REF: 066697-03BCA

BUILDING CODE OF AUSTRALIA REPORT

Building R7
Cnr Lime Street & Shelley Street, Barangaroo South

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Date	Rev No	No. of pages	Issue or Description of Amendment	Checked By	Approved By	Date Approved
10.07.14	A	18	Draft for Project Application	Brigitte Thearle	-	24.07.14
29.08.2014	B	18	Revised based on comments received	Brigitte Thearle	Geoff Pearce	29.08.2014

Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by Durbach Block Jaggersfor compliance with the Building Code of Australia 2014.

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA. The submission for Construction certificate will need to include verification from a suitably accredited fire engineer: -

DTS Clause	Description of Non-Compliance	Performance Requirement
C1.1, Spec C1.1	Reduction of FRL's throughout the building to an FRL of 120 minutes in lieu of 180 minutes	CP1, CP2
D1.3, D1.7	The second required stair serving the building does not comply with the requirements of a fire isolated stair as it is not separated from the remainder of the building by a shaft achieving an FRL of 120 minutes	DP4, DP5, EP2.2
D1.4	The following areas exceed the maximum allowable travel distance: ▪ Ground floor: 25m to a single exit in lieu of 20m ▪ Level 1: 24m to a single exit in lieu of 20m ▪ Level 2: 24m to a point of choice in lieu of 20m ▪ Level 4 Courtyard Out of Hours: Up to 27m in lieu of 20m	DP4
D1.6	Level 4 is provided with 2.5m of aggregate egress width in lieu of the 3m required to accommodate 270 people	DP4, DP6
D1.7	Access doors to fire isolated exits on levels 2 and 4 are from sole occupancy units that do not occupy the whole storey.	DP4
D1.7	The fire isolated stairs that serve the basement building do not have a fire isolated passage independent of the R7 fire isolated stair	DP4, DP5 Addressed in basement FER
E1.3	The fire hydrant booster assembly is proposed to be located on Shelley Street which is not within sight of the main entry of the building or at the main vehicular entrance to the site.	EP1.3
E1.3	The fire hydrants located in the fire stairs are proposed to be on the mid-landings in lieu of being located on the level that they serve.	EP1.3

Due to the overall strategy for the site, and the building being considered as connected to the other buildings on site, the alternate solution will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

Further to the above matters relating to fire safety, the following matters have been identified through design development as requiring an alternative solutions from the access consultant:-

DTS Clause	Description of Non-Compliance	Performance Requirement
DP1	Secondary entrances to all levels of the building are available through a wrap around stair going the whole way up the building. The bottom of this stair is 50-55m from the main entry door which is the principal entrance and complies with the accessible provisions. The wrap around stair will comply with the requirements relating to stairs, but there is no lift or ramp access at this point. Under the DTS provisions, the distance between accessible entrance and the alternate entrance is measured door to door, which means for the roof the distance is approximately 80m away from the accessible entrance including the full length of the stair. In addition, as the stair provides an entrance to four levels, it is considered as four entrances with one accessible entrance provided, resulting in 20% of entrances being accessible in lieu of 50%.	D3.2
E3.6	The low rise platform lift proposed to connect ground floor retail, intermediate floor retail and first floor retail is proposed to travel more than 1m	EP3.4

The documentation will need further detailing such as door hardware, specifications, service design, as outlined in Appendix D of this report.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

Assessed By

Brigitte Thearle

1.0 Introduction

The proposed development comprises of a five storey retail and commercial building.

The site is bounded by Shelley Street,

1.1 Current Legislation

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Certifying authority for the Construction Certificate.

2.0 Building Assessment Data

Summary of Construction Determination: -

	Building R7
Classification	5, 6
Number of Storeys Contained	5
Rise In Storeys	5
Type of Construction	A
Effective Height (m)	>12m

* Retail Building R7 and the proposed basement are considered one building under the deemed to satisfy provisions of the BCA. It is proposed to assess R7 as a separate building to the basement. This has been verified under the basement fire engineering report SY110163 R1.2 prepared by Defire, dated 7 February 2014. This strategy has previously been reviewed and accepted by Fire & Rescue NSW and has been adopted across Barangaroo South Stage 1A. This report has been prepared on the basis of the building being a separate building with an effective height of less than 12m.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population
Ground Floor Retail and/or Recreation and Public Amenities	6	373m^2	200
Level 1 (Mezzanine) Retail and/or Recreation	6	196m^2	82
Level 2 Commercial and Retail and/or recreation	5/6	542m^2	30
Level 2 Retail and/or recreation and/or bar/restaurant	6	Incl in above	133
Level 3 Retail and/or recreation	6/9b	527m^2	134

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population
and/or bar/restaurant			
Level 4 Recreation or bar/restaurant	6/9b	289m^2	270
Total		**1,927m²**	**849**

Notes:
1. The above populations and uses have been based on the use and population advice provided by Lend Lease on the 1st of July 2014.
2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.
3. The Carpark areas have been considered ancillary to the use for the purposes of population numbers

3.0 Structural Provisions

Any new structural works are to comply with the applicable requirements of AS/NZS 1170.1.

Glazing is to comply with AS1288, and AS2047.

Prior to the issue of the Construction Certificate structural certification is required to be provided.

4.0 Fire Resistance

The buildings should be constructed generally in accordance with Table 3 of Specification C1.1 of the Building Code of Australia 2014. The building is required to be Type A Construction.

The building has been assessed on the basis of the following fire separation/ compartmentation within the development;

- Separation between the basement and the remainder of the building by 120 minutes,
- Levels ground, mezzanine and 1 being considered as one fire compartment,
- All other levels being separate fire compartments, with floors achieving an FRL of 120/120/120
- Levels 3 and 4 may be connected in future by a non-required non-fire isolated stair

Fire resistance levels for building structural members are as follows:
- Retail Portions 180 minutes
- Commercial portion 120 minutes
- Gym portion 120 minutes

An alternate solution is proposed to reduce the FRL requirements of the retail portions to 120 minutes in lieu of 180 minutes. This is to be assessed as part of the fire engineering report to BCA Performance Requirement CP1 and CP2.

4.1 Protection of Openings

The prescriptive provisions of the BCA stipulate that openings within building elements required to have an FRL shall be protected as follows:

1. Any external opening within 3m of the fire source feature protected by -/60/- fire rated construction, or externally located wall wetting sprinklers, or an alternate solution be provided to verify CP2 of the BCA.
2. Penetrations through fire rated floors to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a fire rated shaft achieving an FRL of 120 minutes;
3. Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, apartment separating wall etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a shaft achieving an FRL of 120 minutes (or 120/120/120 where it is a room such as a substation);
4. Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).

Note that where fire dampers, fire collars, etc are utilised, allowance needs to be made for access hatches to be provided within the walls / ceilings to ensure that maintenance access is provided.

"Fire source feature is defined as;
(a) The far boundary of a road, river, lake or the like adjoining an allotment,
(b) The side or rear boundary of the allotment,
(c) The external wall of another building on the allotment which is not a class 10 building."

4.2 Vertical Separation of openings in external walls:

As the building is proposed to be sprinkler protected, spandrel separation is not required.

4.4 Passive Fire Protection

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Lift motor rooms,
- Emergency power supply,
- Emergency generators,
- Electricity supply,
- Boilers or batteries,
- Hydrant Pump rooms,
- Sprinkler Pump Rooms.

To be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

4.4 Fire Hazard Properties

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to specification C1.10 Building Code of Australia.

5.0 Egress

The egress provisions from the proposed building are provided by:

- Fire isolated stairways

- External perimeter doorways

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Details of Separation of rising & descending stairs
- Discharge from the Fire Isolated Exits
- Details of the egress provisions to the Road.

5.1 Exit Travel Distances

The locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits and egress widths would need to be assessed under a performance based solution.

The travel distances to exits should not exceed:

Class 5, 6, 9b
- 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- exits shall be located to not be more than 60m apart and not closer than 9m

The following areas exceed the maximum allowable travel distance:
- Ground floor: 25m to a single exit in lieu of 20m
- Level 1: 24m to a single exit in lieu of 20m
- Level 2: 24m to a point of choice in lieu of 20m
- Level 4 Courtyard Out of Hours: Up to 27m in lieu of 20m

These distances are to be assessed as part of the alternate solution to BCA Performance Requirement DP4.

5.2 Dimensions of Exits

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657 in which case a 600mm clear width is required).

The following table summarises the exit widths required:

Floor Level	Exit Width Provided	Number of people (as provided)	Exit Width required
Retail (Food & Beverage)	TBA	200	2m
Retail (Food & Beverage)	2.75m	82	1m
Office & Retail (Food & Beverage)	2.75m	163	1.75m
Gym or Health Spa	2.75m	134	1.5m
Retail (Food & Beverage)	2.5m	270	3m

The exit widths indicated above are based on the internal fire stair having a clear width of 1.25m to outside, and the external stair having a clear width of 1.5m up to level 3, and a clear width of 1.25m to the roof/level 4.

The shortfall in aggregate egress width of 0.5m to the roof/level 4 is to be assessed as part of the alternate solution to BCA Performance Requirement DP4 and DP6.

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e minimum 870 mm doors).

5.3 Fire Isolated Exits

The external stair wrapping around the north and west of the building are not proposed to be fire isolated or comply with the requirements for an external stair in lieu of fire isolated exit. The use of this stair for egress is to be assessed on a performance basis to BCA Performance Requirements DP4 and DP5.

Access doors to fire isolated exits on levels 2 and 4 are proposed to be from sole occupancy units that do not occupy the whole storey. The deemed to satisfy requirements outline that entry to a fire isolated stair shall only be afforded from the following:

- a public corridor, public lobby or the like; or
- a sole-occupancy unit occupying all of a storey; or
- a sanitary compartment, airlock or the like.

The access to fire stairs on levels 2 and 4 is to be assessed as part of the alternate solution to BCA Performance Requirement DP4.

Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway to:

- A road or open space; or
- To a point within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or
- Into a covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter, has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m and provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m.

Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have an FRL of not less than 60/60/60 and any openings protected internally in accordance with C3.4, for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

The fire isolated stairs that serve the basement building do not have a fire isolated passage independent of the R7 fire isolated stair. Under the deemed to satisfy provisions, due to these stairs being considered as separate exits, they are required to discharge via their own fire isolated

passageway to road open space. This is to be assessed as part of the alternate solution to BCA Performance Requirement DP5.

5.4 Balustrading and Handrail

Balustrading to a height of 1000mm with a maximum opening of 125mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm.

Where it is possible to fall more than 4m to the finished floor below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing.

Any windows with a sill height of less than 865mm with a fall of more than, 4m for all other cases, openings are to be restricted or a protective barrier that does not allow a 125mm sphere to pass through.

Handrails should generally be provided at a minimum height of 865mm alongside of all ramps and stairs.

The main public stairs and ramps should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp. Handrails are therefore required to both sides of external stair at edge of the flight (not on other side of planting/seating). Where this is not proposed, it is to be discussed with the access consultant as to the feasibility of an alternate solution.

5.5 Access for Persons with a Disability

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA 2014. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details are to be provided or access to these areas is to be assessed by an access consultant.

Where the main public entrance is via a ramp, tactile indicators shall be provided in accordance with AS 1428.4 at the top and bottom. Parking shall be provided for people with disabilities in accordance with in accordance with Clause D3.5 of the BCA. Facilities services and features of the building accessible to people with disabilities shall be identified by signage complying with Clause D3.6 of the BCA.

General

Access to be provided to and within the building pursuant to AS1428.1-2009 as follows:

- Via the principle public entry and at least 50% of all other entrances.
- From designated car parking spaces for the use of occupants with a disability.
- From another accessible building connected by a pedestrian link.
- All areas used by the public.

Note that entrances that are not accessible are to be located within 50m of an entrance that is accessible.

Secondary entrances to all levels of the building are available through the external wrap around stair going the whole way up the building. The bottom of this stair is 50-55m from the main entry door which is the principal entrance and is to comply with the accessibility provisions.

The wrap around stair will comply with the requirements relating to stairs, but there is no lift or ramp access at this point.

Under the DTS provisions, the distance between accessible entrance and the alternate entrance is measured door to door, which means for the roof the distance is approximately 80m away from the accessible entrance including the full length of the stair. In addition, as the stair provides an entrance to four levels, it is considered as four entrances with one accessible entrance provided, resulting in 20% of entrances being accessible in lieu of 50%.

For the main entry, a ramp is proposed just inside the building. The following amendments are to be made to ensure compliance is achieved:

- The bottom landing is to be 1,500 x 1,500mm (currently 1,700mm x 1,100mm).
- Compliant handrails will need to be provided to both sides of this stairs. This will include a 300mm handrail extension and a termination (into the wall, to the floor or 180 degree turn down) compliant with figure 15a of AS 1428.1-2009. This will need to be resolved on the street side at the bottom and the lift side at the top of the ramp.
- The entry door is proposed to be an automatic door. The function of this door is to be confirmed, and any button provided to operate the door is to be 500mm from the corner.

A platform lift is proposed to be provided between the ground, intermediate and level 1 retail. The landing provided at level 1 outside this platform lift is to have minimum clear dimensions of 1,500 x 1,500mm.

6.0 Fire Services & Equipment

The following fire services will need to be provided throughout the building:

- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005,
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444-2001,
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA and AS/NZS 2293.1-2005.

An automatic sprinkler system is not required by the deemed to satisfy provisions, however is proposed to be provided. The system is to comply with the relevant provision of clause E1.5 of the BCA and AS 2118.1-1999.

A fire control centre is not required, however fire services will need to be co-ordinated.

6.1 Fire Hydrants

A system of Fire Hydrants is required to be provided to BCA Clause E1.3 and AS 2419.1-2005. We will reply upon design certificate from a Hydraulic Consultant.

A booster assembly will be required as part of the fire hydrant requirements. The booster is required to be located attached to the building at the main entry or at the main vehicle entry or with

sight of the main entry of the building within 20m of a hardstand area. The booster is currently proposed to be located on Shelley Street and is not within sight of the main entrance. This is to be assessed as part of the alternate solution to BCA Performance Requirement EP1.3.

Fire hydrants are to be provided within fire isolated stairs/within 4.0m of required exits and are reqiored to be on the level that they serve. Current drawings indicate that the hydrants are provided on the mid-landings of the stairs. This is to be assessed as part of the alternate solution to BCA Performance Requirement EP1.3

6.2 Fire Hose Reels

A Fire Hose Reel System is required to BCA Clause E1.4 and AS2441.

To be located within 4m of exits and provide coverage within the building based on a 36m hose length.

Please note that fire hose reel coverage cannot pass through fire or smoke doors.

6.3 Automatic Sprinkler Protection

An Automatic Fire Suppression System is not required, however is proposed to be provided to Specification E1.5 and AS2118.1-1999.

Location of pumps, tanks, FIP, control valves and booster are to be advised.

An occupant warning system that is triggered upon activation of the sprinkler system should be provided in accordance with BCA Specification E1.5.

7.0 Ventilation and Smoke Hazard Management

Smoke hazard management shall be provided throughout the building by means of the following systems:

- Automatic Shutdown of Mechanical Systems in accordance with the requirements of AS/NZS 1668.1-1998;

- Automatic Smoke Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2004.

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

Throughout the development the provision of natural or mechanical ventilation is required to all habitable rooms in accordance with F4.5 Building Code of Australia and AS 1668 and AS/NZS 3666.1.

8.0 Lift Services

The passenger lifts to be installed are to be: -

- fitted with warning signs, fire service controls in accordance with Clauses E3.3, E3.7, E3.9 and E3.10 of the BCA.

- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high.

- Be provided with the following: -
  - A handrail in accordance with AS 1735.12,
  - Minimum internal floor dimensions as specified in Table E3.6b of the BCA i.e. 1,400mm x 1,600mm,
  - Minimum clear door opening complying with AS 1735.12,
  - Passenger protection system complying with AS 1735.12,
  - Have a set of buttons for operating the lift located at heights above level complying with AS 1735.12,
  - Lighting in accordance with AS 1735.12,
  - Automatic audible information within the lift car to identify the level each time the car stops,
  - Audible and visual indication at each lift landing to indicate the arrival of the lift car.

A low rise platform lift is proposed to connect the ground floor retail, intermediate floor retail and first floor retail. This lift is proposed to have a vertical rise exceeding the 1m permitted by the deemed to satisfy provisions. This is to be assessed as an alternate solution to BCA Performance Requirement EP3.4.

Furthermore, a 180 degree turn is required within the lift to enable occupants to enter and exit the lift in a forward direction. As a result, the lift is to minimum clear dimensions of 1,500 x 1,500.

9.0 Sanitary Facilities

The sanitary & other facilities within the development would generally consist of: -

Class	Occupant Number	Pop	Required			
			WC	Urinals	Basins	Showers
6 Retail (F&B)	Male	141	2	3	2	NA
	Female	141	4	NA	2	NA
	Unisex Facility		1	NA	1	NA
5 Office	Male	15	1	1	1	NA
	Female	15	1	NA	1	NA
	Unisex Facility		1	NA	1	NA
5 Retail (F&B)	Male	67	1	2	2	NA
	Female	67	3	NA	2	NA
	Unisex Facility		1	NA	1	NA

9b Gym	Male	67	4	7	7	7
	Female	67	7	NA	7	7
	Unisex Facility		1	NA	1	1
6 (F&B)	Male	135	2	3	2	NA
	Female	135	4	NA	2	NA
	Unisex Facility		1	NA	1	NA
TOTAL – Male			**10**	**16**	**14**	**7**
TOTAL - Female			**19**	**NA**	**14**	**7**

Staff numbers to be advised to enable calculation of required sanitary facilities.

Please note the Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009. An accessible sanitary facility is required to be provided to every floor where sanitary facilities are provided, at the bank of facilities. Where there is more than one bank of sanitary facilities on a floor, an accessible facility compliant with AS 1428.1-2009 is to be provided to at least 50% of the banks on that floor.

In addition, at each bank of facilities containing an accessible facility, an ambulant facility for each sex compliant with AS 1428.1-2009 is also to be provided.

Where detailed fitout is pending analysis will be undertaken once tenants and indicative layouts/tenant numbers are known. No allowance has been made for corridors etc that would be provided.

10.0 Energy Efficiency

The proposed development shall comply with Part J of the BCA. To achieve compliance, there are two options available:

1. The building can comply with the deemed-to-satisfy provisions of the BCA, relating to the following areas:

    - Building Fabric
    - Glazing
    - Building Sealing
    - Air Conditioning & Ventilation Systems
    - Artificial Lighting & Power
    - Hot Water Supply

2. The building can be verified against a reference building as per Verification Method JV3. This requires that the proposed building and its services be shown to have an annual energy consumption of equal or less than the reference building which has been modelled as per the requirements of Part J of the BCA.

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved.

Access for maintenance is to be provided to the building in accordance with the requirements of BCA Part J8.

The proposed site will be located in a climate zone 5.

10.8 Access for Maintenance

Access if to be provided to all plant, equipment and components associated with the provision of the above energy requirements i.e.

- Adjustable or monitored shading devices
- Time switches and motion detectors
- Room temperature thermostats
- Plant thermostats such as boilers or refrigeration units
- Motorised air dampers and central valves
- Reflectors, Lenses and Diffusers of light fittings
- Heat transfer equipment

11.0 Conclusion

In conclusion we note that the building is capable of achieving of achieving compliance with the provision of the Building Code of Australia 2014.

Appendix A - Design Documentation

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

Title	Date	Drawn By	Revision
BR7_DDS-A001	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A002	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A003	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A004	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A005	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A006	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A007	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A008	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A009	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A010	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A011	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A012	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A013	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A014	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A015	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A016	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A017	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A018	Jul 2014	Durbach Block Jaggers	B
BR7_DDS- A019	Jul 2014	Durbach Block Jaggers	B

Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
2.	Automatic Fire Detection and Alarm System	BCA Spec. E2.2a & AS 1670 – 2004
3.	Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 1999,
4.	Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & AS 1670 – 2004
5.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005
6.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2005
7.	Fire Dampers	BCA Clause C3.15, AS 1668.1 – 1998 & AS 1682.1 & 2 – 1990
8.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS 1905.1 – 2005
9.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
10.	Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005 Alternate solution prepare by the fire safety engineer
11.	Fire Seals	BCA Clause C3.15 & AS 1530.4 – 1997
12.	Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999
13.	Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 1998 & AS 1668.2 – 1991
14.	Paths of Travel	EP&A Reg 2000 Clause 186 Alternate solution prepare by the fire safety engineer
15.	Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
16.	Required Exit Doors (power operated)	BCA Clause D2.19(d)
17.	Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2005, BCA Clause C3.6, D2.23, E3.3

Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2014:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	**Class of building — FRL: (in minutes)**			
	Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	**5, 7a or 9**	**6**	**7b or 8**
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, 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