



BUILDING REGULATION & FIRE SAFETY ENGINEERING CONSULTANTS

Project: **CENTRAL RESIDENTS' FACILITY
EPPING PARK, 61 MOBBS LANE, EPPING**

Report: **BCA ASSESSMENT REPORT**

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PART 1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report will be located within the larger Epping Park development proposed at 61 Mobbs Lane, Epping. It involves the Central Resident Facility being provided for the use of resident occupants of the Epping Park development and is located approximately in the centre of the main east/west axis of the larger development. It is one of two buildings included in the proposed Early Works building package.

The Facility incorporates a secured fenced compound that can only be accessed by residents issued with the appropriate 'keycard' device. The compound will have a principal access/egress point from a suitably graded, *accessible* pathway along its western side and a gate entering at an intermediate level towards the northern end of the compound. There will also be another access/egress point which although serving as a principal access/egress point to/from the pool deck portion of the compound, also provides indirect access/egress to/from the remainder of the compound.

From the intermediate level will be provided access via a half flight of stairs to a open-air raised 'workout deck', and on grade to the single building structure incorporated in this facility, which will house a gym, a multi-purpose 'hall' and resident change and toilet facilities.

At a further half flight of stairs below the intermediate level is the Lower (Pool) Deck, which contains a three (3) lane 25m lap pool towards the northern end of the Lower Deck, and a separate Leisure Pool and Kid's Pool at the southern end of the Lower Deck. Access to both entry/exit points are linked to the adjacent roadways by both stairs and *accessible* rampways, and are themselves interconnected.

Finally, it is also noted that access into (and therefore also egress from) the Lower (Pool) Deck from the gated entry from the intermediate level as well as the main entry from outside the compound, is required to and will be, by its very nature, 'child-proof'.

1.2 Purpose

The purpose of this report is to assess the design proposal against the Deemed-to-Satisfy Provisions of the BCA, and to clearly outline those areas where compliance is not achieved or where further consideration may need to be provided during design development.

1.3 Building Code of Australia

While the 2008 Version of the BCA is still current, the 2009 Version will be adopted as of 1st May, 2009, and as any application for a Construction Certificate for this Early Works package will be after this date, the 2009 Version of the BCA has been adopted for this assessment.

1.4 Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for: -

- (a) the structural adequacy or design of the building;

- (b) the inherent derived fire-resistance ratings of any existing structural elements of the building (unless specifically referred to); and
- (c) the design basis and/or operating capabilities of any existing or proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

- (a) The Disability Discrimination Act, 1992;
- (b) Demolition Standards not referred to by the BCA;
- (c) The State's Occupational Health and Safety Act and associated Regulations;
- (d) The requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, WorkCover, RTA, Council and the like; and
- (e) Conditions of Development Consent.

1.5 Design Documentation

This report has been based on the final PA drawings No.'s A18000/A - A18002/A + A18010/A - A18013/A, prepared by PTW Architects, dated 22nd April, 2009.

PART 2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia 2009 (BCA) the development may be described as follows.

2.1 Rise in Storeys (BCA Clause C1.2)

The Gym/Multi-Purpose Hall (MPH) building has a rise in storeys of one (1).

2.2 Classification (BCA Clause A3.2)

The building/structures have been classified as follows.

Class	Level	Description
9b	Ground Floor Level	Assembly - Gymnasium/MPH for Resident Occupant Use
10b	Lower Deck Level	Pools

Except with respect to pool fencing and water recirculation and filtration system, the Class 10b pool structures are largely ignored by the BCA (Volume 1). Furthermore, the raised Workout Deck and Lower Deck are civil works/structures that do not have a classification under BCA Clause A3.1.

2.3 Effective Height (BCA Clause A1.1)

The building has an effective height of zero i.e. less than 25.0 metres.

2.4 Type of Construction Required (BCA Clause C1.1, Table C1.1)

Gym/MPH building - Type C Construction.

2.5 Floor Area and Volume Limitations (BCA Clause C2.2, Table C2.2)

The building is subject to maximum floor area and volume limits of:-

- Class 9b - Maximum Floor Area 3,000m²
Maximum Volume 18,000m³

2.6 Climate Zone (Clause A1.1)

The building is located within Climate Zone 6.

PART 3 ESSENTIAL FIRE SAFETY MEASURES

The following fire safety measures are required to be installed in the building.

Item No.	Proposed Essential Fire Safety Measure	Minimum Standard of Performance
1.	Paths of travel, stairways, rampways and exits	BCA Parts D1 & D2
2.	Portable fire extinguishers	BCA Clause E1.6 & AS 2444-2001

PART 4 BCA ASSESSMENT

4.1 Structural Adequacy & Fire Resistance (BCA Sections B & C)

As per normal construction practice, all structural (loadbearing) elements will need to comply with the loading provisions - AS 1170.1 (Dead & Live Loads), 2 (Wind Loads) & 4 (Earthquake Loads) - and the various applicable construction standards - AS 1720.1 (Timber, if applicable), AS 3600 (Concrete), AS 3700 (Masonry), AS 4100 (Steel), AS 2047 & AS 1288 (Glazed Assemblies, External Walls) and AS 3660.1 (Termites, if applicable) - all as required in BCA Clauses B1.1 to B1.4.

Taking into account the building's location well away from any other buildings or property boundaries, there are no FRL requirements for the base building structure (BCA Clause C1.1, Clause 5.1, Table 5 of BCA Specification C1.1).

Taking into account the floor area of the building is (approx.) 250m², and of a single Class 9b occupancy, there are no fire compartmentation provisions applicable (BCA Clauses C2.2, C2.8 & C2.9), nor will any plant, equipment or electrical installations require fire separation/isolation (BCA Clause C2.12 & C2.13).

In view of the above, there are no protection of openings provisions applicable, whether openings in the external walls, doorways to/from fire isolated enclosures or due to service penetrations through building elements required to exhibit an FRL.

Finally, in accordance with BCA Clause C1.10, the base building construction materials will need to comply with the detailed provisions of BCA Specification C1.10, and all internal finishes, linings and flooring materials with the detailed provisions of BCA Specification C1.10a.

4.2 Access & Egress (BCA Section D)

The Gym/MPH being a Class 9b occupancy accommodating more than 50 persons, is required to and will be provided with at least two (2) exits, in this instance at least from each of the Gym and MPH spaces, all in accordance with BCA Clause D1.2.

The exit system will also comply with the DTS Provisions for distribution (BCA Clauses D1.4 & D1.5), size/dimensions (BCA Clause D1.6) and discharge out to a road or open space (BCA Clause D1.10). Such exits also do not incorporate any internal stairs or passageways that are required to be fire isolated under BCA Clause D1.3.

Based on floor areas and in accordance with the rates detailed in BCA Table D1.13, the gym will accommodate a maximum population of 25 persons, while the MPH will accommodate up to 85 persons. The pools being external Class 10b structures are not regulated under BCA Section D.

There would appear to be no exit construction issues, keeping in mind the following:

- (i) Both the Gym and MPH are rooms with a floor area less than 200m² and accommodate maximum populations of less than 100 persons each, and accordingly have no requirements with respect to the direction of swing of exit doors or doors in a path of travel to an exit, and all such doors require only single hand, lever action hardware unless the rooms served by such doors will be otherwise inaccessible when the door is locked (BCA Clauses D2.20 & D2.21).

- (ii) The external gates are not specifically bound by the above referenced Clauses, but where they form part of the pool fence enclosure and therefore provide access to the pools, must comply with the provisions of the Swimming Pools Act 1992, the associated Swimming Pools Regulation, 2008 and AS 1926.1-2007 with respect to the direction of swing of the gates and the associated 'childproof' hardware.
- (iii) All external stairs and ramps must at the very least comply with the relevant DTS Provisions - BCA Clause D2.9, and Clauses D2.13 - D2.17 - with ramps exhibiting a maximum gradient of 1:8, and where intended to provide disabled access, a maximum gradient of 1:14 and overall compliance with AS 1428.1.

Finally, based on the drawings disabled access will be able to be readily achieved from within the compound to and within the Gym/MPH building, and to both points of entry, all in accordance with BCA Clauses D3.2 & D3.3. The unisex disabled facility provided within the Gym/MPH building will need to comply with the minimal dimensions and fitout requirements of at least AS 1428.1, and appropriate Braille/tactile signage and tactile indicators will need to be provided in accordance with BCA Clauses D3.6 & D3.8.

4.3 Fire Fighting & Fire Safety Services (BCA Section E)

The building having a floor area less than 500m² is not required to be served by either a fire hydrant system or a fire hose reel system (BCA Clauses E1.3 & E1.4).

The whole of the Gym/MPH building will be required to be protected by a fairly basic system of portable fire extinguishers, including at least two (2) water based appliances (in lieu of the requirement for fire hose reels), all in accordance with BCA Clause E1.6, Table E1.6 and the State's OH & S legislation.

There are no smoke hazard management provisions applicable under BCA Clauses E2.2(a) and Tables E2.2a & b, and assuming that neither space will be served by large scale (greater than 1,000 l/s) mechanical air-handling systems, as well as the fact that the MPH will be a 'resident only' facility, with no stage facility for use with regular entertainment based functions and will not require approval as an *entertainment venue*, there are also no such provisions under BCA NSW Table E2.2b

With a total floor area less than 300m² and a very simple and compliant exit system, there are no requirements for emergency lighting and/or exit signs (BCA Clauses E4.2 - E4.8).

4.4 Health & Amenity (BCA Section F)

The pools being external Class 10b structures do not have any provisions for toilets, and it would not be unreasonable to assume that resident occupants using the pool facilities would have ready access to toilets and showers back in their nearby place of residence.

Those toilet facilities to be provided in association with the Gym/MPH building will accommodate between 20 - 25 persons in the Gym and up to at least 100 persons in the MPH, and in combination these facilities should also exhibit a degree of 'spare capacity' which could account for any 'occasional' demand from pool users, and hence the provision of both internal and external access to the *accessible* toilet. The proposed facilities are therefore considered to be generally in accordance with the minimal provisions of BCA Clauses F2.3, Table F2.3 & F2.4, Table F2.4.

Compliant ceiling heights would appear to have been provided or can readily be achieved (BCA Clause F3.1), and neither facility is required to be provided with natural light, however such is amply provided. Both facilities would appear to have ample capacity for compliant natural ventilation, and any mechanical ventilation will need to comply with AS 1668.2-1991 (BCA Clause F4.5).

4.5 Energy Efficiency (BCA NSW Subsection J(A), J(B) and NSW Section J)

BCA 2006 (now BCA2009) introduced requirements for Energy Efficiency for all buildings that contain *conditioned spaces* i.e. some form of air-conditioning or active/permanent form of heating or cooling. This has an impact on the insulation of walls and ceilings in particular, and many existing standard types of construction no longer comply without insulation. There are also controls on heating and cooling loads, and electrical loads.

In NSW the relevant Clauses associated with energy efficiency are identified in BCA NSW Subsection J(B) + BCA Section J for such Class 9b buildings. The building will be in Climate Zone 6.

Accordingly, if conditioned, such facilities will need to comply with all relevant provisions in BCA Parts J(1) - J(3), and J(5) - J(8), plus BCA NSW Clauses J3.1 and J8.2, all as applicable. Such will include the following considerations:

- J1 - Thermal capacity of walls (R-Value of at least R1.8) and ceiling/roof structures (R-Value of at least R3.2)
- J2 - Window openings - their area, orientation to the sun, type and any associated need for sun shading devices. However, in this instance the only significant issue is likely to be the potential heat loss via the large (and only) expanse of glass facing south-west and south-east.
- J3 - Sealing around window and door openings, vent openings, wall panels etc.
- J5 - Design and setup of mechanical ventilation/a.c. and heating systems;
- J6 - Design and setup of artificial lighting and power supply systems.
- J7 - Design and setup of any hot water system.
- J8 - Access for maintenance of nominated parts of the above systems.

4.6 Pools & Pool Fence Enclosure (BCA Part G1)

The whole of the Lower (Pool) Deck area will need to be fenced off from the remainder of the Central Resident Facility and from the residential portion of the development, and access made 'child-resistant', by fencing and gates with appropriate 'child-proof' hardware, all in accordance with the Swimming Pools Act, 1992, the Swimming Pools Regulation, 2008 and AS 1926.1-2007.

All three (3) pools will need to be provided with systems of re-circulation and filtration, all in accordance with AS 1926.2-2003.

PART 5 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in this report has been assessed against the applicable provisions of the Building Code of Australia, 2009 (BCA) and it is considered that such documentation complies or is readily capable of complying with that Code.