BUILDING CODE OF AUSTRALIA REPORT

Stockland Glendale, Lake Road, Glendale NSW

065523-05BCA

Table of Contents

Executive Summary 3
1.0 Introduction 4
2.0 Building Assessment Data 4
3.0 Structural Provisions 5
4.0 Fire Resistance 5
5.0 Egress 6
6.0 Fire Services & Equipment 7
7.0 Ventilation and Smoke Hazard Management 8
7.0 Sanitary Facilities 8
8.0 Energy Efficiency 8
Appendix A - Design Documentation 10
Appendix B - Fire Resistance Levels 11

Date	Revision Number	No. of pages	Issue	Assessed By	Approved By	Date Approved
7.11.13	03	14	Draft	Andrew Maxon		7.11.13
12.03.14	04	14	Draft	Andrew Maxon		7.11.13

Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by Stockland Architects (refer Appendix A) for compliance with the Building Code of Australia 2013.

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
D1.4	Extended travel distances to an exit,	DP4 & EP2.2
D1.5	Extended travel distances between alternative exits	DP4 & EP2.2
Part E	Performance based assessment for existing essential services	EP1.3,EP1.4, EP2.2 & EP3.2
E1.3 & E1.4	Shortfall in Fire Hydrant and Fire Hose Reel coverage	EP1.1 & EP1.3
Section J	Existing and/or proposed building elements not meeting DtS energy efficiency requirements	JP1, JP2 & JP3

The fire engineered solution relating to (EP1.3, EP1.4 & EP2.2) will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

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

Andrew Maxon

1.0 Introduction

The proposed development is a large shopping centre complex with multiple buildings and associated car-parking.

The site is located at Stockland Glendale, Lake Road, Glendale NSW.

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.

1.2 Consent Authority may require the Building to be Upgraded

The local authority when assessing the development application may require that the existing building be brought into partial on full compliance with the current provisions at the BCA. The trigger for upgrade includes:

- Where the building works, together with any other works completed or authorised within the previous 3 years, represents more than half the total volume of the building; or
- Council are not satisfied the measures contained in the building are not adequate for the safety of present using the building or prevention of special to adjacent buildings.

2.0 Building Assessment Data

Summary of Construction Determination: -

	Proposed Building
Classification	6
Number of Storeys Contained	1
Rise in Storeys	1
Type of Construction	C
Effective Height (m)	N/A

Summary of the floor areas: -

Part of Project	BCA Classification	Use	Approx. Floor Area (m^2)
Ground Floor	6	Retail	53,021*

*Notes:
1. Combined GLAR, areas of tenancies are provided on drawings.

3.0 Structural Provisions

All new structural works are to comply with the applicable requirements of AS/NZS1170.1

The structural resistance of materials and forms of construction must be determined in accordance with its respective Australian Standard referenced Clause B1.4.

Prior to the issue of the Construction Certificate structural certification is required to ensure compliance is achieved with the provisions of the BCA for both existing and proposed elements.

4.0 Fire Resistance

The new works should be constructed in accordance with Table 5 of Specification C1.1 of the Building Code of Australia 2013. The building is required to be Type C Construction.

Confirmation of existing fire separation / compartmentation within the development is to be provided for assessment.

Fire resistance levels for building structural members are as follows:

- Retail 90 minutes

As the building exceeds the area / volume limitations of the BCA provisions of 2,000m2 and 12,000m3, the building is then considered a large isolated building and the following provisions will apply:

- Automatic sprinkler protection to AS2118.1 and BCA specifications E1.5 throughout the development,
- Perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter,
- Smoke exhaust to the supermarket in accordance with BCA Spec E2.2b

The perimeter vehicular access provided to the site appears to be generally compliant with the requirements nominated under BCA Clause C2.4. However further details are required to be provided to ensure the below items are complied with. Where compliance has not been achieved, a Fire Engineered Alternate Solution will be required to address BCA Performance Requirement CP9:

- Vehicular access around a building must be continuos
- Vehicular access must be a minimum of 6m wide and located no further than 18m from the building perimeter

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

- Lift motor rooms,
- Electricity supply,
- Boilers
- 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.

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

Egress will be provided external perimeter doorways.

Detailing issues that will need to be addressed include:

- Door hardware
- Fire-rating of doors
- Exit door operation
- Handrail and balustrade construction

5.1 Exit Travel Distances

The locations of are to be confirmed, however based upon a visual onsite inspection it is anticipated that some areas may experience travel distances in excess of the BCA prescribed distances. It is recommended that the design as a minimum should ensure all areas are provided with a minimum of two (2) exits and the travel distance to the point of choice should not exceed 20m.

Prescribed BCA travel distances are as follows:

- 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

It is anticipated the following travel distances will apply:

60m to an Exit within the larger retail tenancies
90m between alternative Exits within the larger retail tenancies

50m to an Exit within small/medium sized tenacies.
70m between alternative within small/medium sized tenacies

5.2 Aggregate Exit Widths

Based upon confirmed exit widths the maximum population numbers for individual areas can be confirmed. Where the required exit width cannot be achieved, the reduced exit width will be required to be addressed with a Fire Engineered Alterative Solution.

5.3 Fire Isolated Exits

Each fire-isolated such as “passageways” 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.

5.4 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 Part D3 of the BCA. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009. Further details are to be assessed by an accredited access consultant.

6.0 Fire Services & Equipment

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

- An Automatic Sprinkler System in accordance with the relevant provision of clause E1.5 of the BCA and AS 2118.1-1999
- Automatic Smoke Exhaust System in accordance with Specification E2.2b & AS 1668.1-1998
- 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
- Fire Control room in accordance with Clause & Specification E1.8 of the BCA.
- Fire Hose Reels in accordance with clause E1.4 of the BCA and AS 2441.1-2005
- Fire Hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444.1-2001,

All existing measures will be required to be verified for their time of installation and compliance with the relevant Australian Standard at that time of installation. All new works will be required to comply with present standards and where compliance cannot be achieved a performance based assessment will be required.

6.1 Fire Hydrants

A Fire Hydrants system is required to be provided in accordance with BCA Clause E1.3 and AS 2419.1-2005.

A booster assembly may be required as part of the fire hydrant requirements. If required, the booster is to be located near the main building entry.

6.2 Fire Hose Reels

A Fire Hose Reel System is required to be provided in accordance with BCA Clause E1.4 and AS2441.-2005.

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

6.3 Automatic Sprinkler Protection

An Automatic Fire Suppression System is required to be provided in accordance with Specification E1.5 and AS2118.1-1999.

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

An occupant warning system that is triggered upon activation of the sprinkler system is required to 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 Smoke Exhaust System in accordance with the requirements of AS/NZS 1668.1-1998

7.0 Sanitary Facilities

The sanitary facilities for the office/staff areas will generally be required at the rate of 1 WC per 20 males and 1 WC per 15 females. Urinals will be required to the male facilities at the rate of 2 for the first 50 occupants and one per 50 occupants after that. Basins will be required for each sex at the rate of 1 per 30 occupants.

The sanitary facilities for the retail areas will generally be required at the rate of 1 WC per 1200 males and 2 WCs for the first 600 females and 1 per 1200 after that. Urinals will be required to the male facilities at the rate of 1 for the first 600 occupants and one per 1200 occupants after that. Basins will be required for each sex at the rate of 1 per 1200 occupants.

Please note both ambulant and access facilities are to be provided. Unisex accessible facilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2001.

8.0 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.

9.0 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

Appendix A - Design Documentation

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

Drawing No.	Title	Date	Revision
DA3002-A	Ground Floor Plan	15.04.14	A
SK0002-A	Existing Ground Floor Plan	10.05.13	A

Appendix B - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2013:

Table 3 TYPE C 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—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	–/–/–	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
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 1.5 m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3 m	–/–/–	60/–/–	60/–/–	60/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS-				
Bounding *public corridors*, public lobbies and the like—	60 / 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—	60/ 60/ 60	–/–/–	–/–/–	–/–/–
Bounding a stair if *required* to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–