



**BLACKETT
MAGUIRE+
GOLDSMITH**

**BCA Compliance Report
Development Application Submission**

**Blacktown Mt Druitt Hospital
Stage 1 Expansion &
Sub Acute Projects
Main Building**

Health Infrastructure

29 June 2012



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A. INTRODUCTION



A.1 AIM

This compliance statement is to verify that Blackett Maguire + Goldsmith Pty Ltd have undertaken an assessment of the DA design documentation for the proposed Main Building located at Blacktown Hospital against the requirements of the Building Code of Australia 2012 (BCA).

The objective of this compliance statement is to:

- Accompany submission of the DA to the consent authority to enable the Department of Planning to be satisfied that subsequent compliance with the fire & life safety, health & amenity and energy efficiency requirements of the BCA, will not give rise to design changes to the building which may necessitate the submission of an application under Section 96 of the Environmental Planning and Assessment Act, 1979; and
- Enable the certifying authority to satisfy its statutory obligations under Clause 145 of the Environmental Planning and Assessment Regulation 2000.

The review is not intended to identify all issues of compliance or non-compliance with the BCA with such other issues to be appropriately addressed prior to the issue of the Construction Certificate pursuant to the provisions under Part 4A of the Environmental Planning and Assessment Act, 1979.

For the purpose of this submission the assessment of the DA design documentation has been undertaken against the deemed-to-satisfy (DTS) provisions of the BCA 2012.

A.2 PROPOSAL

The proposed development consists of:

- A new main hospital building (Clinical Services Building) of approximately 32,000m² constructed over 8 levels including 2 basement levels, five clinical services levels and a rooftop plant level and containing:
 - Approximately 120 inpatient beds (coronary care, cardiology, respiratory medicine, acute aged care, cancer, surgical day only, renal dialysis);
 - Comprehensive Cancer Care Centre (2 linear accelerators (with 3 bunkers + expansion), radiation therapy, medical oncology, outpatient clinics and clinical trials);
 - Emergency department capacity (urgent care centres etc) and colocated PECC;
 - Additional outpatient clinics;
 - 8 additional intensive care beds;
 - Expansion of pharmacy and pathology;
- Alterations to the existing main hospital buildings to complement the new buildings and integrate services;
- Site landscaping providing an integrated landscape plan for the whole site including pathways connecting various elements of the overall redevelopment as detailed in the landscape plans.
- The provision of a new permanent access to the site from Blacktown Road.
- Associated building services.

A.3 DOCUMENTATION

The following documentation was relied upon when preparing this Compliance Statement:



- Building Code of Australia 2012 (BCA)
- Guide to the Building Code of Australia 2012
- Architectural Drawing Nos. BIN-AR-DG-9500, 9505, 9506, 9701, 9511, 9512, 9513, 9514, 9515, 9516, 9517, 9518, 9519, 9559, 9560, 9561, 9562, 9563, 9564, 9565, 9566, 9567, 9568, 9569, 9570, 9571, 9572, 9573, 9574, 9576, 9577 & 9578 prepared by SKM S2F.

A.4 REPORTING TEAM

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

- Assessment – Adam Durnford (Senior Building Surveyor / Accredited Certifier)
- Report Preparation – Adam Durnford (Senior Building Surveyor / Accredited Certifier)
- Quality Assurance – David Blackett (Director / Accredited Certifier)

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.
- 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.

Deemed-to-Satisfy (DTS) Requirements of the BCA – Means the prescriptive provisions of the BCA which are deemed to satisfy the performance requirements.

Effective height - means the height to the floor of the topmost [storey](#) (excluding the topmost [storey](#) if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units) from the floor of the lowest [storey](#) providing direct egress to a road or [open space](#).



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 [\(b\)](#).

Sole occupancy unit - means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes a dwelling.

Storey - means a space within a building which is situated between one floor level and the floor level next above, or if there is no floor above, the ceiling or roof above, but not—

- (a) a space that contains only—
 - (i) a lift shaft, stairway or meter room; or
 - (ii) a bathroom, shower room, laundry, water closet, or other sanitary compartment; or
 - (iii) accommodation intended for not more than 3 vehicles; or
 - (iv) a combination of the above; or
- (b) a mezzanine

B. ASSESSMENT

BUILDING CLASSIFICATION

1. The proposed building is classified as Class 9a (health care).
2. The building has a calculated rise in storeys of six (6).



3. The building is required to be constructed in Type A Construction.
4. The building has an effective height of > 12m and < 25m

SECTION C – FIRE RESISTANCE

5. The new building elements will be required to be constructed in accordance with the FRL's detailed in Table 3 of Specification C1.1 for Type A Construction.

The following non compliances with Specification C1.1 are proposed to be addressed by a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer in order to address compliance with the relevant Performance Requirements of the BCA:

- The two fire isolated stairway serving the main hospital building that discharge within 'Hospital Street' are proposed to be housed in a glazed enclosure rather than a fire rated shaft.
 - The floors to the link bridges on Level 4 are proposed to be non fire rated; and
 - The proposed roof to the atrium is proposed not to be provided with an FRL.
6. Compartmentation sizes as stipulated by Table C2.2 and Clause C2.5 as specific to a Class 9a health care building will be complied with throughout the majority of the new main building. In this instance, the following is noted:
 - Each storey of the Class 9a (where patient care areas are provided) has to be divided into fire compartments not exceeding 2000m² by construction achieving an FRL of not less than 120/120/120.
 - Within each storey of the Class 9a, ward areas must be divided into floor areas not exceeding 1000m² by construction achieving an FRL of not less than 1000m². These division walls must also be smoke proof.
 - Within each storey of the Class 9a, smoke compartments are to be created with a maximum size of 500m².

The 'Hospital Street' Atrium connects multiple fire compartments of the existing building by virtue of the fact that the existing bounding construction of the existing hospital would not comply with Clause C2.7. In this instance, the fire compartment sizes exceeds 2,000m² for a patient care area in accordance with Clause C2.5 and 5,000m² for the maximum fire compartment size for a Class 9a building in accordance with Table C2.2. This is applicable on Levels 3 & 4.

In this instance we understand that the client proposes to address the non compliance via a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer in order to demonstrate compliance with the relevant Performance Requirements of the BCA.

Within the upper three (3) levels of the building, it is proposed to have ward areas and smoke compartments that exceed the requirements of Clause C2.5. In this instance we understand that the client proposes to address the excessive ward areas and smoke compartments via a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer in order to



demonstrate compliance with the relevant Performance Requirements of the BCA.

7. Due to the fact that an Automatic Fire Suppression System is proposed to be installed throughout the new main building, spandrel separation is not required to be installed.

The Fire Engineering Assessment will address the technical non compliance that the Automatic Fire Suppression System is not extended throughout the existing hospital which is technically required in order to obtain the concession granted by Clause C2.6.

SECTION D – ACCESS & EGRESS

8. The minimum number of exits has been provided from each storey of the building in accordance with Clause D1.2.
9. Travel distance from the centre of ‘Hospital Street’ to open space via the east and west lobbies is in the vicinity of 60m whereas travel distance between alternative exits is in the vicinity of 110m.

In this instance we understand that the client proposes to address the non compliance via a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer in order to demonstrate compliance with the relevant Performance Requirements of the BCA.

There are a number of other areas throughout the building where travel distance exceeds the maximum requirements of Clause D1.4.

In this instance we understand that the client proposes to address the non compliance via a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer in order to demonstrate compliance with the relevant Performance Requirements of the BCA.

Throughout the new floors, horizontal exits will be utilised in order to ensure travel distance complies with Clause D1.4 where applicable.

10. Fire isolated stairways 1 & 2 discharge within ‘Hospital Street’ which is not defined as open space. Upon discharge from the stairways, occupants are required to travel approximately 29.4m prior to reaching open space via the east and west lobby areas.

In this instance we understand that the client proposes to address the non compliance via a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer in order to demonstrate compliance with the relevant Performance Requirements of the BCA.

11. The corridor widths within the patient care areas have been designed in accordance with Clause D1.6.
12. Rising and descending stair flights within the fire isolated stairways will be required to comply with Clause D2.4.

Where compliance cannot be achieved with the DTS provisions of Clause D2.4, a Fire Engineering Assessment will be prepared by a qualified Fire Safety Engineer to address compliance with the relevant Performance Requirements of the BCA.



13. Re-entry provisions are to be provided from within each of the fire isolated stairways in accordance with Clause D2.21.
14. Access for a person with a disability is proposed to be provided to and within the building in accordance with Part D3 and AS 1428.1 – 2009.

The new main building along with the affected part areas of the existing building will comply with the Access to Premises Standards 2010. In this instance, an inspection of the existing building will be undertaken in order to determine any applicable upgraded works resulting from affected part provisions of the Access to Premises Standards 2010.

SECTION E – SERVICES & EQUIPMENT

15. Based on the architectural documentation reviewed to date, we note the following essential fire safety measures will be required to be installed within the building.

Statutory Fire Safety Measure	Design/Installation Standard
Alarm Signalling Equipment	AS1670.3 – 2004
Automatic Fail Safe Devices	BCA Clause D2.21
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a & AS 1670.1 - 2004.
Automatic Fire Suppression Systems	BCA Spec. E1.5 & AS 2118.1-1999
Building Occupant Warning System activated by the Sprinkler System	BCA Spec E1.5 Clause 8 and/ or Clause 3.22 of AS 1670.1 – 2004
Break Glass Alarms / Manual Call Points	BCA Section E
Emergency Lifts	BCA Clause E3.4 & AS 1735.1 - 2003
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005
Emergency Evacuation Plan	AS 3745 - 2002
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 - 2005
Fire Blankets	AS 3504 - 1995 & AS 2444 – 2001
Fire Control Centre	BCA Specification E1.8
Fire Dampers	BCA Clause C3.15, AS 1668.1 - 1998 & AS 1682.1 & 2 - 1990
Fire Doors	BCA Clause C2.12, C2.13, C3.2, C3.4, C3.5, C3.6 & C3.7, C3.8, C3.11 and AS 1905.1 – 2005
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 - 2005



Statutory Fire Safety Measure	Design/Installation Standard
Fire Rated Walls & Ceilings	BCA Specification C1.1
Fire Seals	BCA Clause C3.15, AS 1530.4 & AS4072.1 - 2005
Lightweight Construction	BCA Clause C1.8 & AS 1530.3 - 1999
Mechanical Air Handling Systems (Shutdown)	BCA Clause E2.2, AS/NZS 1668.1 - 1998 & AS 1668.2 - 1991
Paths of Travel	EP & A Regulation Clause 186
Pressurising Systems (Fire Isolated Stairways)	BCA Clause E2.2 & AS/NZS 1668.1 - 1998
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 - 2001
Required Exit Doors (power operated)	BCA Clause D2.19(b)
Sound and Intercom System for Emergency Purposes	BCA Clause E4.9 & AS 1670.1 - 2004
Smoke Dampers	AS/NZS 1668.1 - 1998
Smoke Doors	BCA Spec. C3.4 & C2.5
Smoke Walls	BCA Spec C2.5
Stand-by Power Systems	BCA Clause E1.3, E3.4, E4.2 & E4.5 and AS 3000 - 1991
Warning & Operational signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 - 2005, BCA Clause C3.6, D2.23, E3.3 & H101.8

Note 1: The above list is only indicative at this stage and is likely to change having regard to the proposed Fire Engineering Assessment that is to be undertaken.

16. Fire hydrant coverage is required to be provided throughout the building in accordance with Clause E1.3.
 - Internal hydrants must be located within each of the fire isolated stairways at each storey.
17. Fire hose reels are required to be installed throughout the building in accordance with Clause E1.4. The fire hose reels are to be designed in a manner that coverage is not dependant on fire hose reels passing through smoke and fire doors within each storey.



18. It is noted that the new hospital including 'Hospital Street' will be protected by an Automatic Fire Suppression System, however the existing hospital building is currently not provided with and a sprinkler system (provided with a zone smoke control system) and one is not proposed to be installed. The existing construction bounding the existing hospital and which provides separation from 'Hospital Street' is noted as not achieving an FRL of 120/120/120.

In this instance we understand that the client proposes to address the non-compliance with Clause 3 of Specification E1.5 which requires 2 hours fire separation between sprinkler and non-sprinkler protected parts of the building via a Fire Engineering Assessment to be undertaken by a qualified Fire Safety Engineer.

Note: The Fire Engineering Assessment will holistically review the impact on the existing hospital bounding the new 'Hospital Street' in terms of the proposed performance assessment to be undertaken.

19. A fire control centre is required to be provided.
20. In relation to the provision of smoke hazard management within the building, the following is required to be provided:
- An Automatic Fire Detection & Alarm System; and
 - Automatic shutdown of the Mechanical Air Handling System; and
 - An Automatic Fire Suppression System
21. Stair pressurisation is required to be provided to each of the fire isolated stairways in accordance with Table E2.2a.
22. Manual call points are to be installed in accordance with Specification E2.2a throughout the building.
23. A minimum number of two (2) emergency lifts are required to be provided to serve each storey of the building. The emergency lifts must be installed within separate banks so that an emergency lift is available within each bank of lifts.
24. A sound and intercom system for emergency purposes will be required to be installed to serve all parts of the Class 9a in accordance with Clause E4.9.

SECTION F – HEALTH & AMENITY

25. In addition to sanitary facilities required by Table F2.the following facilities are required to be provided:
- One kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and
 - Laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing, sanitary towels and the like and the receipt and storage of clean linen; and
 - One shower for each 8 patients or part thereof; and
 - One island type plunge bath in each storey containing a ward area



26. A slop hopper or other device is required to be provided on any storey containing ward areas or bedrooms to facilitate the emptying of containers of sewage or dirty water and be provided with a flushing apparatus, tap and grating.
27. Sanitary facilities for a person with a disability are required to be provided in accordance with Clause F2.4. In this instance the building is proposed to be provided with accessible sanitary facilities for use by a person with a disability including ambulant sanitary compartments.
28. Natural light is required to all rooms used for sleeping purposes.
29. The building is required to be provided with a system of ventilation either through natural or mechanical means.

SECTION J – ENERGY EFFICIENCY

30. The building will be required to comply with the national provisions of the BCA. In this regard, elements of the architectural and services design will need to comply with the respective provisions of the following:
 - Part J1 – Building Fabric
 - Part J2 – External Glazing
 - Part J3 – Building Sealing
 - Part J5 – Air Conditioning and Ventilation Systems
 - Part J6 – Artificial Lighting and Power
 - Part J7 – Hot Water Supply
 - Part J8 – Part J8 – Access for Maintenance

C. CONCLUSION

After having reviewed the DA design documentation against the BCA, we are of the opinion that the works can generally comply with DTS provisions and where it is not practicable the relevant Performance Requirements of the BCA without giving rise to any significant modifications which would render the final building design inconsistent with the DA consent.

If any modifications do arise as a result of design changes, then they will be appropriately assessed by the Certifying Authority to determine if Section 96 would be required to be submitted to the Consent Authority.

We note the requirements of Clause 145 of the Regulation and advise that any matters pertaining to compliance with the BCA, including the assessment of any future fire engineered solutions, will be addressed to the satisfaction of the appointed Certifying Authority prior to the issue of the Crown Certification.