BLACKETT MAGUIRE+ GOLDSMITH

BCA Assessment Report

M7 CCA Preform Injection Moulding Plant
9 Roussell Road, Eastern Creek

Goodman Property Services

12 November 2010

Address
Suite 2.01,
22-36 Mountain St
Ultimo NSW 2007

Contact
Ph: 02 9211 7777
Fax: 02 9211 7774

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REPORT STATUS				
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12.11.10	1	BCA Assessment Report issued to client	JS	DG
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Prepared by:

Jason Storer
Senior Building Surveyor
Blackett Maguire and Goldsmith

Prepared by:

Dean Goldsmith
Director
Blackett Maguire and Goldsmith

A. INTRODUCTION

A.1 BACKGROUND

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by Goodman, to undertake a preliminary review of the proposed development, against the deemed-to-satisfy (DTS) provisions of the Building Code of Australia 2010 (BCA) pursuant to the provisions of clause 145 of the *Environmental Planning & Assessment Regulation 2000* and clause 18 of the *Building Professionals Regulation 2007*.

The proposed development comprises the construction of a new industrial facility that is to be used for the manufacture, storage and distribution of perform moulds for Coca-Cola products. The proposed building is located on the site of the existing Coca Cola Warehouse facility and comprises a 11,500m² warehouse/manufacturing with ancillary two storey office, and ancillary hardstand area modifications.

It is noted that the facility is to be developed in two stages, with Stage 1 including the new production/manufacturing area, ancillary two storey office, Regrind Area, Technical Room and the northern half of the warehouse/storage area; whilst Stage 2 includes the southern half extension of the warehouse area (approx. 1,800m²) and adjacent loading dock awning extension.

A.2 AIM

The aim of this report is to:

- Undertake an assessment of the proposed building against the deemed-to-satisfy provisions of the BCA.
- Identify any BCA compliance/fire safety issues that require attention/action for at the Construction Certificate Application stage.

A.3 PROJECT TEAM

The following BM+G Team Members have contributed to this Report:

- Assessment/Report Preparation – Jason Storer
- Quality Assurance - Dean Goldsmith

A.4 DOCUMENTATION

The following documentation has been reviewed, referenced and/or relied upon in the preparation of this report:

- Building Code of Australia 2010 (BCA)
- Guide to the Building Code of Australia.
- Information/documentation provided by the Client
- Architectural plans prepared by MNIA Architects numbered DA01/B, DA02/B, DA03/C, DA04/C, DA05/C, DA06/B, DA07/C DA08/C DA09/C and DA10/C dated 3 November 2010.

A.5 LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

- The following assessment is based upon a review of the architectural plans for the proposed building only – no site inspection or review of other consultant's drawings have been carried out at this stage.
- No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA). The building owner should be satisfied that their obligations under the DDA have been addressed.

Please note that whilst the BCA specifies a minimum standard of compliance with AS1428.1 and Part D3 of the BCA for access and facilities for people with disabilities, compliance with such requirements may not necessarily preclude the possibility of a future complaint made under the Disability Discrimination Act 1992 (DDA). The DDA is a complaint based legislation and is presently not identified by the State Building Codes and Regulations. In this regard the building owner should be satisfied that their obligations under the DDA have been addressed.

- The Report does not address matters in relation to the following:
  i. Local Government Act and Regulations.
  ii. Occupational Health and Safety Act and Regulations.
  iii. WorkCover Authority requirements.
  iv. Water, drainage, gas, telecommunications and electricity supply authority requirements.
  v. Disability Discrimination Act 1992.
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A.6 TERMINOLOGY

Building Code of Australia - Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in NSW under the provisions of the Environmental Planning & Assessment Act & Regulation.

Construction Certificate – Building Approval issued by the Certifying Authority pursuant to Part 4A of the Environmental Planning & Assessment regulation 1979.

Fire Resistance Level (FRL) - means the grading periods in minutes for the following criteria -

(a) structural adequacy; and
(b) integrity; and
(c) insulation,
and expressed in that order.

Fire Source Feature (FSF) - the far boundary of a road adjoining the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

Open space - means a space on the allotment, or a roof or other part of the building suitably protected from fire, open to the sky and connected directly with a public road.

Performance Requirements of the BCA - A Building Solution will comply with the BCA if it satisfies the Performance Requirements. A Performance requirement states the level of performance that a Building Solution must meet.

Compliance with the Performance Requirements can only be achieved by-

(a) complying with the Deemed-to-Satisfy Provisions; or
(b) formulating an Alternative Solution which-
  (i) complies with the Performance Requirements; or
  (ii) is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or
(c) a combination of (a) and (b).

B. ASSESSMENT

The following is a summary of relevant areas of BCA Compliance that would need to be addressed to prior to the submission of the Construction Certificate Application.

In summary, the key building characteristics have been identified as follows:

BCA Classification:	Class 5 – Offices Class 7b - Warehouse
Rise in Storeys:	One (1) – See below C1.2
Type of Construction:	Type C – Large Isolated Building
Effective Height:	Less than 12m
Floor Area/Volume:	Approx. 11,515m^2 & 115,550m^3
Minimum Fire Service Required: *Note: Refer to section E below*	Fire Hydrants Fire Hose Reels Sprinklers Portable Fire Extinguishers Smoke Exhaust Emergency Lighting Exit Signage

BCA Section C – Fire Resistance

1. BCA cl. C1.10: Early Fire Hazard Properties: Floor, wall and ceiling linings are required to comply with the requirements under specification C1.10 and C1.10a. Certification of design will be required at CC Application stage and test certificates of the proposed linings will be required to be submitted prior to issue of the Occupation Certificate.

2. BCA cl. C1.11 Performance of external walls: Concrete external walls are required to be designed to minimize the likelihood of collapsing outwards in the event of a fire. Design certification will be required to be submitted by a Structural Engineer confirming compliance with Specification C1.11 at the CC Application stage.

3. BCA cl. C2.2 General Floor Area and Volume Limitations: The proposed floor area and volume of the building exceeds the limitations for Type C Construction, and as such the facility is defined as a "Large Isolated Building" - see comments under C2.3 and C2.4 below. Note: This applies to both Stages 1 and 2.

4. BCA cl. C2.3 Large Isolated Buildings: The floor area/volume limitations under C2.2 can be exceeded where the building is deemed to be a 'Large Isolated Building'. This will allow the building to remain as Type C Construction. As the compartment size of the building exceeds 108,000m³ (after the completion of the Stage 2 Warehouse Extension) and the max. ceiling height is greater than 12m both the provision of sprinklers and a smoke exhaust system (installed under Specification E2.2b) apply to the proposed facility – refer to comments under Section E below.

   Note: Perimeter vehicular access is also required which is outlined below in C2.4.

5. BCA cl. C2.4 Requirements for Open Spaces and Vehicular Access: A minimum unobstructed width of 6m is required around the building for fire brigades perimeter vehicular access with no part of its furthest boundary more than 18m from the building. Furthermore, vehicular access must have a load bearing capacity and unobstructed height to permit the operation and passage of fire brigade vehicles, and must provide reasonable pedestrian access from the vehicular access to the building.

   The following compliance issues have been identified with respect to the proposed perimeter vehicular access serving the subject development:

   a) Vehicular access on the southern side of the building is 4.5m wide in lieu of the required 6m clear width.

   It will be necessary for an alternative solution to be prepared to address this non-compliance issue, in order to demonstrate compliance with Performance Requirement CP9.

6. BCA cl. C2.12 Separation of Equipment: Any emergency generators, central smoke control plant, lift motor equipment, boilers of battery storage enclosures are required to be fire separated from the remainder of the building by construction having a minimum FRL of 120/120/120.

7. BCA cl. C2.13 Electricity Supply Systems: The switchrooms, where sustaining emergency equipment in the emergency mode, are required to be fire separated from the remainder of the building by construction having a minimum FRL of 120/120/120. In addition any emergency equipment switchgear must be separated from any non-emergency switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency switchgear.

8. BCA Spec C1.1 Fire Resisting Construction: The building is of Type C Construction and all external walls are greater than 3 metres from a fire source feature. Therefore, there are no primary building elements that require an FRL under the provisions of Specification C1.1.

BCA Section D – Access and Egress

9. BCA cl. D1.4 Exit Travel Distance: The proposed building does not comply with the 40m exit travel distance requirement under this clause. In this regard the following non-compliances are noted:

- Maximum exit travel distance measured from the central area of the Stage 2 Warehouse is approx. 45m. Note: The completed Stage 1 Warehouse is compliant with D1.4.
- Maximum exit travel distance measured from the Stage 1 Production Hall is approx. 52m.
- There is a potential dead end travel distance issue within the stage 2 warehouse. This would only be applicable if there was a wall separating stage 1 and 2 warehouse areas, however it has been confirmed by the architects that there will not be wall separating the two stages once stage 2 is complete, based on this the travel distances will be compliant in that area.
- The travel distance to a point of choice within the plant platform room 2.04 exceeds 20-metres. As such an additional exit door would be required in the wall of the A/C plant room 2.03, so that a point of choice is provided.
- The travel distance from the regrind room to the exit is 28-metres in lieu of 20-metres.

Note 1: It is understood that a Fire Safety Engineer is to be engaged to prepare an Alternative Solution having regard to the above non-compliance. In this regard the relevant Performance Requirements are DP4 and EP2.2.

10. BCA cl. D1.5 Distances Between Alternative Exits: The proposed building also does not comply with the DTS maximum 60m distance required between alternative exits under this clause. The maximum distance between alternative exits was measured as follows:
    - Maximum distance between alternative exits from the central area of the Stage 2 Warehouse is approx. 75m. Note: The completed Stage 1 Warehouse is compliant with D1.5.
    - Maximum distance between alternative exits from the Stage 1 Production Hall is approx. 85m.
    - Maximum distance between alternative exits from the Stage 1 Level 2 Mezzanine Plantroom is approx. 75m.

    Similarly to D1.4, it is understood that a Fire Safety Engineer has been engaged to prepare an alternative solution to address this issue, with the relevant Performance Requirements being DP4 and EP2.2 also.

11. BCA cl. D1.6 Dimensions of Exits: The minimum clear height through all exit stairs is required to be a minimum of 2m. In order to determine compliance with D1.6 confirmation of staff numbers are required to be provided by CCA with the Construction Certificate Application to confirm if adequate exit width is available from each section of the building. Note: Based upon the use of each area and the numbers of exits provided compliance with D1.6 appears to be readily achievable.

    The paths of travel within the building must also be a minimum of 1-metre clear width. This is to be detailed for the warehouse areas at the Construction Certificate stage.

12. BCA cl. D1.10 Discharge from Exits: Suitable barriers must be installed to prevent exits from being blocked by vehicles.

13. BCA Part D2 Construction of Exits: The stair treads and risers, stair landings, door thresholds, balustrades and handrails are required to comply with this part. Further details will be required prior to issue of the Construction Certificate demonstrating compliance with the above.

14. BCA cl. D2.21 Operation of latch: A door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by a single hand downward action or pushing action on a single device which is located between 900mm and 1,100mm from the floor.

15. BCA Part D3: We note that as the subject building forms part of a larger existing facility, and due to it's unique use, the need and appropriateness for access is currently under consideration by CCA, having regard to the provision of D3.4(d) and the Disability Discrimination Act . It is understood that issue of accessibility willl be addressed at the Construction Certificate Application stage.

BCA Section E – Services and Equipment

16. Part E Services and Equipment: The following fire safety measures are required for the main building:

- Fire hydrant systems	BCA Clause E1.3 & AS 2419.1-2005
- Hose reel system	BCA Clause E1.4 & AS 2441-2005
- Automatic fire suppression system (sprinklers)	BCA Spec. E1.5 and AS 2118.1-1999
- Portable fire extinguishers	BCA Clause E1.6 and AS 2444-2001
- Smoke Exhaust System[1]	BCA Spec. E2.2b and AS/NZS 1668.1-1998
- Emergency Lighting	BCA Clauses E4.2/E4.4 & AS/NZS 2293.1-2005
- Exit Signs	BCA Clauses E4.5, NSW E4.6, E4.8 and AS/NZS 2293.1-2005

Notes:

1. It is understood that a Fire Safety Engineer is to be engaged to address the provision of smoke hazard management to the building, whilst taking into consideration the requirements of the NSW Fire Brigades. The relevant Performance Requirement to this alternative solution is EP2.2.
2. The standards of performances nominated above may vary as a result of the proposed fire engineered alternative solutions.
3. The above is not a Fire Safety Schedule for the purposes of cl. 168 of the Environmental Planning & Assessment Reg. 2000.

BCA Section F – Health & Amenity

17. BCA cl. F2.5 Construction of Sanitary Compartments: In accordance with F2.5 the construction of sanitary compartments must have doors and partitions 1.8 metres above floor level and doors to fully enclosed sanitary compartments must be removable from the outside where they swing inwards.

18. BCA Part F3 Sanitary and other Facilities: Staff Population numbers will be required to be provided by CCA in order to confirm if the sanitary facilities provided achieve compliance with Table F2.3.

    In addition, further to our comments under Part D3 above we note that the provision of disabled toilet facilities are also under consideration by CCA as part of their accessibility review. Details are required to be submitted with the CC Application.

    Note: In accordance with F2.5 the construction of sanitary compartments must have doors and partitions 1.8 metres above floor level and doors to fully enclosed sanitary compartments must be removable from the outside where they swing inwards.

19. BCA Part F4 Light and Ventilation: All artificial lighting must comply with AS 1680. Mechanical ventilation must comply with AS 1668.2.

20. Section J – Energy Efficiency: The energy efficiency provisions of Section J are applicable to the building, and as such, a report will be required to be submitted prior to issue of the Construction Certificate which details how compliance is being achieved.

    In this regard Parts J1 - Building Fabric, J2 - External Glazing, J3 - Building Sealing and J5 - Air Conditioning and Mechanical Ventilation are only applicable to the office and production hall components of the building. Part J6 - Artificial Lighting and Power, Part J7 - Hot water supply and Part J8 – Access for Maintenance and Facilities for Monitoring, apply to the whole building.

C. CONCLUSION

Based upon the above comments and our assessment of the preliminary drawings it is considered that compliance with the relevant DTS provisions and Performance Requirements identified within this report are readily achievable, however full details demonstrating compliance are required to be submitted with the CC Application.