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# **BUILDING CODE OF AUSTRALIA**

## **Preliminary Assessment Report**

**For**

**Multi-Purpose Sports Hall (MPSH)**

**At**

**Eastern end of Alumni Green**

**Client: University of Technology, Sydney**

**Report: CF09190-BCAST01**

**Date: 30 September 2009**

# BCA PRELIMINARY ASSESSMENT REPORT – Multi-purpose Sports Hall (MPSH)

## 1.0 DESCRIPTION OF BUILDING

### 1.1 General Description

The proposed MPSH building will be partially below ground. It will comprise a single storey main sports hall with two levels of ancillary facilities that adjoin the main sports hall. The ancillary facilities will comprise sanitary facilities and a tutorial room on the lower level (L1) and a gymnasium & dance hall on the upper level (L2). A lift lobby and a Bicycle store/Reception are located on the MPSH Entry level.

A courtyard is proposed in the south east corner of the building, at approximately L2 level. For the purpose of clause C1.2 of BCA, the courtyard level is considered as finished ground level in which the rise in storeys is measured from. L1 is below ground and is considered as a basement.

Two exits are provided to serve L1 and L2. These are the eastern stair (denotes as Stair 1) and the western fire isolated stair (denotes as Stair 2). At the MPSH entry level, a single exit is provided that discharges into the northern courtyard from the Bicycle Store/Reception.

An open stair, nominated as Stair 3 connects the northern open courtyard to the Alumni Green area (which is the roof of the MPSH). Stair 1 discharges onto the Alumni Green which connects directly to Thomas Street.

### 1.2 Reference documents

DA drawings numbered: DA101Rev1, DA102Rev1, DA103Rev1, DA104Rev1, DA152Rev1, DA200Rev1, DA222Rev1, DA223Rev1, DA230Rev1, DA231Rev1 and DA904Rev1.

## 2.0 DESCRIPTION UNDER BCA

### 2.1 Classification

The proposed uses are shown in the table below:

Location	Use	BCA Classification
Level 1 (RL3.00)	Main sports hall/Tutorial/Sanitary facilities	Class 9b (assembly building)
Level 2 (RL6.20)	Dance hall/Gymnasium	Class 9b (assembly building)
MPSH Entry (RL9.57)	Bicycle store/ Reception	Class 7b/Class 5

Note: As advised by the client, the premises will not be used as a Place of Public Entertainment (POPE).

### 2.2 Effective Height

For the purposes of determining the required services and equipment and type of construction, the effective height is less than 12m.

### 2.3 Rise in Storeys

Rise in storeys calculated in accordance with C1.2 of BCA is two. The courtyard level is considered as finished ground level in which the rise in storeys is measured from.

### 2.3 Type of Construction

In accordance with the provisions of C1.1 the building is required to be of Type C construction. The FRL of the various building elements must comply with Clause 5 and Table 5 of Specification C1.1 of BCA.

### 2.4 General Floor Area Limitations

It is proposed to fire separate the northern Bicycle store/Reception from the Lift lobby/Stair landing on MPSH entry level. The Bicycle store/Reception has its own direct egress to the northern courtyard.

The whole building is considered as containing two fire compartments comprising the Bicycle store/Reception on MPSH entry level and the remaining of the building.

The floor area of the fire compartment is defined as the total areas of all floors within the fire compartment measured within the finished surfaces of the bounding construction.

The maximum fire compartment size is less than 3,000m<sup>2</sup>. The volume is less than 18,000m<sup>3</sup>. Therefore fire compartment is within the BCA limit specified in Table C2.2.

### 3.0 BUILDING CODE OF AUSTRALIA (BCA) COMPLIANCE

#### 3.1 General

The proposed new works will comply with the Deemed-to-Satisfy (DTS) requirements of Building Code of Australia – **BCA 2009**. Where required, “Alternative Solutions” will be proposed in accordance with the BCA 2009 when DTS requirements cannot be achieved. Where “Alternative Solutions” are proposed, assessment and verification will generally be in accordance with the assessment methodology stipulated under Section A0.9 of the BCA or via “Fire Safety Engineering” analysis in accordance with the “Fire Engineering Guidelines” (FEG).

It is anticipated that “Alternative Solutions” will be proposed with regard to a number of issues, including, but not limited to the items under section 3.3 of this report.

#### 3.2 Population

As advised by the client, the maximum population at any one time throughout MPSH is 400 students plus 10 staff **OR** 200 sports participants plus 10 staff.

#### 3.3 Alternative Solutions

The following Alternative Solutions will be proposed to address the non-complying DTS issues:

Item	Description of non-compliance	DTS provision	Performance Requirement	Comment
1	Openings in western and southern external walls of Building 4 that is within 15m vertically above the MPSH and <b>exposed</b> to the fire source feature, must be protected with external drenchers and windows must be fixed glazing. As Building 4 is an existing building, full compliance may not be possible.	Spec C1.1, Clause 2.1 - Exposure to fire source features	CP1 and CP2	To demonstrate fire spread between buildings via un-protected openings is not possible.
2	The clear width of the open stair (Stair 3) that connects the northern courtyard to the Alumni Green must be the aggregate width of the FS2 and Bicycle store = 3m. However, the proposed width is only 2.5m.	Clause D1.6	DP4 and DP6	Total population using Stair 3 is less than 250 persons.
3	Fire isolated stair (Stair 2) discharges into a canopied area which is not considered as an open space.	Clause D1.7	DP5	It is proposed to treat the canopied area as equivalent to an open space.

#### 3.4 Essential Fire Safety Measures

All required essential fire safety measures will be provided in accordance BCA and relevant Australian Standards and any requirements under the fire engineering report. It is noted that where fire services are derived from the adjoining Building 4, compliance with current standards is not possible. These will be subject to a Section 188 application with the NSW Fire Brigades. A meeting was held with the Brigades and an in principle agreement had been reached.

## **4.0 CONCLUSION**

In our opinion, the proposed development will comply with the DTS and Performance requirements of BCA 2009.

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