STEVE WATSON & PARTNERS

West Keira, Wollongong – Stage 1

BCA Assessment Report

REPORT 2011/0432 R1.1

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EXECUTIVE SUMMARY

An assessment of the proposed design of West Keira Shopping Centre, Wollongong has been undertaken against the Deemed-to-Satisfy provisions of the relevant sections of the BCA. The assessment has revealed that in order to comply a number of issues need to be resolved.

Section 8 of this report details the non-compliances identified that require either amendments to plans or an Alternative Solution to satisfy the Performance Requirements of the BCA.

Type of issues	Report Section Reference	Number of issues
Issues proposed to be amended on the plans	Section 8.1	7
Issues proposed to be addressed by alternative solution	Section 8.2	10

A number of compliance issues rely on assumptions and interpretations as outlined in Section 7 of this report. Whilst not precluding the issue of a Construction Certificate, it is noted that many detailed design issues are not indicated on the drawings. These issues are designated “Not Specified” in the “Status” column of the assessment at Appendix B of the report and should be resolved prior to construction. Key issues should be clarified with SWP prior to construction.

TABLE OF CONTENTS

1. INTRODUCTION

This report presents the findings of an assessment of the design of West Keira Shopping Centre, Wollongong 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 Hansen Yuncken on behalf of GPT Group.

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.

The assessment is undertaken for the purpose of, and to the extent necessary for, the Section 75W modification under NSW Environmental Planning and Assessment Act 1979 Act.

3. SCOPE AND LIMITATIONS

3.1. SCOPE

The scope of this assessment is limited to the design documentation referenced in Appendix A 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. An assessment against AS 1428 is outside the scope of this report.

- 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.

- Generally the assessment does not incorporate the detailed requirements of the Australian Standards.

4. STATUTORY FRAMEWORK

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.

5. METHODOLOGY

5.1. PROCESS ADOPTED

The following method of assessment has been used in the preparation of this report:

1) Determine the basic assessment data for the building.
2) Assess the design of the building against the current Deemed-to-Satisfy requirements of Sections B, C, D, E, F, G, H and J of the BCA. Establish the status of each clause into the following categories:
   a) Clause is administrative information only **(Noted)**.
   b) Clause is or is not relevant to the proposed work **(Applicable or Not Applicable)**.
   c) The proposed work complies with the requirements of the clause **(Complies)**.
   d) Compliance with the requirements of the clause is unable to be determined from the documentation **(Not Specified)**. A recommendation in the "Comments" column will indicate if further information is required.
   e) Proposed work does not comply with the requirements of the clause **(Does Not Comply)**. An indication will be given in the Comments field as to the nature of the issue and whether an alternative solution has been proposed to address the issue.
3) Nominate the status of the design against each BCA requirement.
4) Provide comments against each BCA requirement as appropriate

6. DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development involves the construction of a new mixed use building comprising of works in two stages. Stage 1 involves the construction of a 6 storey retail shopping centre, which includes basement and rooftop car parking. The new centre will be linked with the existing Wollongong Central Shopping Centre via an underground tunnel and pedestrian bridge.

The Stage 2 works will involve the construction of an additional 2 levels of rooftop car parking, a podium level on top of the carpark which will provide access to one residential tower and one commercial tower. We note the Stage 2 works will have a significant impact on the Stage 1 development as the envelope of the building will significantly increase. The BCA issues which are created from the Stage 2 works will need to be addressed and accommodated for in the Stage 1 design.

7. ASSESSMENT DATA SUMMARY

The following basic assessment data has been drawn from the provisions of the BCA 2011.

7.1. ASSUMPTIONS

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

1. The BCA Assessment Report is limited to a review of the Stage 1 works only. The impact of the Stage 2 will be noted in the report; however a detailed BCA assessment will still be required.

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. All escalators are located within the atrium and therefore can connect any number of storeys in accordance with Clause D1.12.
2. The stairway within the Coles tenancy is not a required exit as it discharges to the loading dock on the ground floor. Confirmation to be provided by the Architect.

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:

Floor	***Space***	***Classification***
Basement	Carpark	7a
Lower Ground, Ground & Upper Ground	Retail	6
Levels 1 and 2	Carpark	7a

7.3.2. Summary of construction determination

The type of construction required for the proposed design is summarised in the table below. Refer to appendix B for further detailed assessment data on the proposed development.

Classification	6 & 7a
Number of storeys contained	6
Rise in storeys	4
Type of construction required	A
Effective height	Approx 14m

8. ISSUES REQUIRING RESOLUTION

8.1. ISSUES REQUIRING AMENDMENTS TO PLANS

The following issues need to be resolved before issuing the Construction Certificate.

Item	DTS Clause	Description of Non-compliance	Requirement to Satisfy BCA
1.	C2.7	The new pedestrian bridge and underground tunnel new West Keira site is required to be fire separated from the existing Wollongong Central Shopping Centre by 3 hour construction. A fire wall must extend through the connection point of the two centres.	It is proposed to have a "non physical" method of fire separation. The following options are available: i. A sliding fire door in accordance clause C3.6 of the BCA. Note the door can be concealed within a side wall cavity; or ii. A fire curtain concealed within the ceiling space. Note the curtain is a performance based measure and will need to be assessed by the Fire Engineer. Details are to be provided on the CC plans.
2.	C2.11	A stairway and lift must not be in the same shaft.	The fire isolated stairways and lifts are to be clearly shown on the CC plans as being in separate fire rated shafts.
3.	C3.2	Openings within 3m of a side allotment boundary shall be protected by sprinklers, fire doors, fire windows etc, in accordance with Clause C3.4 of the BCA.	Further details are to be shown on the CC plans. This includes the distances between the external walls and the boundary.

Item	DTS Clause	Description of Non-compliance	Requirement to Satisfy BCA
4.	D1.4 & D1.5	Excessive travel distances to and between alternative exits are shown on the plans. Areas which require additional review include: • Travel between alternative exits in the basement carpark (approx 105m). • 51m to a point of choice within the underground tunnel. • Fitout details to be provided for the Coles Tenancy. The allocation of isles will impact on the egress measurements. • 25m to a point of choice with the amenities block on the lower ground floor. • Up to 30m to a point of choice in the retail tenancies. • 40m to a point of choice within the pedestrian bridge (upper ground floor). • 25m to a point of choice from the common area behind the food tenancies. • 32m to point of choice from the southern end of the mall area on the upper ground floor. • Travel between alternative exits in the upper ground floor (approx 102m). • Travel between alternative exits in the Level 1 carpark (approx 110m). • Travel between alternative exits in the Level 2 carpark (approx 105m).	Extended travel distance parameters have been outlined by the fire engineer (i.e. 20/60/100). However the current plans provided do not comply with these parameters. Additional exits are to be shown on the CC plans or the travel distance parameters are to be reviewed again by the fire engineer.
5.	D1.6	Aggregate egress width must be in accordance with the requirements outlined in Section 11.3 of this report. Currently there is insufficient egress width provided from the retail levels of the building.	Additional exits are to be shown on the CC plans or the egress width is to be assessed in the fire engineering report.

Item	DTS Clause	Description of Non-compliance	Requirement to Satisfy BCA
6.	D1.7	The eastern fire isolated stairway discharges is within the centre which is not open for at least 2/3 of its perimeter. Also the path of travel from the exit necessitates passing within 6m of the external wall of the building.	Where the path of travel from the exit necessitates passing within 6m of the external wall of the building, the wall is required to have an FRL of 60/60/60 and any openings protected in accordance with Clause C3.4. Alternatively a fire isolated passageway can be provided from the stair shaft and discharge to the Keira Street. We note that the entry and discharge of the fire exits is not clearly shown on the current plans. Further review and details are to be provided on the CC plans.
7.	D2.4	Separation of rising and descending stair flights.	Rising and descending fire isolated stairways must not be directly connected. Stair flights are to be separated by non combustible and smoke proof construction complying with Clause 2 of Specification C2.5. Details are to be provided on the CC plans.

8.2. ALTERNATIVE SOLUTIONS PROPOSED / REQUIRED

It is proposed to satisfy the following non-compliances by alternative solutions:

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
1.	Type of construction - FRLs	C1.1	It is proposed to reduce the FRL's in the building from 3 hours to 2 hours in the retail levels.	CP1 & CP2	The rationalisation of the FRL's in the retail portion of the building is to be addressed in the fire engineering report.
2.			The external walls of the pedestrian bridge enclosure are within 1.5m of the Wollongong Central building and the boundary. The enclosure is required to have a FRL of 180/180/180 and any associated openings protected in accordance with Clause C3.4 of the BCA.	CP1 & CP2	The bridge structure and fire separation is to be reviewed by the fire engineer and justified in the fire engineering solution.
3.	Compartment Size and Perimeter Access	C2.2, C2.3 & C2.4	The retail area is connected by an atrium and forms one fire compartment. This exceeds the maximum fire compartment limits for a Type A building and therefore is required to be treated as a large isolated building.	CP9	The building is large isolated and is required to have perimeter access (continuous 6m accessible path) around the entire site. The western end of the site is land locked and will not comply with the DtS Provisions of the BCA. The non compliance shall be addressed in the fire engineering solution.

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
4.	Separation of classifications in different storeys	C2.9	The atrium and travelators within the retail levels link into the basement carpark and the Levels 1 and 2 carpark. These areas are required to be fire separated.	CP2	It is proposed to fire separate the carpark from the retail area by enclosing the perimeter of the atrium with drencher protected glazing. The performance based fire separation shall be assessed and justified in the fire engineering solution.
5.	Travel Distance	D1.4 & D1.5	Extended travel distance parameters have been outlined by the fire engineer (i.e. 20/60/100). However the plans provided do not comply with these parameters.	DP4 and EP2.2	Additional exits are to be shown on the CC plans or the travel distance parameters are to be reviewed again by the fire engineer. Further details noted in Section 8.1.
6.	Travel via fire isolated exits	D1.7	The fire isolated exits cannot be directly accessed from a SOU (tenancy) unless it occupies the entire storey.	DP4, DP5 and EP2.2	The Coles tenancy and some of the mini majors have direct access into the fire isolated stairways. The non compliance shall be addressed in the fire engineering solution.
7.	Fire hydrant booster location	E1.3	Location of fire hydrant booster and bounding construction does not comply. Currently there are provisions for services in the South West corner of the ground floor. It would be ideal to locate the hydrant booster on Crown Lane adjacent to the entrance doorway to the fire control room.	EP1.3	The hydrant booster is to be located within sight of the main entry and enclosed by 90 minute construction. The booster location and bounding construction shall be addressed in the fire engineering solution.

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
8.	Fire Control Room (FCR)	E1.8	Due to the Stage 2 works a fire control room is to be provided in accordance with the requirements of Specification E1.8 of the BCA, with the exception of the following: • Have egress to road or open space which does not involve a change in level of more than 300mm (i.e. approximately 1.2m). • The room must be accessible via 2 paths of travel (one from the main entry and the other from a public place or fire isolated passageway. A single means of access to the fire control room is proposed.	EP1.6	The departures from Specification E1.8 are to be addressed in the fire engineering solution.
9.	Smoke Hazard Management	E2.2	Smoke exhaust to mall area is proposed to be via the atrium shaft. Tenancies over 1000m^2 are required to be provided with individual smoke exhaust systems. It is proposed omit smoke exhaust from the mini major tenancies provided the trading area is less than 1,000m^2 and is fully smoke separated from the BOH.	EP2.2	Smoke hazard management for the entire building is to be reviewed by the fire engineer and addressed in the fire engineering report.

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
10.	Atrium construction	Sec G3	• The atrium well does not contain a width throughout the well with a horizontal diameter of not less than 6m. • The atrium is not proposed to be separated from the remainder of the building by bounding walls set back not more than 3.5m from the perimeter of the atrium well. • Bounding walls are not proposed to be constructed in accordance with Clause G3.4. • Balustrades to the atrium are not proposed imperforate. Further details are to be provided from the architect. • The roof of the atrium is not proposed to be fire rated in accordance with Table 3 of Specification C1.1.	CP2, DP4, EP1.4, EP2.2, EP4.2 & EP4.3	The atrium construction is to be reviewed by the fire engineer and the non compliances addressed in the fire engineering report.

9. STATUTORY FIRE SAFETY MEASURES

The Statutory Fire Safety Measures listed in Appendix G of this report are required to be certified upon completion of the project and prior to occupation of the building by the owner of the building, by issuing a Final Fire Safety Certificate under the Act.

The owner is also required under the Act to certify each of the Fire Safety Measures annually by issuing a Fire Safety Statement.

10. CONCLUSIONS

The design complies with the requirements of the relevant sections of the BCA subject to resolution of the identified areas of non-compliance and compliance with the recommendations provided within the report.

11. APPENDIX A – DETAILED ASSESSMENT DATA

11.1. FLOOR AREAS AND VOLUMES

Floor	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Basement (Carpark)	10,480	-	Volume unknown - Sections to be provided.
Lower Ground (Retail)	11,800	-	As above
Ground (Retail)	10,250	-	As above
Upper Ground (Retail)	10,450	-	As above
Levels 1 (Carpark)	10,285	-	As above
Level 2 (Carpark)	10,285	-	As above

11.2. NOMINATED FIRE COMPARTMENTS

Compartment	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Basement (Carpark)	10,480	-	Within Type A fire compartment limits.
Lower Ground, Ground & Upper Ground (Retail)	32,500	-	Exceeds Type A fire compartment limits.
Levels 1 and 2 (Carpark)	20,570	-	Exceeds Type A fire compartment limits.

11.3. POPULATION

Area calculation rates in accordance with Clause D1.13 of the BCA:

- Back of house storage area calculated at:
  - 15% of floor area in speciality retail, majors and mini majors. The population rate given to the BOH area is $30m^2$/per person.
- Deductions
  - 15% for speciality retail, majors and mini majors for fixtures and fittings
  - 15% for core areas including lifts, stairways, escalators, lobbies, voids and plant areas

Relevant populations for the building are set out below.

Location	*Use*	*Class*	*Approx Area (m^2)*	*Density m^2/person*	*Population*	*Required exit width*	*Comments*
Basement	Carpark	7a	8,908	30	297	3m	Area includes deductions outlined above
Lower Ground	Retail	6	7,247	3	1,509	13m	As above
Ground	Retail	6	4,978	5	1,660	15m	As above
Ground	Loading Dock	6	1,824	5	61	1m	As above
Upper Ground	Retail	6	6,418	3	1,284	12m	As above

Location	*Use*	*Class*	*Approx Area (m²)*	*Density m²/person*	*Population*	*Required exit width*	*Comments*
Carpark Level 1	Carpark	7a	8,742	30	292	3m	As above
Carpark Level 2	Carpark	7a	8,742	30	292	3m	As above

11.4. EXITS

The exits from the building are set out below:

Exit No	*Area*	*Type*	*Grid Ref*	*No of storeys connected*	*Comments*
1.	Basement Carpark	Fire isolated stairway	L/02	6	Stair shaft connects all storeys from the basement carpark to Level 2 roof top carpark and discharges at the ground floor to Richardson Lane.
2.	Basement Carpark	Fire isolated stairway	M/10	6	Stair shaft connects all storeys from the basement carpark to Level 2 roof top carpark and discharges at the ground floor to Richardson Lane.
3.	Basement Carpark	Fire isolated stairway	G/11	6	Stair shaft connects all storeys from the basement carpark to Level 2 roof top carpark and discharges at the ground floor to Keira Street.
4.	Basement Carpark	Fire isolated stairway	A/06	6	Stair shaft connects all storeys from the basement carpark to Level 2 roof top carpark and discharges at the ground floor to Crown Lane.
5.	Ground Floor	Auto sliding door	M/06	1	Discharges to Richardson Lane.
6.	Ground Floor	Auto sliding door	L/13	1	Discharges to Keira Street.
7.	Ground Floor	Auto sliding door	C/08	1	Discharges to Keira Street.

12. APPENDIX B – CLAUSE BY CLAUSE ASSESSMENT

12.1. SECTION B - STRUCTURE

Clause	Description	Status	Comments
B1.1	Resistance to actions	Not Specified	The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions.
B1.2	Determination of individual actions	Not Specified	The magnitude of individual actions must be determined in accordance with Clause B1.2 of the BCA.
B1.3	-	No provisions	-
B1.4	Determination of structural resistance of materials and forms of construction	Not Specified	The structural resistance of materials and forms of construction must be determined in accordance with the relevant Australian Standards in accordance with Clause B1.4 of the BCA.

12.2. SECTION C - FIRE RESISTANCE

Clause	Description	Status	Comments
C1.1	Type of construction required	Does not comply	The building is to be erected in Type A fire resisting construction in accordance with Specification C1.1 of the BCA. The key building elements noted below will required the following FRLs in accordance with Specification C1.1: • Basement carpark – 60/60/60 • Slab between carpark and retail portion of the building – 180/180/180 • **Roof Concession** – the building sprinkler protected and therefore is not required to have an FRL provided the roof covering is non combustible. Refer to Appendix D for the relevant fire resisting requirements. **It is proposed reduce the FRL's in the retail portion of the building to 2 hour construction (120/120/120). This will be addressed in the fire engineering solution.** **Also the external walls of the pedestrian bridge enclosure are within 1.5m of the Wollongong Central building. The enclosure is required to have a FRL of 180/180/180 and any associated openings protected in accordance with Clause C3.4 of the BCA.**
C1.2	Calculation of rise in storeys	Noted	Refer to Section 7.3.2 of this report.
C1.3	Buildings of multiple classification	Noted	The building is required to be constructed of Type A fire resisting construction as the classification of the top storey is a Class 7a
C1.4	Mixed types of construction	Noted	Refer to Clause C1.1.
C1.5	Two storey Class 2, 3 or 9c buildings	Not Applicable	
C1.6	Class 4 parts of buildings	Not Applicable	

Clause	Description	Status	Comments
C1.7	Open spectator stands and indoor sports stadiums	Not Applicable	
C1.8	Lightweight construction	Not Specified	Lightweight construction used in a wall system must comply with Specification C1.8. Lightweight construction used as a fire-resisting covering of a steel column or the like, and where the covering is not in continuous contact with the column must have the voids filled to a height of not less than 1.2m above the floor and where the column is liable to be damaged must be protected by steel or other suitable material.
C1.9	-	-	No provisions.
C1.10	Fire hazard properties	Not Specified	The fire hazard properties of all floor materials, floor coverings, wall and ceiling lining materials must comply with Specification C1.10. The fire hazard properties of all other materials must comply with Specification C1.10.
C1.11	Performance of external walls in fire	Not Applicable	
C1.12	Non-combustible materials	Noted	Gypsum, metal and laminated non-combustible materials containing combustible components are deemed to be non-combustible.
C2.1	Application of Part	Applicable	Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand.
C2.2	General floor area limitations	Does not comply	The retail area is connected by an atrium and forms one fire compartment. This exceeds the maximum fire compartment limits for a Type A building and therefore is required to be treated as a large isolated building.
C2.3	Large isolated buildings	Does not comply	The building exceeds the maximum size of fire compartment permissible under table C2.2 and has a floor area more than 18,000m^2. As a result a sprinkler system in accordance with Specification E1.5 and vehicular access in accordance with Clause C2.4(b) are required to be provided.
C2.4	Requirements for open spaces and vehicular access	Does not comply	Vehicular access / open space is required to be provided from the public road for emergency vehicular access and is not to be used for the storage or processing of materials and must not be built upon except for guard houses and service structures as long as they do not unduly impede fire fighting. Vehicular access must have a loadbearing capacity and unobstructed height to permit the operation and passage of fire brigade vehicles. Vehicular access must have a minimum unobstructed width of 6m and must be capable of providing **continuous** access for emergency vehicles to enable travel in a **forward** direction from the public road around the entire building.
C2.5	Class 9a and 9c buildings	Not Applicable	
C2.6	Vertical separation of openings in external walls	Not Applicable	The building is provided with a sprinkler system in accordance with Specification E1.5.

Clause	Description	Status	Comments
C2.7	Separation by fire walls	Does not comply	The new pedestrian bridge and underground tunnel new West Keira site is required to be fire separated from the existing Wollongong Central Shopping Centre by 3 hour construction. A fire wall must extend through the connection point of the two centres. It is proposed to have a "non physical" method of fire separation. The following options are available: iii. A sliding fire door in accordance clause C3.6 of the BCA. Note the door can be concealed within a side wall cavity; or iv. A fire curtain concealed within the ceiling space. Note the curtain is a performance based measure and will need to be assessed by the Fire Engineer.
C2.8	Separation of classifications in the same storey	Not Applicable	
C2.9	Separation of classifications in different storeys	Does not comply	As different classifications are situated one above the other in adjoining storeys they must be separated in accordance with the DTS provisions of the BCA. The atrium and travelators within the retail levels link into the basement carpark and the Levels 1 and 2 carpark. It is proposed to fire separate the carpark from the retail area by drencher protect glazing. This measure will have to be addressed within the fire engineering report.
C2.10	Separation of lift shafts	Not Specified	Lifts must be separated from the remainder of the building as specified in Clause C2.10. An emergency lift must be contained in a shaft having an FRL of not less than 120/120/120 Openings for lift landing doors and services must be protected in accordance with the DTS provisions of Part C3 of the BCA
C2.11	Stairways and lifts in one shaft	Does not comply	A stairway and lift must not be in the same shaft. Further details to be provided on the CC plans.
C2.12	Separation of equipment	Not Specified	Equipment that comprises lift motors, lift control panels, central smoke control plant, boilers or batteries must be separated from the remainder of the building by construction with an FRL as required under Specification C1.1 but not less than 120/120/120.
C2.13	Electricity supply system	Not Specified	Electrical substations and main switchboards sustaining emergency equipment operating in the emergency mode must be separated from the remainder of the building by construction with an FRL not less than 120/120/120. All switchboards and electrical conductors are to comply with the requirements of Clause C2.13.
C2.14	Public corridors in Class 2 and 3 buildings	Not Applicable	
C3.1	Application of Part	Applicable	Concessions and definition of certain openings.

Clause	Description	Status	Comments
C3.2	Protection of openings in external walls	Does not comply	Openings within 3m of a side allotment boundary shall be protected by sprinklers, fire doors, fire windows etc, in accordance with Clause C3.4 of the BCA. The external wall of the pedestrian bridge enclosure is within 1.5m of the Wollongong Central building. The enclosure is required to have a FRL of 180/180/180 and any associated openings protected in accordance with Clause C3.4 of the BCA (refer to Clause C1.1). The boundary lines are also required to be shown on the CC plans.
C3.3	Separation of external walls and associated openings in different fire compartments	Not Applicable	
C3.4	Acceptable method of protection	Not Specified	Window openings that are required to be protected are to be protected by wall wetting sprinklers with windows that are automatic closing or permanently fixed in the closed position, -/60/- fire windows or -/60/60 automatic fire shutters. Doorways are to be protected by wall wetting sprinklers used with doors that are self closing or automatic closing, or -/60/30 self closing or automatic closing fire doors.
C3.5	Doorways in fire walls	Not Applicable	
C3.6	Sliding fire doors	Not Specified	Doorways fitted with a sliding fire door are to be held open by an electromagnetic device, de-activated and the warning system activated by smoke or heat detectors which are installed in accordance with AS/NZS 1905.1 and the relevant provisions of AS 1670.1 The automatic closure of the door must allow the door to be closed in not less than 20 seconds and not more than 30 seconds after release. An audible alarm together with a red flashing light of adequate intensity must be located near the doorway and activated by smoke or heat detectors which are installed in accordance with AS/NZS 1905.1 and the relevant provisions of AS 1670.1. The doorway is to have the sign "WARNING - SLIDING FIRE DOOR" in capital letters not less than 50mm high in a colour contrasting with the background on each side of the doorway.
C3.7	Protection of doorways in horizontal exits	Not Applicable	
C3.8	Openings in fire isolated exits	Not Specified	-/60/30 self-closing fire doors are required to doorways providing access to fire isolated stairways.
C3.9	Service penetrations in fire isolated exits	Not Specified	Service penetrations other than electrical wiring for essential service installations, pressurisation ducts with an FRL of -/120/60, or water pipes for fire services are not permissible.

Clause	Description	Status	Comments
C3.10	Openings in fire isolated lift shafts	Not Specified	Openings in lift shafts are to be protected by -/60/- fire doors complying with AS1735.11. Lift indicator panels are to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm2 (175 X 200 mm).
C3.11	Bounding construction: Class 2, 3, 4 and 9 buildings	Not Applicable	
C3.12	Openings in floors for services	Not Specified	Services passing through floors are to be placed within fire resisting shafts or fire sealed in accordance with Clause C3.15.
C3.13	Openings in shafts	Not Specified	In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by: • If it is a sanitary compartment - a door or panel which together with its frame, is non combustible or has an FRL of not less than -/30/30, or • A self closing -/60/30 fire door or hopper, or • An access panel with an FRL of not less than -/60/30, or • If the shaft is a garbage shaft - a door or hopper of non-combustible construction.
C3.14	-	-	No provisions
C3.15	Openings for service installation	Not Specified	Methods and materials used are to be identical to tested prototypes and in accordance with AS4072.1 and AS1530.4, and having achieved the required FRL or resistance to the incipient spread of fire or other specified method.
C3.16	Construction Joints	Not Specified	Construction joints are to be installed in accordance with a tested prototype in accordance with AS1530.4.
C3.17	Columns protected with lightweight construction	Not Specified	Columns must be protected in accordance with the identical tested prototype.

12.3. SECTION D – ACCESS AND EGRESS

Clause	Description	Status	Comments
D1.1	Application of Part	Applicable	Does not apply to the internal parts of a sole occupancy unit in a Class 2, 3 or 4 building.
D1.2	Number of exits required	Complies	Carpark and retail areas are provided with more than 2 exits.
D1.3	When fire isolated exits are required	Not Specified	All stairways serving as required exits are to be fire isolated.
D1.4	Exit travel distances	Does not comply	Excessive travel distances to and between alternative exits are shown on the plans. Areas which require additional review include: • Travel between alternative exits in the basement carpark (approx 105m). • 51m to a point of choice within the underground tunnel.
D1.5	Distance between alternative exits		

Clause	Description	Status	Comments
			• Fitout details to be provided for the Coles Tenancy. The allocation of isles will impact on the egress measurements. • 25m to a point of choice with the amenities block on the lower ground floor. • Up to 30m to a point of choice in the retail tenancies. • 40m to a point of choice within the pedestrian bridge (upper ground floor). • 25m to a point of choice from the common area behind the food tenancies. • 32m to point of choice from the southern end of the mall area on the upper ground floor. • Travel between alternative exits in the upper ground floor (approx 102m). • Travel between alternative exits in the Level 1 carpark (approx 110m). • Travel between alternative exits in the Level 2 carpark (approx 105m).
D1.6	Dimensions of exits	Does not comply	In a required exit or path of travel, the unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway must be reduced to not less than 1980mm. The unobstructed width of each exit or path of travel to an exit except a doorway must not be less than 1m. Aggregate egress must be in accordance with the requirements outlined in Section 11.3 of this report. Currently there is insufficient egress width provided from the retail levels of the building. The insufficient egress width shall be addressed in the fire engineering solution.
D1.7	Travel via fire-isolated exits	Does not comply	Access into fire isolated exits cannot be from an SOU, unless it occupies the entire storey. An alternative solution will have to be obtained from the fire engineer to address the fire exits shown in the major and mini major tenancies. Due to the atrium and number of doorways into the fire isolated exits all the fire isolated exits are to be provided with stair pressurisation in accordance with Table E2.2a and AS/NZ 1668.1-1998.
		Does not comply	The eastern fire isolated stairway discharges is within the centre which is not open for at least 2/3 of its perimeter. Also the path of travel from the exit necessitates passing within 6m of the external wall of the building. The wall is required to have an FRL of 60/60/60 and any openings protected in accordance with Clause C3.4. Alternatively a fire isolated passageway can be provided from the stair shaft and discharge to the Keira Street. We note that the entry and discharge of the fire exits is not clearly shown on the current plans. Further review and details are to be provided on the CC plans.
D1.8	External stairways in lieu of fire-isolated exits	Not Applicable	

Clause	Description	Status	Comments
D1.9	Travel by non-fire-isolated stairways or ramps	Not Applicable	
D1.10	Discharge from exits	Not Specified	Suitable barriers such as bollards are to be provided to prevent the blockage of exits by vehicles, etc.
D1.11	Horizontal exits	Not Applicable	
D1.12	Non-required stairs, ramps or escalators	Noted	Refer to interpretation in Section 7.2
D1.13	Number of persons accommodated	Noted	Refer to Section 11.3 of this report
D1.14	Measurement of distance	Noted	
D1.15	Method of measurement	Noted	
D1.16	Plant rooms and lift machine rooms: Concession	Not Applicable	
D1.17	Access to lift pits	Not Specified	Access to lift pits where the pit depth is not more than 3m must be through the lowest landing doors. Lift pits with a depth of more than 3m must have an access doorway that is level with the pit floor and not be less than 600mm wide by 1980mm high. Access to the doorway must be by a stairway complying with AS 1657. Doors must be horizontal sliding or outward opening and be self-closing and self-locking from the outside and be provided with signage on the landing side in letters not less than 35mm high stating: "**DANGER LIFTWELL- ENTRY OF UNAUTHORISED PERSON PROHIBITED – KEEP CLEAR AT ALL TIMES**"
D2.1	Application of Part	Applicable	
D2.2	Fire isolated stairs or ramps	Not Specified	Stairs or ramps within fire resisting shafts are to be constructed of non-combustible materials. The construction of the stairs is not to cause structural damage or impair the fire resistance of the shaft if there is local failure.
D2.3	Non-fire-isolated stairways and ramps	Not Applicable	
D2.4	Separation of rising and descending stair flights	Does not comply	Rising and descending fire isolated stairways must not be directly connected. Stair flights are to be separated by non combustible and smoke proof construction complying with Clause 2 of Specification C2.5.
D2.5	Open access ramps and balconies	Not Applicable	
D2.6	Smoke lobbies	Not Applicable	

Clause	Description	Status	Comments
D2.7	Installations in exits and paths of travel	Not Specified	Electrical boards and the like are to be located within and enclosed by non-combustible construction or have a fire-protective covering with the doorway suitably sealed against smoke spreading from the enclosure. Generally the services or equipment may be enclosed in non-combustible construction such as MDF with a solid core door. Electrical wiring may only be installed in a fire-isolated exit if the wiring is associated with: • a lighting, detection, or pressurisation system serving the exit, or • a security, surveillance or management system serving the exit, or • intercommunication system or audible or visual alarm system in accordance with Clause D2.2 or • the monitoring or hydrant or sprinkler isolation valves.
D2.8	Enclosure of space under stairs and ramps	Not Specified	If the space below a fire-isolated stairway is within the fire isolated shaft it must not be enclosed to form a cupboard or similar enclosed space.
D2.9	Width of stairways	Noted	Stairway width is to be measured clear of obstructions such as handrails, projecting parts of balustrades or other barriers and the like and extend to a height of not less than 2m. A stairway more than 2m in width is only counted as having a width of 2m unless it is divided by a continuous handrail or balustrade between landings and each division is less than 2m wide.
D2.10	Pedestrian ramps	Not Specified	Ramps serving as required exit must have a gradient not less steeper than 1:8. If the ramp is required for disabled access under Part D3 it must comply with AS1428.1. The surface of the ramp must have a non-slip finish.
D2.11	Fire-isolated passageways	Not Specified	Fire isolated passageways are to have an FRL equivalent to the fire resisting stair shaft as specified in Specification C1.1.
D2.12	Roof as open space	Not Applicable	
D2.13	Goings and risers	Not Specified	Stairs are to have risers measuring between 115-190mm and goings between 250-355. Goings and Risers are to satisfy the equation of 2R+G=700(max) and 550(min). Goings and risers are to be consistent throughout in one flight. Any gap between risers must not permit a 125mm sphere to pass through it. All treads to be fitted with non-slip finish or non-skid strips.
D2.14	Landings	Not Specified	Landings must comply with the requirements of Clause D2.14 of the BCA. Landings must be not less than 750mm long and have a non-slip finish throughout or an adequate non-skid strip near the edge of the landing where it leads to a flight below.

Clause	Description	Status	Comments
D2.15	Thresholds	Not Specified	A threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless the door opens to a road or open space and the doorsill is not more than 190mm above the finished surface of the ground to which the door opens.
D2.16	Balustrades	Not Specified	Balustrades complying with Deemed-to-Satisfy provisions of the BCA are to be provided to where the level of the surface below is 1m or more. Where the level of the surface below is 4m or more, a balustrade or other barrier must not facilitate climbing of horizontal elements between 150mm and 760mm above the floor. Any opening in the balustrade must not permit a 125mm sphere to pass through the balusters.
D2.17	Handrails	Not Specified	Handrails are to be provided to at least one side of stair flights and located not less than 865mm above the nosings of stair treads and the floor surfaces of landings. Handrails must be not more than 2m apart in the case of intermediate handrails. Note that under the requirements of Section D3 every stairway or ramp (except fire isolated stairs/ramps) are required to be provided with handrails complying with AS1428.1-2009.
D2.18	Fixed platforms walkways, stairways, and ladders	Not Specified	Fixed platforms, walkways, stairways, ladders, landings, handrails, balustrades and any tread or riser in a plant room, lift motor room or the like is to comply with AS1657.
D2.19	Doorways and doors	Not Specified	As the main entry doors leads to an open space it must automatically open if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. The power-operated sliding doors must be able to be opened manually under a force of not more than 110N if there is a malfunction or failure of the power source.
D2.20	Swinging doors	Not Specified	A swinging door in a required exit must swing in the direction of travel and not encroach at any part of its swing by more than 500mm on the required width of the landing.
D2.21	Operation of latch	Not Specified	The latch of a door in a required exit, forming part of a required exit or in the path of travel is to be readily openable without a key from the side of that faces a person seeking egress. It is to have a single downward action and to be located between 900mm and 1.20m from the floor unless it serves a sanitary compartment. This means lever handles are generally required.
D2.22	Re-entry fire-isolated exits	Not Specified	Doors of fire isolated exits must not be locked from the inside of a fire isolated exit, unless all doors are automatically unlocked by a failsafe device by activation of a fire alarm. Signage or an intercommunication system is to be additionally provided to the doors.

Clause	Description	Status	Comments
D2.23	Signs on doors	Not Specified	Signage on both sides is to be provided to fire and smoke doors alerting persons that the doors must not be impaired. Under Clause 183 of the Environmental Planning and Assessment Regulation 2000 a notice is to be displayed in a conspicuous location adjacent to a doorway providing access to but not within a fire isolated stairway, passageway or ramp. The words "OFFENCES RELATING TO FIRE EXITS" are to be provided in letters at least 8mm high and the remaining words are to be at least 2.5mm high. The notice is to state the following: **OFFENCES RELATING TO FIRE EXITS** It is an offence under the Environmental Planning and Assessment Act 1979: a) to place anything in or near this fire exit that may obstruct persons moving to and from the exit, or b) interfere with or obstruct the operation of any fire doors, or c) to remove, damage or otherwise interfere with this notice.
D3.1	General building access requirements	Applicable	Access is required to be provided to and within all areas normally used by occupants.
D3.2	Access to buildings	Not Specified	Access in accordance with AS1428.1-2009 must be provided from: 1. Main points of pedestrian entry at the allotment boundary; 2. From another pedestrian building connected by a pedestrian link; and 3. Accessible car parking spaces. In a building required to e accessible, an accessway must be provided through the principal pedestrian entrance, and: • Through 50 % of all pedestrian entrances; and • Within 50m of non accessible building entrances.
D3.3	Parts of buildings to be accessible	Not Specified	Access complying with AS1428.1-2009 is to be provided to the following areas: 1. Every ramp and stairway (except fire isolated exits); 2. Common areas used by occupants; 3. Every fire isolated stairway must have colour contrasting strips complying with clause 11.1 (f) and (g) of AS1428.1 4. The passenger lifts. Accessways must have turning spaces (1540mm x 2000mm) within 2m of the end of each accessway (i.e. public corridors and the like). Further details from AS 1428-2009 and recommendations are to be provided by a qualified access consultant.

Clause	Description	Status	Comments
D3.4	Exemptions	Noted	Access is not required to the following areas as they are considered to be inappropriate to the use: • Loading dock on ground floor; and • Plant and equipment rooms (or the like)
D3.5	Accessible Carparking	Not Specified	Carparking spaces for people with disabilities are required to be provided in accordance with Table D3.5. The number of spaces required is as follows: • Up to 1000 carparking spaces – 1 space per 50 spaces. • Over 1000 carparking spaces – 1 space per 100 spaces. Any spaces provided must comply with AS2890.6.
D3.6	Signage	Not Specified	Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access or deafness is to be provided to the pedestrian entrances, sanitary facilities and the passenger lifts within the building in accordance with AS1428.1.
D3.7	Hearing augmentation	Not Applicable	
D3.8	Tactile indicators	Not Specified	Tactile indicators are to be provided to the stairways and ramps (excluding fire isolated exits). The tactile mats are to be recessed 300mm from the top and bottom of the stair tread or ramp landing and be 600mm in depth and extend the full width of the stairway or ramp. Tactile indicators are to Type B indicators complying with AS1428.4
D3.9	Wheelchair seating spaces in class 9b assembly buildings	Not Applicable	
D3.10	Swimming pools	Not Applicable	
D3.11	Ramps	Not Specified	Any series of ramps must not have a combined rise of more than 3.6 m.
D3.12	Glazing on an accessway	Not Specified	Glazing on an accessway where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening must be clearly marked within a 75mm solid strip located 1m above the finished floor level.

12.4. SECTION E – SERVICES AND EQUIPMENT

Clause	Description	Status	Comments
E1.1	-	-	No provisions
E1.2	-	-	No provisions

Clause	Description	Status	Comments
E1.3	Fire Hydrants	Does not comply	Fire hydrants must conform to the pressure and flow requirements and distance limitations specified in AS 2419.1. **Pumproom** The pumproom located within the building must have: • A door opening to a road or open space; or • A door opening to fire-isolated passage; or • A stair which leads to a road or open space. Note the pumproom enclosure is not required to have an FRL as the building is sprinkler protected. **Hydrant Booster** The hydrant booster is to be located within sight of the main entry and enclosed by 90 minute construction. Currently there are provisions for services in the South West corner of the ground floor. It would be ideal to locate the hydrant booster on Crown Lane adjacent to the entrance doorway to the fire control room. The location of the fire hydrant booster shall be addressed by a fire engineering solution.
E1.4	Hose reels	Not Specified	Fire hose reels are to be installed internally within 4m of an exit or internally adjacent to a fire hydrant so that the fire hose reel will not need to pass through fire and smoke doors. Additional hose reels are permitted to be installed further then 4m from exit to achieve coverage. Fire hose reels are to be installed accordance with AS2441.
E1.5	Sprinklers	Not Specified	The building is to be provided with a sprinkler system throughout in accordance with Specification E1.5. A sprinkler valve enclosure must be located in a secure room or enclosure that has direct egress to road or open space.
E1.6	Portable fire extinguishers	Not Applicable	
E1.7	-	-	No provisions.

Clause	Description	Status	Comments
E1.8	Fire control centres	Not Specified	Due to the Stage 2 works a fire control room is to be provided in accordance with Specification E1.8. The following key items will have to be incorporated within the fire control room: (i). The ideal location is to provide it on Crown Lane, where it is accessed via its own fire isolated passageway. (ii). It must not be located with any services equipment or plant (i.e. hydrant or sprinkler pumps). (iii). Services, pipes, ducts or the like that are not directly required for the proper functioning of the room cannot pass through the room. (iv). The ambient sound level with the room must not exceed 65db. (v). The passage way and fire control room must be fire separated from the building by 2 hour construction (120/120/120). (vi). The room must contain a FIP, telephone, whiteboard and pin up board. (vii). The room must have a floor area of not less than 10m2 and length of any internal side be not less than 2.5m (viii). A 1.5m2 clear space is required in front of the FIP. (ix). The room must be either naturally ventilated or a pressurisation system in accordance with AS1668.1 that only serves the fire control room. (x). 50mm colour contrast signage stating **FIRE CONTROL ROOM** is required to be provided on the external face of the door to the fire control room.
		Does not comply	The following departures from Specification E1.8 are to be addressed in the fire engineering solution. (i). Fire control room cannot involve a change in floor level of more than 300mm; and (ii). The room must be accessible via 2 paths of travel (one from the main entry and the other from a public place or fire isolated passageway.
E1.9	Fire precautions during construction	Not Specified	During construction, not less than one fire extinguisher to suit Class A, B and C fires is required for each storey, and is required to be located adjacent to each exit. After the building has reached an effective height of 12m, hydrants and hose reels must be operational in at least every storey, except the 2 uppermost storeys, covered by the roof or the floor structure above and any required booster connections must be installed.
E1.10	Provisions for special hazards	Not Applicable	

Clause	Description	Status	Comments
E2.1	Application of Part	Applicable	Part is not applicable to · open deck car parks · open spectator stands · storerooms, etc less than 30m^2 · sanitary compartments · plantrooms or the like
E2.2	General requirements	Not Specified	The follow smoke hazard management measures are required to be incorporated into the building: • Fire isolated exits are to be provided with automatic stair pressurisation. • The building must be provided with an automatic smoke detection and alarm system complying with Specification E2.2a. • The building must be provided with a sprinkler system complying with Specification E1.5. • A zone smoke control system is to be provided and operate in accordance with AS/NZS 1668.1 (Stage 2 works only). • The building and tenancies over 1000m^2 must be provided with an automatic smoke exhaust system complying with Specification E2.2. • The carpark is to be provided with fans with metal blades suitable for operation at normal temperature and electrical power and control cabling need not be fire rated.
E2.3	Provisions for special hazards	Not Applicable	
E3.1	-	-	No provisions.
E3.2	Stretcher facility in lifts	Not Specified	The stretcher lift is to have the minimum dimension of 600mm wide x 2000mm long and 1400mm high above floor level.
E3.3	Warning against use of lifts in fire	Not Specified	A warning sign is to be displayed where it can be readily seen near every call button of the passenger lift. The warning sign is to comply with the details and dimensions set out in Figure E3.3 of the BCA.

Clause	Description	Status	Comments
E3.4	Emergency lifts	Not Specified	Due to the Stage 2 works emergency lifts are required to serve to building as it will have an effective height of >25m. The emergency lifts must: (i). Serve the retail, commercial and residential portions of the building. (ii). Be contained within a fire resisting shaft complying with the requirements of Clause C2.10 of the BCA. (iii). Comply with AS 1735.2 or Appendix A of AS1735.1 and have a rating of at least 600kg if the building has an effective height of greater than 75m. We note that a single emergency lift is not required to serve all floors of the building it is only required to serve the floors served by passenger lifts. In addition, were 2 or more passenger lifts are installed and serve the same storeys: (i). At least 2 emergency lifts must be provided to serve those storeys; and (ii). If located in different shafts at least one emergency lift must be provided in each shaft.
E3.5	Landings	Not Specified	Access and egress to and from the liftwell landings is to comply with the Deemed-to-Satisfy provisions of Section D of the BCA.
E3.6	Facilities for people with disabilities	Not Specified	The passenger lift is required to comply with the requirements of Table E3.6a, have features in accordance with Table E3.6b and not rely on constant pressure device for its operation.
E3.7	Fire Services Control	Not Specified	Passenger lift cars are to be provided with fire service controls in accordance with AS1735 Parts 1 or 2.
E3.8	Aged care buildings	Not Applicable	
E4.1	-	-	No provisions.

Clause	Description	Status	Comments

E4.2	Emergency light requirements	Not Specified	Emergency lighting is to be provided throughout the building in accordance with Clause E4.2 of the BCA.
			Emergency lighting is to be provided in :
			• every fire-isolated stairway, fire-isolated ramp or fire-isolated passageway.
			• Every passageway, hallway, corridor or the like, that is part of the path of travel to an exit.
			• In every room having a floor area more than 100m^2 that does not open to a corridor or space that has emergency lighting or to a road or open space.
			• In any room having a floor area more than 300m^2.
			• In every required non-fire isolated stairway
			• To every room or space that has public access in a Class 6 building if:
			  • the floor area is more than 300m^2;
			  • or if any point on the floor is more than 20m from the nearest doorway opening directly to the road or open space; or
			  • if the egress involves a vertical rise within the building of more than 1.5m.

E4.3	Measurement of distance	Noted	
E4.4	Design and operation of emergency light	Not Specified	Emergency lighting shall be provided throughout the building in accordance with the requirements of Clause E4.4 of the BCA and AS 2293.1.
E4.5	Exit signs	Not Specified	Exit signs are to be provided in accordance with Clause E4.5 of the BCA. Exit signs must be clearly visible to person approaching the exit and must be installed on, above or adjacent to; 1. A door providing direct egress from a storey to a stairway, passageway or ramp serving as a required exit. 2. A door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space. 3. A door serving as or forming part of a required exit in a storey required to be provided with emergency lighting.
E4.6	Direction signs	Not Specified	Where an exit is not readily apparent then exit signs with directional arrows must be installed in appropriate positions in corridors, hallways, lobbies and the like indicating the direction to a required exit in accordance with Clause E4.6 of the BCA.
E4.7	Class 2, 3 and 4 buildings: Exemptions	Not Applicable	
E4.8	Design and operation of exit signs	Not Specified	Exit signs are to operate in accordance with AS 2293.1 and be clearly visible at all times while the building is occupied.
E4.9	SSISEP	Not Specified	Sound systems and intercom systems for emergency purposes must be provided throughout the building in accordance with AS 1670.4 and AS 4428.4.

12.5. SECTION F – HEALTH AND AMENITY

Clause	Description	Status	Comments
F1.1	Stormwater drainage	Not Specified	Stormwater drainage design shall be in accordance with AS/NZS 3500.3
F1.2	-	-	No provisions
F1.3	-	-	No provisions
F1.4	-	-	No provisions
F1.5	Roof coverings	Not Specified	Roof coverings are to comply with the relevant Australian Standards as per Clause F1.5.
F1.6	Sarking	Not Specified	Sarking type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2.
F1.7	Waterproofing of wet areas	Not Specified	Shower enclosure surfaces, floor surfaces in bathrooms, shower rooms, slop hoppers, sink compartments, laundry and sanitary compartments is required to be waterproofed in accordance with AS 3740.
F1.8	-	-	No provisions
F1.9	Damp-proofing	Not Specified	Moisture from the ground must be prevented from reaching the lowest floor timber and the walls above the lowest floor joists, the walls above the dam proof course and the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders. Damp proof course must consist of a material that complies with AS/NZS 2904 or an impervious termite shield in accordance with AS 3660.1.
F1.10	Damp-proofing of floors on the ground	Not Specified	A vapour barrier in accordance with AS2870 is to be provided beneath the basement carpark floor slab.
F1.11	Provision of floor wastes	Not Applicable	
F1.12	Sub-floor ventilation	Not Applicable	
F1.13	Glazed assemblies	Not Specified	Windows, sliding doors with a frame, adjustable louvres, shopfronts and window walls with one piece framing in an external wall must comply with AS 2047 requirements for resistance to water penetration.
F2.1	Facilities in residential buildings	Not Applicable	
F2.2	Calculation of number of occupants and fixtures	Noted	
F2.3	Facilities in Class 3 to 9 buildings		Refer to Appendix E of this report.

Clause	Description	Status	Comments
F2.4	Facilities for people with disabilities	Not Specified	Accessible sanitary facilities (i.e. disabled and ambulant) are to be provided in accordance with Table F2.4(a). This includes facilities in the following areas: • 1 on every storey containing sanitary compartments; and • Where a storey has more than 1 bank of males and female facilities, at not less than 50% of those banks. Unisex disabled sanitary facilities and ambulant sanitary facilities are to be designed in accordance with AS1428.1-2009.
F2.5	Construction of sanitary compartments	Not Specified	Doors to the fully enclosed toilets are to open outwards, slide or be readily removable from the outside of the sanitary compartment.
F2.6	Interpretation: Urinals and washbasins	Noted	
F2.7	Warm water installations (NSW – deleted)	Not Applicable	Not Applicable in NSW
F2.8	Waste	Not Applicable	
F3.1	Height of rooms and other spaces	Not Specified	The minimum ceiling heights are as follows: • Retail areas – 2.4m • Corridors and passageways – 2.1m • Carpark – 2.1m in general car parking areas. Note the path of vehicular travel from the car park entrance to all parking spaces for people with disabilities and from those spaces to the car park exit shall have a minimum headroom of 2.2m and headroom above the accessible car space must not be less than 2.5m.
F4.1	Provision of natural light	Not Applicable	
F4.2	Methods and extent of natural light	Not Applicable	
F4.3	Natural light borrowed from adjoining room	Not Applicable	
F4.4	Artificial lighting	Not Specified	Lighting shall be provided throughout the building to comply with AS1680.0 in accordance with the requirements of Clause F4.4 of the BCA.
F4.5	Ventilation of rooms (NSW Reference to AS/NZS 3666.1 deleted for NSW)	Not Specified	Ventilation shall be provided throughout the building in by means of natural ventilation complying with Clause F4.6 or mechanical ventilation complying with the requirements of AS1668.2 as required by Clause F4.5 of the BCA.
F4.6	Natural ventilation	Not Applicable	
F4.7	Ventilation borrowed from adjoining room	Not Applicable	
F4.8	Restriction on position of water closets and urinals		

Clause	Description	Status	Comments
F4.9	Airlocks		
F4.10	-	-	No Provisions
F4.11	Carparks	Not Specified	The carpark is to be provided with ventilation complying with AS1668.2 or have an adequate system of permanent natural ventilation.
F4.12	Kitchen local exhaust	Not Specified	A commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2, where, • any cooking apparatus has a total maximum electrical power input exceeding 8kW, or • a total gas power input exceeding 29 MJ/h, or • the total maximum power input to more than one apparatus exceeds 0.5kW electrical power or 1.8 MJ gas per metre square of the room or enclosure.
F5.1	Application of part	Not Applicable	Applicable to Class 2, 3 and 9c buildings only.
F5.2	Determination of airborne sound insulation ratings	Not Applicable	
F5.3	Determination of impact sound insulation ratings	Not Applicable	
F5.4	Sound insulation rating for floors	Not Applicable	
F5.5	Sound insulation rating of walls	Not Applicable	
F5.6	Sound insulation rating of services	Not Applicable	
F5.7	Isolation of pumps	Not Applicable	

12.6. SECTION G – ANCILLARY PROVISIONS

Clause	Description	Status	Comments
G1.1	Swimming Pools (NSW – added subclause (c))	Not Applicable	
G1.2	Refrigerated chambers, strong-rooms and vaults	Not Specified	A refrigerator, cooling chamber, strong room or vault that is sufficient in size for a person to enter, must be provided with a door openable from the inside, internal lighting controlled internally, and indicator lamp positioned outside the chamber, and an alarm controllable from within the chamber.
G1.101	Provision for cleaning windows	Not Specified	A safe manner of cleaning windows is to be provided as windows are located 3 or more storeys above ground level. The windows must either be able to be cleaned wholly from within the building, or a method complying with the Construction Safety Act 1912 and Regulations is required.
G2.1	-	-	No provisions.

Clause	Description	Status	Comments
G2.2	Installation of appliances	Not Applicable	
G2.3	Open fireplaces	Not Applicable	
G2.4	Incinerator rooms	Not Applicable	
G3.1	Atriums affected by this Part	Applicable	3 storeys or more than 3 storeys if sprinkler protected.
G3.2	Dimensions of atrium well	Does not comply	The atrium well does not contain a width throughout the well with a horizontal diameter of not less than 6m. This is proposed to be performance justified in the fire engineering solution.
G3.3	Separation of atrium by bounding walls	Does not comply	The atrium is not proposed to be separated from the remainder of the building by bounding walls set back not more than 3.5m from the perimeter of the atrium well. This is proposed to be performance justified in the fire engineering solution.
G3.4	Construction of bounding walls	Does not comply	Bounding walls are not proposed to be constructed in accordance with the requirement Clause G3.4. This is proposed to be performance justified in the fire engineering solution.
G3.5	Construction of balconies	Does not comply	Balustrades to the atrium are not proposed imperforate and non-combustible. This is proposed to be performance justified in the fire engineering solution.
G3.6	Separation at roof	Does not comply	The roof of the atrium is not proposed to be fire rated in accordance with Table 3 of Specification C1.1 or the roof structure and membrane not protected by a sprinkler system in accordance with Specification E1.5. This is proposed to be performance justified in the fire engineering solution.
G3.7	Means of egress	Complies	All areas within the atrium/retail space are provided with access to 2 exits.
G3.8	Fire and smoke control systems	Does not comply	Sprinklers systems, smoke control, fire detection and alarm systems, and sound systems and intercom systems for emergency purposes are required to be installed in compliance with Specification G3.8. The requirements of Specification G3.8 in particular the requirements for: • Automatic sprinkler system; and • Smoke control system; and • Fire detection and alarm system; and • Sound system and intercom systems for emergency purposes; and • Standby power system; and • System for excluding smoke from fire-isolated exits This is proposed to be performance justified in the fire engineering solution.

Clause	Description	Status	Comments
Part G4	Construction in Alpine Areas	Not Applicable	
Part G5	Construction in Bushfire Prone Areas	Not Applicable	

12.7. SECTION H – SPECIAL USE BUILDINGS

Clause	Description	Status	Comments
Part H1	Theatres, Stages and Public Halls	Not Applicable	
NSW H101.1	Entertainment Venues	Not Applicable	
Part H2	Public Transport Buildings	Not Applicable	

12.8. SECTION J – ENERGY EFFICIENCY

Clause	Description	Status	Comments
NSW J(B)	**Energy Efficiency - Class 3 and Class 5 to 9 Buildings**	**Noted**	
NSW J(B)1	Compliance with BCA provisions	Not Applicable	Class 3 and Class 5 to 9 buildings must comply with all of the national provisions of Section J that are applicable to the relevant classifications, except as varied by NSW J1.6 for Class 3 buildings, NSW J3.1 and NSW J8.2 for Class 3 and Class 5 to 9 buildings.
J1.1	Application of Part	Applicable	Applies to building elements forming the envelope of a Class 3 and Class 5 to 9 building.
J1.2	Thermal construction general	Not Specified	Insulation must comply with AS/NZS 4859.1 and be installed in accordance with Clause J1.2. Insulation must abut or overlap adjoining insulation, form a continuous barrier with ceilings, walls, bulkheads, floors or the like and not affect the safe or effective operation of services.
J1.3	Roof and ceiling construction	Not Specified	A roof or ceiling that is part of the envelope must achieve the Total R-Value specified in Table J1.3 for the direction of heat flow. Typically the minimum total R-Value required for roofs or ceilings is 3.2. Further details are specified in Appendix F.
J1.4	Roof lights	Not Specified	Roof lights forming part of the envelope of a Class 5 to 9 building must comply with Table J1.4.
J1.5	Walls	Not Specified	Each part of an external wall that is part of the envelope must satisfy one of the options in Table J1.5a or Table J1.5b except as specified in Clause J1.5. Typically the minimum total R-Value required for external walls is 2.8. Further details are specified in Appendix F.
NSW J1.6	Floors	Not Specified	A floor that is part of a building envelope must achieve the Total R-Value specified in Table J1.6. Further details are specified in Appendix F
J2.1	Application of Part	Applicable	

Clause	Description	Status	Comments
J2.2	-	No provisions	-
J2.3	-	No provisions	-
J2.4	Glazing	Not Specified	The glazing in each storey of a building and facing each orientation must be assessed separately in accordance with Clause J2.4(b) and (c).
J2.5	Shading	Not Specified	Where shading is required to comply with Clause J2.4, it must; a) be provided by a permanent projection, such as a verandah, balcony, fixed canopy, eaves or shading hood which i. extends horizontally on both sides of the glazing for the same projection distance P in Figure J2.4 of the BCA, or ii. provides the equivalent shading to that above with a reveal or the like, or b) be provided an external shading device such as a blind, vertical or horizontal building screen with blades, battens or slats, which i. is capable of restricting at least 80% of summer solar radiation, and ii. if adjustable, is operated automatically in response to the level of solar radiation.
NSW J3.1	Application of Part	Applicable	Applies to elements forming the envelope of a Class 5 to 9 building other than as specified.
J3.2	Chimneys and flues	Not Applicable	
J3.3	Roof lights	Not Specified	A roof light must be sealed or be capable of being sealed when serving a conditioned space or a habitable room in climate zones 4, 5, 6, 7 and 8. Roof lights must be constructed in accordance with the requirements of Clause J3.3(b).

Clause	Description	Status	Comments
J3.4	Windows and doors	Not Specified	A seal to restrict air infiltration must be fitted to each edge of an external door, openable external window or the like when serving a conditioned space or in climate zones 4, 5, 6, 7 and 8. An entrance to a building, if leading to a conditioned space must have an air lock, self closing door (automatic door), revolving door or the like, other than: • where the unconditioned space has a floor areas of not more than 50m^2; or • where a cafe, restaurant, open front shop or the like has - o a 3m deep unconditional zone between the main entrance, including an open front, and the conditional space; and o at all other entrances to the cafe, restaurant, open front shop or the like, self-closing doors.
J3.5	Exhaust fans	Not Specified	A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space or a habitable room in climate zones 4, 5, 6, 7 and 8.
J3.6	Construction of roofs, walls and floors	Not Specified	Roofs, walls, floors and any opening must be constructed to minimise air leakage in accordance with Clause J3.6(b) when forming part of the external fabric of a conditioned space or a habitable room or a public area in climate zones 4, 5, 6, 7 and 8. These requirements do not apply to openings, grilles and the like required for smoke hazard management.
J3.7	Evaporative coolers	Not Specified	An evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space or a habitable room or a public area in climate zones 4, 5, 6, 7 and 8.
J4	-	-	No Provisions
J5.1	-	-	No Provisions
J5.2	Air conditioning and ventilating systems	Not Specified	An air-conditioning unit or system must comply with the requirements of Clause J5.2 and Specification J5.2
J5.3	Time switch	Not Specified	A time switch in accordance with Specification J6 must be provided to control: • an air-conditioning system of more than 10kWr, or • a ventilation system with an air flow rate or more than 1000L/s, or • a heating systems of more than 10kW$_{heating'}$
J5.4	Heating and chilling systems	Not Specified	Systems that provide heating or chilling for air-conditioning systems must comply with Clause J5.4 and Specification J5.4.

Clause	Description	Status	Comments
J5.5	Miscellaneous exhaust systems	Not Specified	A miscellaneous exhaust system with an air flow rate of more than 1000L/s that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory must have the means for the operator to reduce the energy used or stop the motor when the system is not needed. It must be designed to minimise exhausting of air conditioning.
J6.1	Application of Part	Applicable	
J6.2	Interior artificial lighting	Not Specified	In a Class 6 or 7 building the artificial lighting must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum power density in Table J6.2b.
J6.3	Interior artificial lighting and power control	Not Specified	The power control for artificial interior lighting must comply with the requirements of Clause J6.3.
J6.4	Interior decorative and display lighting	Not Specified	Interior decorative and display lighting, such as for foyer mural or art displays, must be controlled separately from other artificial lighting as specified in Clause J6.4. Window display lighting must be controlled separately from other display lighting.
J6.5	Artificial lighting around the perimeter of a building	Not Specified	Artificial lighting around the perimeter of a building must be controlled by a daylight sensor or time switch as specified in Clause J6.5.
J6.6	Boiling water and chilled water storage units	Not Specified	Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.
J7.1	-	-	No provisions
J7.2	Hot water supply	Not Specified	A hot water supply system for food preparation and sanitary purposes, other than a solar hot water supply system in climate zones 1, 2 and 3 must be designed and installed in accordance with Section 8 of AS/NZS 3500.4
J7.3	Swimming pool heating and pumping	Not Applicable	
J7.4	Spa pool heating and pumping	Not Applicable	
J8.1	Application of Part	Applicable	
NSW J8.2	Access for maintenance	Not Specified	Access to service must be provided to all services and their components.
J8.3	Facilities for energy monitoring	Not Specified	A building with a floor area of greater than 2500m2 must have the facility to record individually the consumption of: (i). Air conditioning plant (ii). Artificial lighting (iii). Appliance power (iv). Central hot water supply (v). Internal transport devices (vi). Other ancillary plant

13. APPENDIX C – REFERENCED DOCUMENTATION

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

Drawing No.	*Title*	*Issue*	*Date*	*Drawn By*
SK 11	Lower Ground Floor – Retail	M	-	Rice Daubney
SK 12	Ground Floor – Retail	K	-	Rice Daubney
SK 13	Upper Ground Floor – Retail	L	-	Rice Daubney
SK 14	Basement 01 – Carpark	K	-	Rice Daubney
SK 15	Level 01 – Carpark	K	-	Rice Daubney
SK 16	Level 02 – Carpark	K	-	Rice Daubney

14. APPENDIX D – CONSTRUCTION DETAILS

TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS				
Building element	**Class of building - FRL:** (in minutes) Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	5, 9 or 7a	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is-				
For loadbearing parts-				
less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/ 90/ 90	180/180/120	240/240/180
3 or more	90/60/30	120/ 60/ 30	180/120/90	240/180/ 90
For non-loadbearing parts-				
less than 1.5 m	-/90/90	- /120/120	- /180/180	- /240/240
1.5 to less than 3 m	-/60/60	- / 90/ 90	- /180/120	- /240/180
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is-				
less than 3 m	90/ - / -	120/ - / -	180/ - / -	240/ - / -
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
COMMON WALLS and FIRE WALLS	90/90/90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS-				
Fire-resisting lift and stair shafts-				
Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120
Non-loadbearing	- /90/90	- /120/120	- /120/120	- /120/120
Bounding public corridors, public lobbies and the like-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Between or bounding sole-occupancy units-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of Combustion-				
Loadbearing	90/90/90	120/ 90/ 90	180/120/120	240/120/120
Non-loadbearing	- /90/90	- / 90/ 90	- /120/120	- /120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS	90/ - / -	120/ - / -	180/ - / -	240/ - / -
FLOORS	90/90/90	120/120/120	180/180/180	240/240/240
ROOFS	90/60/30	120/ 60/ 30	180/60/30	240/ 90/ 60

15. APPENDIX E – REQUIREMENTS FOR SANITARY FACILITIES

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

Patron Calculation

Class	Area	Occupant Numbers			WC	Urinal	Basin
		Total			*Required*	*Required*	*Required*
6	Retail	4288	Male	2144	3	3	3
			Female	2144	4	N/A	3
			Unisex Disabled	-	2	N/A	2
			Ambulant	-	4 - located within the bank of sanitary compartments where unisex disable facilities are located	N/A	N/A

*Note only the retail population has been calculated (carparking areas are excluded).

*Population excludes staff occupants

Staff Calculation

Class	Area	Occupant Numbers			WC	Urinal	Basin
		Total			*Required*	*Required*	*Required*
6	Retail Tenancies	226	Male	113	6	4	4
			Female	113	8	N/A	4
			Unisex Disabled	-	Refer to Patron Calculation		
			Ambulant	-	Refer to Patron Calculation		

*Staff to patron ratio – Speciality Retail: 5% of total occupants

16. APPENDIX F – ENERGY EFFICIENCY R-VALUES

ROOFS AND CEILINGS - MINIMUM TOTAL R-VALUE *(Table J1.3)*

Climate zone	1	2		3	4	5	6	7	8
		Below 300 m altitude	At or above 300 m altitude						
(b) Class 5, 6, 7, 8, 9a or 9b building									
Minimum Total R-Value for a roof or ceiling generally		3.2						3.2	4.3
Direction of heat flow		Downwards						Upwards	

Note: Altitude means the height of the highest part of the roof above the Australian Height Datum

OPTIONS FOR EACH PART OF AN EXTERNAL WALL OF A CLASS 5, 6, 7, 8, 9a AND 9b BUILDING *(Table J1.5b)*

Climate zone	Options		
1, 3, 4 and 6	(a)		Achieve a minimum Total R-Value of 1.8.
	(b)	(i)	Achieve a surface density of not less than 220 kg/m^2; and
		(ii)	incorporate a cavity of 20 mm to 35 mm; and
		(iii)	shade the external wall of the storey with a verandah, balcony, eaves, overhang, covered carpark, carport or the like which projects at a minimum angle of 15 degrees in accordance with Figure J1.5; and
		(iv)	incorporate insulation with an R-Value of not less than 1.0.
	(c)	(i)	Achieve a surface density of not less than 220 kg/m^2 with masonry that has a thermal conductivity of less than 0.8; and
		(ii)	incorporate a cavity of 20 mm to 35 mm; and
		(iii)	incorporate insulation with an R-Value of not less than 1.0.
	(d)	(i)	Achieve a surface density of not less than 220 kg/m^2 with masonry that has a thermal conductivity of less than 0.8; and
		(ii)	shade the external wall of the storey with a verandah, balcony, eaves, overhang, covered carpark, carport or the like which projects at a minimum angle of 30 degrees in accordance with Figure J1.5; and
		(iii)	incorporate insulation with an R-Value of not less than 0.5.
	(e)		For an external wall where the only space for insulation is provided by a furring channel—
		(i)	achieve a minimum Total R-Value of 1.4; and
		(ii)	satisfy glazing energy index option B of Table J2.4a.
2 and 5	(a)		Achieve a minimum Total R-Value of 2.8. Note there are permitted reduction to the R-Value if compliance with sub section (ii) is achieved
7	(a)		Achieve a minimum Total R-Value of 1.8.
	(b)	(i)	Achieve a surface density of not less than 220 kg/m^2; and
		(ii)	incorporate a cavity of 20 mm to 35 mm; and
		(iii)	shade the external wall of the storey with a verandah, balcony, eaves, overhang, covered carpark, carport or the like which projects at a minimum angle of 15 degrees in accordance with Figure J1.5; and
		(iv)	incorporate insulation with an R-Value of not less than 1.0.

OPTIONS FOR EACH PART OF AN EXTERNAL WALL OF A CLASS 5, 6, 7, 8, 9a AND 9b BUILDING *(Table J1.5b)*

	(c)	(i)	Achieve a surface density of not less than 220 kg/m^2 with masonry that has a thermal conductivity of less than 0.8; and
		(ii)	incorporate a cavity of 20 mm to 35 mm; and
		(iii)	incorporate insulation with an R-Value of not less than 1.0.
	(d)		For an external wall where the only space for insulation is provided by a furring channel—
		(i)	achieve a minimum Total R-Value of 1.4; and
		(ii)	satisfy glazing energy index option B of Table J2.4a.
8			Achieve a minimum Total R-Value of 2.8.

SUSPENDED FLOOR WITH AN UNENCLOSED PERIMETER - MINIMUM TOTAL R-VALUE *(Table J1.6)*

Class of building	**Climate zone**								
	1	2		3	4	5	6	7	8
		Below 300 m altitude	At or above 300 m altitude						
2, 3, 4 and 9c aged care building	Nil	Nil	Nil	Nil	Nil	Nil	1.0	1.0	2.5
5, 6, 7, 8, 9a and 9b	1.5	Nil	Nil	1.5	1.5	Nil	1.5		2.5
Direction of heat flow	Upwards		Downwards and upwards		Downwards				

Note: Altitude means the height, above the Australian Height Datum, of the location where the building is to be constructed.

17. APPENDIX G – STATUTORY FIRE SAFETY MEASURES

Schedule of Statutory Fire Safety Measures

Measure	Standard of Performance
Access panels, doors and hoppers to fire resisting shafts	BCA2011 Clause C3.13 and tested prototypes (AS 1530.4 – 2005)
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2011 Clause D2.21.
Automatic fire detection and alarm system *(smoke detection system to operate zone smoke control or stair pressurisation system)*	BCA2011 Clause 5 of Specification E2.2a and AS/NZS 1668.1 – 1998
Automatic fire detection and alarm system *(smoke detection system to automatically shutdown air-handling system or smoke detection system to activate smoke exhaust system or smoke and heat vents)*	BCA2011 Clause 5 and 7 of Specification E2.2a and AS/NZS 1668.1 – 1998 *(System monitoring in accordance with AS1670.3-2004)*
Automatic fire suppression systems *(Sprinklers)*	BCA2011 Specification E1.5 and AS 2118.1 – 1999
Emergency lifts	BCA2011 Clause E3.4 and AS 1735.2 – 2001 or Appendix A of AS 1735.1 – 2003
Emergency lighting	BCA2011 Clause E4.2, E4.4 and AS 2293.1 – 2005
Emergency warning and intercommunication system	BCA2011 Clause E4.9, Specification G3.8 and AS 1670.4 – 2004 and AS 4428.4 – 2004
Exit signs	BCA2011 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire control room	BCA2011 Specification E1.8
Fire dampers	BCA2011 Clause C3.15 and AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Fire doors	BCA2011 Specification C3.4 and AS 1905.1 – 2005
Fire hydrants systems	BCA2011 Clause E1.3 and AS 2419.1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2011 Clause C3.15, Specification C3.15 and AS 1530.4 – 2005 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Hose reel system	BCA2011 Clause E1.4 and AS 2441 – 2005
Lightweight construction	BCA2011 Specifications C1.8, Clause A2.3 and AS 1530.4-2005
Mechanical air handling system *(air-handling system design to operate as a smoke control system)*	BCA2011 Clause E2.2 and AS/NZ 1668.1-1998
Mechanical air handling system *(automatic air pressurisation system)*	BCA2011 Table E2.2a and AS/NZ 1668.1-1998

Measure	Standard of Performance
Mechanical air handling system *(zone smoke control system)*	BCA2011 Table E2.2a and AS/NZ 1668.1-1998
Mechanical air handling system *(carpark mechanical ventilation system)*	BCA2011 Table E2.2a and Clause 5.5 of AS/NZ 1668.1-1998 and fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated
Mechanical air handling system *(automatic smoke exhaust system)*	BCA2011 Specification E2.2b
Perimeter vehicle access for emergency vehicles	BCA2011 Clause C2.4
Smoke detectors and heat detectors *(detectors for the de-activation of electromagnetic device for sliding fire doors)*	BCA2011 Clause C3.6 and AS 1670.1 – 2004
Stand-by power systems	BCA2011 Clause 6 of Specification G3.8
Wall wetting sprinkler and drencher systems	BCA2011 Clause C3.4, Specification G3.8 and AS 2118
Warning and operational signs	BCA2011 Clauses C3.6, D1.17, D2.23, E1.4, E3.3 and Specifications E1.8 and G3.8

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