



## **BUILDING CODE OF AUSTRALIA REPORT**

**Proposed Kmart Facility  
Stage 3 Eastern Creek**

Dated: **June 2010**

Prepared for: **Australand Holdings Limited**

Prepared by: **McKenzie Group Consulting (NSW) Pty Ltd  
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BCA ASSESSMENT REPORT  
Proposed Kmart Facility  
Eastern Creek Stage 3

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Date	Rev No	No. of Pages	Issue or Description of Amendment	Checked By	Approved By	Date Approved
21.05.10	A	9	Initial Assessment	Geoff Pearce	Stephen Natilli	



# BCA ASSESSMENT REPORT

## Proposed Kmart Facility

### Eastern Creek Stage 3

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#### **Executive Summary**

As Accredited Certifiers, we have reviewed architectural design documents prepared by Australand Holdings (refer appendix A) for compliance with the Building Code of Australia 2010.

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: -

1. Egress Travel Distances and Distances between Alternate Exits (DP4),
2. Smoke hazard Management (EP2.2)
3. Fire Hydrant protection (EP1.3).

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

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

Stephen Natilli



# BCA ASSESSMENT REPORT

## Proposed Kmart Facility

### Eastern Creek Stage 3

#### 1.0 Introduction

The proposed development comprises a Kmart Distribution facility comprising warehousing and associated office and on grade parking. The site is located on the south-western corner of the Eastern Creek Industrial Park Stage 3.

#### 2.0 Building Assessment Data

Summary of Construction Determination: -

Part of Project	
Classification	5, 7b
Number of Storeys Contained	2
Rise In Storeys	2
Type of Construction	C
Effective Height (m)	<12m

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

Part of Project	BCA Classification	Approx. Floor Area (m <sup>2</sup> )	Approximate Volume (m <sup>3</sup> )	Assumed Population
Distribution Centre	7b	48850	488500	
Office	5	1140	3420	
Despatch Office	5	285	855	
Receiving Office	5	285	855	
Gatehouse	5	25	75	
Pump room		50	150	
Fire Control Centre		25	75	
<b>Total</b>		<b>50660</b>	<b>493930</b>	<b>250</b>

Notes:

1. \*The above populations have been based on the client questionnaire with allowance for growth.
2. The Carpark areas have been considered ancillary to the use for the purposes of population numbers

#### 3.0 Fire Resistance

The buildings should be constructed generally in accordance with Type C Construction as outlined in specification C1.1 of the Building Code of Australia 2010.

The building has been assessed against the relevant provisions of a "Large Isolated Building" in accordance with Clause C2.3 of the BCA. Therefore the following elements shall be applicable:

- Automatic Sprinkler protection throughout as required by AS 2118.1
- Emergency Vehicular access (CP9)
- Hydrants system to AS 2419.1-2005 incorporating a ring main
- Smoke hazard management to be assessed against (EP2.2) of the BCA as part of the fire engineering Report



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

- 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 & C1.10a Building Code of Australia.

#### 4.0 Egress

The egress provisions from the proposed building are provided by external perimeter doorways. Due to the size and nature of the facility the locations of the proposed exits within the warehouse area shall exceed the prescriptive provisions of the BCA with regard to travel distances & distances between alternative exits. Therefore an alternate solution to verify DP4 of the BCA shall be provided as part of the Construction Certificate Process.

Allowance has been made in this assessment for a maximum of 130 metres to an exit and up to 200 metres in between alternate exits. The point of choice shall be required to not exceed 20 metres within the facility.

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Details of the egress provisions to the Road.

#### 4.1 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. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2001.

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 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.

A review of the design confirms that the building has addressed the major DDA issues and details shall be provided through the Construction Certificate phase.

#### 5.0 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
- Smoke hazard management to be provided in accordance with the fire engineering report verifying EP2.2 of the BCA.



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#### 6.0 Ventilation

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.

#### 7.0 Sanitary Facilities

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

Class	Occupant Number			WC	Urinal	Basin
5 (offices)	150	Male	75	4	3	4
		Female	75	6	N/A	6
		Unisex Accessible		1	N/A	1
	Sub-Total Required			8	3	8
7b (Warehouses)	100	Male	50	3	2	3
		Female	50	4	N/A	3
	Sub-Total Required			7	2	6
Total Required				15	5	14
Total Provided				24	9	21

The above calculation have been based on a 50/50 split of male and female as this is a more conservative assessment . 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.

#### 8.0. Energy Efficiency

The proposed development shall be provided within **conditioned spaces** with building sealing and services in accordance with NSW Part J of the BCA 2010. Details of the method of compliance shall be required as part of the Construction Certificate process.

#### 9.0. Conclusion

The assessment has confirmed that the proposed building is capable of satisfying the relevant provisions of the BCA.



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**Appendix A- Design Documentation**

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

<b>Drawing No.</b>	<b>Title</b>	<b>Date</b>	<b>Drawn By</b>
KM-EC3-AFL-0000-A	Title Sheet	25.02.10	Australand Holdings
KM-EC3-AFL-0001-A	Location Plan	25.02.10	Australand Holdings
KM-EC3-AFL-0002-A	Site Plan	25.02.10	Australand Holdings
KM-EC3-AFL-0003-A	Site Analysis Plan	25.02.10	Australand Holdings
KM-EC3-AFL-0100-A	Distribution Centre Plan	25.02.10	Australand Holdings
KM-EC3-AFL-0101-A	Main Office Plans	25.02.10	Australand Holdings
KM-EC3-AFL-0111-A	Despatch, receiving & Gate House Plans	25.02.10	Australand Holdings
KM-EC3-AFL-0200-A	Distribution Centre Elevations	25.02.10	Australand Holdings
KM-EC3-AFL-0201-A	Main Office, gate House & Turnstile Shelter Elevations	25.02.10	Australand Holdings
KM-EC3-AFL-0210-A	Sections	25.02.10	Australand Holdings
KM-EC3-AFL-0500-A	Colour Elevations	25.02.10	Australand Holdings
KM-EC3-AFL-0600-A	Office Perspective	25.02.10	Australand Holdings
KM-EC3-AFL-0601-A	Distribution Centre and Aerial Perspective	25.02.10	Australand Holdings



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**Appendix B- Draft Fire Safety Schedule**

<b>Items to be inspected or tested as nominated by the relevant authority</b>		<b>Deemed to satisfy installation standard/code/conditions of approval</b>
1.	Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 1999,
2.	Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & AS 1670 – 2004
3.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 1998
4.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 1998
5.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
6.	Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005
7.	Paths of Travel	EP&A Reg 2000 Clause 186
8.	Perimeter Vehicular Access	BCA Clause C2.4
9.	Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
10.	Smoke Hazard Management	EP2.2
11.	Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 1997, BCA Clause C3.6, D2.23.

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## Appendix C- Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2009:

Table 5 TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS Building element	Class of building—FRL: (in minutes)			
	<u>Structural adequacy/Integrity/Insulation</u>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
<b>EXTERNAL WALL</b> (including any column and other building element incorporated therein) or other external building element, where the distance from any <u>fire-source feature</u> 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	- / - / -	- / - / -	- / - / -	- / - / -
<b>EXTERNAL COLUMN</b> not incorporated in an <u>external wall</u> , where the distance from any <u>fire-source feature</u> 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	- / - / -	- / - / -	- / - / -	- / - / -
<b>COMMON WALLS and FIRE WALLS—</b>				
	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
<b>INTERNAL WALLS-</b>				
Bounding <u>public corridors</u> , public lobbies and the like—	60 / 60/ 60	- / - / -	- / - / -	- / - / -
Between or bounding <u>sole-occupancy units</u> —	60/ 60/ 60	- / - / -	- / - / -	- / - / -
Bounding a stair if <u>required</u> to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
<b>ROOFS</b>	- / - / -	- / - / -	- / - / -	- / - / -

