, 2 & Mezzanine	60,393m2	Not applicable	Large isolated building – The new stage 1 building does not form part of this compartment.

7.6. POPULATION AND REQUIRED EXIT WIDTH

Relevant populations and exit widths for the building are set out below.

Stage 1

Location	*Use*	*Class*	*Approx Area (m^2)*	*Density m^2/person*	*Population*	*Total exit width required*
Ground Floor	Dock	6	1,650m^2	30m^2/pp*	55	1.0m
	Mini Major	6	1,000m^2	6m^2/pp*	166	2.0m
	Speciality Retail	6	2,700m^2	6m^2/pp*	450	4.0m
	Mall	6	1,184m^2	10m^2/pp*	118	1.5m
Level 1	Supermarket	6	4,000m^2	6m^2/pp*	666	6.0m
	Speciality Retail	6	2,243m^2	6m^2/pp*	373	3.5m
	Mall	6	930m^2	10m^2/pp*	93	1.0m
Level 2	Carpark	7a	7,458m^2	30m^2/pp	251	2.5m

The current egress arrangements within the existing centre are proposed to be maintained throughout the Stage 1 phase of the development.

Stage 2

Location	*Use*	*Class*	*Approx Area (m^2)*	*Density m^2/person*	*Population*	*Total exit width required*
Ground Floor	**Existing centre with proposed new work**					
	Woolworths	6	4,600m^2	6m^2/pp*	767	6.0m
	Kmart	6	6,330m^2	6m^2/pp*	1055	8.0m
	Aldi	6	1,200m^2	6m^2/pp*	200	2.0m
	Loading Dock	6	2,255m^2	30m^2/pp*	76	1.0m
	Speciality Retail	6	8,524m^2	6m^2/pp*	1420	10.5m
	Mall	6	3,154m^2	10m^2/pp*	316	3m

Location	*Use*	*Class*	*Approx Area (m^2)*	*Density m^2/person*	*Population*	*Total exit width required*
Level 1	**Existing centre with proposed new work**					
	DDS	6	4,855m^2	6m^2/pp*	810	7.5m
	Speciality Retail	6	3,227m^2	6m^2/pp*	538	5.0m
	Mall	6	1,365m^2	10m^2/pp*	137	1.5m
	Carpark	7b	16,567m^2	30m^2/pp	553	5.0m
	Existing centre with proposed new work					
	Carpark	7b	12,848m2	30m^2/pp	429	4.0m

* The population numbers and egress widths for the **retail portions (excluding loading docks)** of the buildings have been calculated based on the figures recommended in Project 6 "Fire Safety in Shopping Centres" prepared by the Fire Code Reform Centre.

8. BCA ASSESSMENT

8.1. SECTION B: STRUCTURE

Stage 1

All new works to comply with the current requirements of the BCA and applicable Australian Standards.

The structural capacity of the existing building is proposed to be maintained throughout Stage 1.

Stage 2

All new works are proposed to comply with the current requirements of the BCA and applicable Australian Standards.

The existing structure is required to comply with the current requirements of the BCA and applicable Australian Standards. Upgrade may be required to achieve compliance.

8.2. SECTION C: FIRE RESISTANCE

Stage 1

The new building is to be erected in Type B fire resisting construction in accordance with Specification C1.1 of the BCA.

The new building is to be treated as a Large Isolated. Perimeter access appears to comply with the DtS requirements of C2.4.

The existing centre does not meet the current requirements for a large isolated building. Upgrade is proposed under the Stage 2 development. The current level of fire safety afforded to the existing centre is proposed to be maintained throughout the Stage 1 development.

Stage 2

The proposed extensions to the existing building are required to comply with Type A fire resisting construction in accordance with Specification C1.1 of the BCA. As the existing building is unlikely to achieve the FRL's required for a Type A building this will need to be addressed as part of the Stage 2 works.

Compliance is proposed to be achieved on a performance basis via a Fire Engineered Alternative solution.

8.3. SECTION D: ACCESS AND EGRESS

Stage 1

The new building has a rise in storeys of 3 and will be served by a sprinkler system, therefore it is not necessary to fire isolate required stairways.

The following travel distances are proposed in the new building:

- 20m to a point of choice (DtS);
- 60m to an exit within the retail portion;
- 80m to an exit within the open deck carpark;
- 100m between alternative exits within the retail portion;
- 120m between alternative exits in the open deck carpark; and
- Travel via required non fire isolated stairs in the new building will exceed 80m.

Compliance is proposed to be achieved on a performance basis via a Fire Engineered Alternative solution.

The current egress arrangements with the existing building are proposed to be maintained throughout Stage 1.

Access complying with AS1428.1 is to be provided to the following areas of the new building:

- From the allotment boundary at the major points of entry.
- To and within all areas normally used by the public
- From any accessible carparking space on the allotment.
- Through the principle public entrance

Stage 2

The new building has a rise in storeys of 4 and will be served by a sprinkler system. Any stairways serving as required exits that connect, pass through or pass by more than 3 consecutive storeys must be fire isolated. There is a number of existing fire isolated stairs and passageways with the existing building which are proposed to serve a non fire isolated required exits.

The following travel distances are proposed throughout the entire consolidated building:

- 20m to a point of choice (DtS);
- 60m to an exit within the retail portion;
- 80m to an exit within the open deck carpark;
- 100m between alternative exits within the retail portion;
- 120m between alternative exits in the open deck carpark; and
- Travel via required non fire isolated stairs in the new building will exceed 80m.

In addressing the extended distances of travel a number of the existing fire-isolated passageways in the BOH areas are likely to be made redundant.

Compliance is proposed to be achieved on a performance basis via a Fire Engineered Alternative solution.

Existing egress compliance issues are proposed to be upgraded.

Access complying with AS1428.1 is to be provided to the following areas of the entire consolidated building:

- From the allotment boundary at the major points of entry.
- To and within all areas normally used by the public
- From any accessible carparking space on the allotment.
- Through the principle public entrance

8.4. SECTION E: SERVICES AND EQUIPMENT

Stage 1

The new building is proposed to be served by its own dedicated hydrant system complying with AS2419.2005. The existing centre is currently served by an Ordinance 70 hydrant system which is proposed to remain in service throughout Stage 1.

The new building is proposed to be served by hose reels installed accordance with AS2441 – 2005. The existing centre is currently served by an Ordinance 70 hose reel system which is proposed to remain in service throughout Stage 1

The new building is proposed to be provided with a sprinkler system in accordance AS 2118 – 199 and Specification E1.5. The existing centre is currently served by an AS2118-1982 sprinkler system which is proposed to remain in service throughout Stage 1.

The new building is proposed to be served by its own dedicated fire control centre. The existing centre is currently served by a fire control centre located of Murray Street.

The new building is proposed to be served by an automatic smoke exhaust system complying with Specification E2.2. The existing smoke hazard management measures installed in the existing building are proposed to be maintained throughout the Stage 1 development.

The new building is proposed to be served by emergency lighting complying with Clause E4.2 and exit signs complying with Clause E4.5. The existing emergency lighting and exit signs installed in the existing centre are proposed to be maintained throughout the stage 1 development.

Stage 2

Under the Stage 2 development the existing centre is proposed to be served by the following:

- Hydrant system complying with BCA Clause E1.3 and AS2419.1 -2005,
- hose reel system complying with BCA Clause E1.4 and AS2441 – 2005,
- sprinkler system complying with BCA Clause E1.5, AS2118 – 1999 and Spec E1.5 of BCA 2010,
- a fire control room complying with the requirements of Spec E1.8 of the BCA,
- a automatic smoke exhaust system complying with Specification E2.2 of the BCA
- emergency lighting complying with BCA Clause E4.2 and AS2293.1 – 2005
- exit signs complying with BCA Clause E4.5 and AS2293.1 – 2005

The design of the essential fire safety measures will include a number of features that will assist centre management in the operation the building's fire safety systems. These features include, but are not limited to, the following:

- An alarm verification facility that minimises the call out of fire brigades in the event of false alarms;
- The provision of mimic panel(s) and associated block plans in the centre management office to allow immediate identification of a fire alarm.
- Logically locating key essential services measures such as the fire control centre, sprinkler/hydrant pumps and valves to facilitate brigade intervention, whilst being accessible to centre management.

Appendix B lists the Fire Safety Measures applicable for each stage.

8.5. SECTION F: HEALTH AND AMENITY

The status of sanitary facilities required by Part F2 of the BCA are set out below:

Stage 1 New building only

Class	Area	Occupant Numbers			WC *Required* / *Provided*		Urinal *Required* / *Provided*		Basin *Required* / *Provided*	
		Total								
6	Retail	1605	Male (40%)	642	1	2	2	4	1	4
			Female (60%)	963	3	6	N/A	-	2	6
			Unisex Disabled	-	1	2	N/A	-	1	2

Stage 2 Existing Building

Class	Area	Occupant Numbers			WC *Required* / *Provided*		Urinal *Required* / *Provided*		Basin *Required* / *Provided*	
		Total								
6	Retail	6295	Male (40%)	2518	3	-		-	3	-
			Female (60%)	3777	5	-	N/A	-	5	-
			Unisex Disabled	-	1	-	N/A	-	1	-

All new work to comply with the current requirements of Section F of the BCA. Existing compliance issues may remain on the basis they are not exacerbated by the new works.

8.1. SECTION J: HEALTH AND AMENITY

All new work to comply with the current requirements of Section J of the BCA. Existing compliance issues may remain on the basis they are not exacerbated by the new works.

9. CONCLUSION

We note that the Stage 1 works associated with the industrial site will form a standalone structure and as such will be treated as a separate building in terms of BCA compliance. Works associated with the refurbishment of the existing shopping centre building fronting the northern side of Smidmore Street will not trigger a BCA upgrade of the existing building. Compliance issues associated with the existing centre will remain however no reduction in the current level of fire safety afforded to the existing centre will be permitted

The proposed alterations and additions associated with the Marrickville Metro redevelopment are capable of complying with the relevant requirements of the BCA & EPAR.

It is proposed to satisfy the following by alternative solutions:

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
1.	**FRL of Building Elements**	**Stage 2**		
		C1.1	FRL of existing and new building elements will not achieve compliance with Table 3 of Specification C1.1	CP1 & CP2
2.	**Large isolated Building**	**Stage 2**		
		C2.3	Vehicular access complying with C2.4 is not proposed.	CP9
3.	**Requirements for open spaces and vehicular access**	**Stage 2**		
		C2.4	The building does not have perimeter vehicular access complying with C2.4	CP9
4.	**Exit travel**	**Stage 1**		

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
	distances	D1.4	The following travel distances are proposed (new building): • 20 to a point of choice (DtS) • 60m to an exit within the retail portion • 80m to an exit within the open deck carpark	DP4 & EP2.2
		Stage 2		
		D1.4	The following travel distances are proposed (whole building): • 20 to a point of choice (DtS) • 60m to an exit within the retail portion • 80m to an exit within the open deck carpark	DP4 & EP2.2
5.	**Distance between alternative exits**	**Stage 1**		
		D1.5	The following travel distances between alternative exits in the new building are proposed (New building): • 100m between alternative exits within the retail portion; and • 120m between alternative exits in the open deck carpark.	DP4 & EP2.2
6.		**Stage 2**		
		D1.5	The following travel distances between alternative exits in the new building are proposed (Whole Building: • 100m between alternative exits within the retail portion; and • 120m between alternative exits in the open deck carpark.	DP4 & EP2.2
7.	**Travel by non-fire-isolated stairways or ramps**	**Stage 1**		
		D1.9	Travel via required non fire isolated stairs in the new building will exceed 80m in the new building.	DP5 & EP2.2
		Stage 2		
		D1.9	Travel via required non fire isolated stairs in the whole building will exceed 80m.	DP5 & EP2.2
8.	**Smoke Hazard Management**	**Stage 1**		
		E2.2	Performance based smoke exhaust proposed (new Building)	EP2.2
		Stage 2		
		E2.2	Performance based smoke exhaust proposed (Whole Building)	EP2.2

10. APPENDIX A – REFERENCED DOCUMENTATION

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

Drawing No.	*Title*	*Issue*	*Date*	*Drawn By*
EA-006	Proposed Ground Floor Plan	03	29.10.10	Bovis Lend Lease
EA-007	Proposed Level 1 Plan	03	29.10.10	Bovis Lend Lease
EA-008	Proposed Level 2	03	29.10.10	Bovis Lend Lease
EA-009	Proposed Rooftop Car Park Level 2A	03	29.10.10	Bovis Lend Lease

11. APPENDIX B – STATUTORY FIRE SAFETY MEASURES

Schedule of Statutory Fire Safety Measures

Stage 1 New portion

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of sprinkler activation in accordance with BCA2007 Clause D2.21.
Automatic Fire Detection and Alarm System (smoke detection system to activate smoke exhaust system)	BCA2010 Clause 5 of Specification E2.2a
Emergency lighting	BCA2010 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2010 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire control centre	BCA2010 Specification E1.8
Fire dampers	BCA2010 Clause C3.15 and AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Fire hydrants systems	BCA2010 Clause E1.3 and AS 2419.1 – 2005
Fire shutters	BCA2010 Specification C3.4 and AS 1905.2 – 2005
Hose reel system	BCA2010 Clause E1.4 and AS 2441 – 2005
Mechanical air handling system *(automatic smoke exhaust system)*	BCA2010 Specification E2.2b
Perimeter vehicle access for emergency vehicles	BCA2010 Clause C2.4
Portable fire extinguishers	BCA2010 Clause E1.6 and AS 2444 – 2001
Warning and operational signs	BCA2010 Clauses C3.6, D1.17, NSW D2.19 and E3.3,

Note that the fire safety schedule may need to be amended subject to the inclusion of a fire engineered alternative solution.

Stage 1 Existing portion (Based on the existing Annual Fire Safety Statement)

Measure	Standard of Performance
Automatic fire suppression systems (Sprinklers)	AS 2118 – 1982
Smoke Control System	Ordinance No. 70 Part.55.7 & ministerial specification 13
Hose Reel System	Ordinance No. 70 Part 27.2 and ministerial specification No. 10
Fire Window	BCA C3.4 AS1530.4
Warning Signs	LGA 1993.655 / BCA D2.23
Fire Hydrant System	Ordinance No. 70 Part 27.3 and ministerial specification No. 10
Emergency Lighting	BCA E4.2, E4.4, E4.5, E4.6 & E4.8 and AS2293.1
Portable Fire Extinguishers	AS 2444 – 1995
Fire Doors	AS1905.1 – 1985 AS/NZ 1905.1 – 1997
Paths of travel	EP & A Reg 2000 Cl.186
Exit signs	AS 2293.1
Emergency Lighting	Ordinance No. 70 Part 55.12 and AS 2293.1 – 1987
Emergency Lifts	AS 1735.2

Stage 2 Whole building

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of sprinkler activation in accordance with BCA2007 Clause D2.21.
Automatic Fire Detection and Alarm System (smoke detection system to activate smoke exhaust system)	BCA2010 Clause 5 of Specification E2.2a
Emergency lighting	BCA2010 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2010 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire control centre	BCA2010 Specification E1.8
Fire dampers	BCA2010 Clause C3.15 and AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Fire doors	BCA2010 Specification C3.4 and AS 1905.1 – 2005
Fire hydrants systems	BCA2010 Clause E1.3 and AS 2419.1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2010 Clause C3.15, Specification C3.15 and AS 1530.4 – 2005 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Fire shutters	BCA2010 Specification C3.4 and AS 1905.2 – 2005
Hose reel system	BCA2010 Clause E1.4 and AS 2441 – 2005
Mechanical air handling system *(automatic smoke exhaust system)*	BCA2010 Specification E2.2b
Perimeter vehicle access for emergency vehicles	BCA2010 Clause C2.4
Portable fire extinguishers	BCA2010 Clause E1.6 and AS 2444 – 2001
Warning and operational signs	BCA2010 Clauses C3.6, D1.17, NSW D2.19 and E3.3,

Note that the fire safety schedule may need to be amended subject to the inclusion of a fire engineered alternative solution.