Appendix 20

Building Code of Australia Report

MBC MODERN BUILDING CERTIFIERS

Building Code of Australia Report

Warehouse Development
31 Frank Street, Wethrill Park

Prepared for: Resoucre Co | Issue date: 27 January 2016

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Date	Revision Number	No. of pages	Issue or Description of Amendment	Prepared By	Date Approved
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Executive Summary

We have reviewed architectural design documents prepared by Bell Architecture (refer appendix A) for compliance with the NCC - Building Code of Australia 2016.

This report nominates relevant BCA prescriptive ('deemed to satisfy') provisions together with areas in which an alternate performance based solution will need to be developed to comply with the performance requirements of the BCA.

The fire safety engineered solution must be referred to the NSW Fire Brigade as part of the Construction Certificate process. Initial consultation with the fire brigade will be required during the development of the FEB at design development/construction certificate stage.

Items for consideration by Relevant Authorities and Fire Safety Engineer

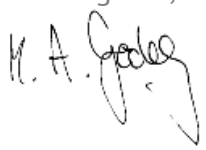
DTS Clause	Description of Non-Compliance	Performance Requirement
D1.4	The travel distance to required exits will exceed the minimum standards of the BCA. This includes: • Travel distance to point of choice exceeds 20m (i.e. measured up to 30m from manufacturing handling areas); • Travel distance to required exits exceed 40.0m (i.e. measured up to 60m)	DP4
E1.3 & AS 2419.1-2005	The booster assembly will be situated along the driveway greater than 10m of the external wall of the building. The location of the booster assembly will not strictly comply with AS 2419.1-2005 as will not be situated along the street frontage. The location of the booster assembly will include fire engineering approach in consultation with Fire and Rescue NSW.	EP1.3

The information contained within this report is a preliminary assessment of the architectural drawings being submitted with the development application.

The documentation will need further detailing such as architectural design specifications, service design, etc as outlined within this report. These matters will be suitable assessed at the Construction Certificate stage.

We trust that the above submission is of assistance and should you wish to discuss any aspect of this advice, please do not hesitate to contact me.

Best regards,



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1.0 Introduction

The proposed development comprises a large warehouse building that will be used as a Manufacturing Facility plus a separate two (2) storey building that will be used as workshop and services with associated offices.

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. For the purposes of this assessment, BCA 2015 has been used as the benchmark for assessment being the version of the BCA applicable at the time of preparation of this report.

2.0 Building Assessment Data

Summary of Construction Determination: -

	Building 1 (Manufacturing Facility)	Building 2 (Workshop/Services/ Offices)
Classification	8	5 & 7b
Number of Storeys Contained	2	2
Rise In Storeys	2	2
Type of Construction	C - large isolated building	C
Effective Height (m)	< 25.0m	< 25.0m

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

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population
Manufacturing Facility	8	8000	TBC
Workshop/Services/Offices	5 & 7b	900	TBC
Total		8,900m^2	

Notes:

1. The calculated populations can be based in accordance with Table D1.1.3 of the BCA or by the building owners providing details of expected staff numbers.
2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.

3.0 Structural Provisions

Any new structural works are to comply with the applicable requirements of AS/NZS 1170.1. Please note that with the adoption of BCA2015, AS1170.2-2011 is applicable to the development.

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 5 of Specification C1.1 of the Building Code of Australia 2015. The building is required to be Type C Construction.

The warehouse building (Manufacturing facility) has a floor area and volume that exceeds the limitation under Clause C2.2, the building is considered a large isolated building and the following provisions will apply:

- Automatic sprinkler protection to AS2118.1 and BCA specifications E1.5 throughout the building,
- Perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter,
- the smaller 2 storey building must comply with the abovementioned provisions of the BCA.

Based upon the current design the location of buildings are capable of complying with the abovementioned requirements of the BCA.

4.1 Passive Fire Protection

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

- 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.

4.2 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:

- External perimeter doorways
- Required non-fire isolated stairways

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction

The abovementioned details will be assessed at the construction certificate stage to ensure compliance is achieved with the BCA.

5.1 Exit Travel Distances

The travel distances to exits and between alternative exits must not exceed:

Class 5-9

- 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 travel distance to required exits will exceed the minimum standards of the BCA. This includes:

- Travel distance to point of choice exceeds 20m (i.e. measured up to 30m from manufacturing handling areas);
- Travel distance to required exits exceed 40.0m (i.e. measured up to 60m)

The extended travel distance will be address by an alternative solution from a fire engineer at the construction certificate stage.

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 total aggregate exit width within the building caters for the occupant density from portions of the building. Entry doors to fire-isolated passageway/stairways must swing in the direction of egress.

Doorways are permitted to contain a clear opening width of 750mm 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 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 BCA 2015. 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.

A hearing augmentation-listening system shall be installed throughout the building in accordance with the requirements of Clause D3.7 of the BCA.

Design Considerations:

Based upon the nature of the uses in manufacturing facility, workshop and services area an exemption under Clause D3.4 will be acceptable based upon advice from an access consultant that exemption is acceptable based upon:

- area where access would be inappropriate because of the particular purpose for which the area is used.
- an area that would pose a health or safety risk for people with disabilities.

The abovementioned exemption will be address at the construction certificate stage.

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,
- 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

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry of each building. 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.

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.

Booster Assembly:
A booster assembly if remote from the building, the booster shall be –

(i) At the boundary of the site and be within sight of the main entrance of the building;
(ii) Adjacent to the principal vehicular access to the site;
(iii) Located not less than 10m from the external wall of the building.

The booster assembly will be situated along the driveway greater than 10m of the external wall of the building. The location of the booster assembly will not strictly comply with (i) above.

The location of the booster assembly will include fire engineering approach in consultation with Fire and Rescue NSW.

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 required to serve the buildings to Clause E1.5, Specification E1.5 and AS21181.

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

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 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 the main entrance foyer of the building.. 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 AS 1735.2
- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high where the vertical height is greater than 12.0m.
- Be provided with the following: -

  A handrail in accordance with AS 1735.12
  Minimum internal floor dimensions as specified in AS 1735.12,
  Fitted with a series of door opening sensory devices which will detect a 75mm diameter or across the door opening between 50mm and 1550mm above floor

level,
Have a set of buttons for operating the lift located at heights above level complying with AS 1735.12.

Each passage lift must be accessible for people with disabilities in accordance with E3.6 and AS 1735.12.

9.0 Sanitary Facilities

The sanitary & other facilities being provided for each building based upon calculated number of occupants. Once number of staff have been confirmed. Can provide further advice.

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 AS1428.1-2001.

10.0 Light and Ventilation

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.

11.0 Energy Efficiency

The proposed office space 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.

Appendix A – Design Documentation

The following documentation prepared by Bell Architecture was used in the assessment and preparation of this report: -

Drawing No.	Title
SK0001	Cover Sheet
SK1101	Site Plan
SK1102	Site Plan – Part 1
SK1103	Site Plan – Part 2
SK2201	Office/Manufacturing Amenities – Ground Floor Plan
SK2211	Area Plan Sheet 2/2
SK 2401	Roof Plan Part 1
SK2402	Roof Plan Part 2
SK3101	Elevations – Office/Workshop
SK – 2202	Manufacturing Equipment Layout

Appendix B – Draft Fire Safety Schedule

	Essential Fire Safety Measure	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	Emergency Evacuation Plan	AS 3745 – 2002
7	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2005
8	Fire Control Centres	BCA Spec. E1.8
9	Fire Blankets	AS 2444 – 2001
10	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
11	Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005
12	Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999
13	Mechanical Air Handling System	BCA Clause E2.2, Part G3 and AS/NZS 1668.1 – 1998
14	Paths of Travel	EP&A Reg 2000 Clause 186
15	Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
16	Perimeter Fire Brigade Access	BCA Clause C2.4
17	Smoke Hazard Management System	BCA Part E2, Part G3 & AS/NZS 1668.1 – 1998

Note: The proposed new building will be subject to a fire engineering assessment. The fire schedule will be amended prior to the issue of the construction certificate to incorporate addition fire safety measures required by the fire engineering assessment.