

16 November 2016
Our Ref: 16226-L01

Equity Development Management Pty Ltd

Suite 201, Level 2
22-24 Atchison Street
St Leonards NSW 2065

Attn: David Arguelles

**MONTEFIORE AGED CARE FACILITY – BLOCK D
PROVISION FOR FIRE ENGINEERING (FOR DA SUBMISSION)**

We refer to the proposed Alterations and Additions to the existing Montefiore Aged Care Facility located at 36 Dangar Street Randwick NSW. The works comprise the construction of a new 5 storey extension (Block D), with basement car parking.

The purpose of this document is to outline the basis for the development of proposed Performance Solutions to address identified variations to the Deemed to Satisfy (DTS) provisions of the Building Code of Australia 2016 (BCA), and to assist the Consent Authority in the determination of the Development Application.

PROJECT DESCRIPTION

The proposed development will consist of a new building within the existing site, to be known as Block D. Block D will comprise a 5 storey building including:

- Level 2 (basement) – car parking
- Level 3 (ground) – retail / office, resident rooms, lounge / dining, courtyard
- Levels 4 to 6 – resident rooms, lounge / dining
- Level 7 - plant

BCA ASSESSMENT DATA

The relevant BCA Assessment Data for the subject development is summarised in Table 1 below.

Table 1: Relevant BCA Assessment Data

BCA Reference	BCA Assessment
Classification	Class 5 (office) Class 6 (retail) Class 7a (car parking) Class 9c (residential aged care facility)
Rise in Storeys	5 (includes upper basement level)
No. of Levels Contained	5
Minimum Type of Construction Required	Type A
Effective Height	Less than 25 m
Maximum Fire Compartment Size	Assumed to comply

ACHIEVING COMPLIANCE WITH THE BCA

Compliance with the BCA is achieved by satisfying the Performance Requirements. Clause A0.2 of the BCA states that the Performance Requirements can be satisfied by:

- (a) *Performance Solution; or*
- (b) *Deemed-to-Satisfy Solution; or*
- (c) *a combination of (a) and (b).*

Clause A0.3(a) of the BCA states that a Performance Solution must:

- (a) *comply with the Performance Requirements; or*
- (b) *be at least equivalent to the Deemed-to-Satisfy Provisions, and be assessed according to one or more of the Assessment Methods.*

Clause A0.5 of the BCA states that the following Assessment Methods, or any combination of them, can be used to determine that a Performance Solution or Deemed to Satisfy provisions complies with the Performance Requirements:

- (a) *Evidence to support that the use of a material, form of construction or design meets a Performance Requirement or a Deemed to Satisfy Provision as described in A2.2.*
- (b) *Verification methods such as -*
 - (i) *the Verification Methods in the NCC; or*
 - (ii) *such other Verification Methods as the appropriate authority accepts for determining compliance with the Performance Requirements.*
- (c) *Expert judgment*
- (d) *Comparison with the Deemed to Satisfy provisions.*

SUMMARY OF PROPOSED PERFORMANCE SOLUTIONS

Table 2 below summarises the identified Variations to the BCA DTS Provisions, the relevant BCA Performance Requirements, the Assessment Methods, the Methods of Analysis, and the Acceptance Criteria that are proposed to be used in the future Fire Engineering Assessment.

Table 2: Summary of Proposed Performance Solutions

Performance Solution	BCA DTS Provisions	Variations to BCA DTS Provisions	BCA Performance Requirements
1	Clause C3.3 Separation of external walls and associated openings in different fire compartments Clause C3.4 Acceptable methods of protection	To vary the method of protection afforded to openings within the external walls of the building that will be exposed to an external wall of an adjacent fire compartment. The varied approach relates to protecting the external wall and openings of one fire compartment only, in lieu of the external walls and openings of both fire compartments.	CP2
	Summary of Fire Safety Strategy	The fire safety strategy is based on: <ul style="list-style-type: none"> Demonstrating that the proposed protection methods will mitigate the spread of fire between adjoining fire compartments via openings within external walls. 	
	BCA Compliance and Assessment Method	A0.3(a)(ii) and A0.5(d), Comparative Assessment, Qualitative Analysis.	
	Acceptance Criteria	Ensuring the risk of fire spread between adjoining fire compartments is not increased when compared to a DTS Compliant Design.	

Performance Solution	BCA DTS Provisions	Variations to BCA DTS Provisions	BCA Performance Requirements	
2	Specification C3.4 Fire and smoke doors Clause D2.20 Swinging doors	To have two way swinging fire and smoke doors within the building that will not be capable of preventing 100% smoke leakage from one side of the doorway to the other. To have a number of required fire and smoke doors within the building swing in one direction only against the direction of egress, in lieu of swinging in both directions or in the direction of egress.	CP3, DP2 & EP2.2	
	Summary of Fire Safety Strategy	The fire safety strategy is based on: <u>Smoke Leakage</u> <ul style="list-style-type: none">The provision of local smoke detectors on both sides of the two way swinging doors for the electromagnetic door holders to release the doors into a closed position for smoke separation upon activation of a detector.Fitting the two way swinging doors with smoke seals that limit smoke leakage through the doors to within the limitations specified under AS 6905. <u>Direction of Door Swing</u> <ul style="list-style-type: none">The provision of signage to those doors that do not swing in the direction of egress to clearly indicate the direction of door swing.The provision of emergency evacuation procedures, and 24 hour upright staff.The required fire safety systems and measures, including fire sprinklers which is expected to mitigate the development and spread of fire.		
	BCA Compliance and Assessment Method	A0.3(a)(i) and A0.5(b)(i) , Absolute Assessment, Qualitative Analysis.		
	Acceptance Criteria	Ensuring the subject fire and smoke doors avoid the spread of smoke within the building to allow sufficient time for the orderly evacuation of building occupants. Ensuring the subject fire and smoke doors do not impede the ability of occupants to evacuate from the building in an emergency.		
3	Clause D1.4 Exit travel distances Clause D1.5 Distance between alternative exits	To have a travel distance within the car park to the nearest exit of up to 47m, in lieu of 40 m. To have the distance between alternative exits within the car park of up to 67 m, in lieu of 60m.	DP4, EP2.2	
	Summary of Fire Safety Strategy	The fire safety strategy is based on: <ul style="list-style-type: none">The provision of fast response sprinklers throughout the car parking areas, in lieu of standard response sprinklers to improve occupant evacuation time.The provision of an enhanced Building Occupant Warning System (BOWS) throughout the building in accordance with the requirements of AS 1670.1-2015.The characteristics and use of the car parking areas.		
	BCA Compliance and Assessment Method	A0.3(a)(ii) and A0.5(d) , Comparative Assessment, Quantitative and Qualitative Analysis.		

Performance Solution	BCA DTS Provisions	Variations to BCA DTS Provisions	BCA Performance Requirements
	Acceptance Criteria	Ensuring occupants can evacuate from the car parking areas safely and in conditions at least equivalent to the DTS provisions of the BCA.	
4	Clause D1.4 Exit travel distances Clause D1.5 Distance between alternative exits	To have a travel distance on levels 4 to 6 to a point of choice from which travel in different directions to 2 exits is available of up to 23m, in lieu of 20m. To have a travel distance between alternative exits on levels 4 to 6 of up to 73m, in lieu of 60m.	DP4, EP2.2
	Summary of Fire Safety Strategy	The fire safety strategy is based on: <ul style="list-style-type: none"> ▪ The provision of automatic free-arm action self-closing devices to the resident rooms located within the path of travel to the point of choice. The free-arm action closes cause the entry doors into the resident rooms along the path of travel to fully close to the latched position. ▪ The provision of smoke compartmentation to limit the spread of smoke throughout the building. ▪ The characteristics and use of the public corridors. ▪ The provision of emergency evacuation procedures, and 24 hour upright staff. ▪ The required fire safety systems and measures, including fire sprinklers which is expected to mitigate the development and spread of fire. ▪ The provision of an enhanced Building Occupant Warning System (BOWS) throughout the building in accordance with the requirements of AS 1670.1-2015. 	
	BCA Compliance and Assessment Method	A0.3(a)(ii) and A0.5(d) , Comparative Assessment, Qualitative Analysis.	
	Acceptance Criteria	Ensuring occupants can evacuate from the resident use areas safely and in conditions at least equivalent to the DTS provisions of the BCA.	
5	Clause D1.7 Travel via fire-isolated exits	To have the path of travel from the southern fire-isolated exit (Stair 10) necessitate passing within 6 m of unprotected openings within the external walls of the building.	DP5
	Summary of Fire Safety Strategy	The fire safety strategy is based on: <ul style="list-style-type: none"> ▪ The required fire safety systems and measures, including fire sprinklers which is expected to mitigate the development and spread of fire. ▪ The provision of alternate paths of travel in different directions so occupants travel away from the fire-affected area to reach the road. 	
	BCA Compliance and Assessment Method	A0.3(a)(i) and A0.5(b)(i) , Absolute Assessment, Quantitative and Qualitative Analysis.	
	Acceptance Criteria	Ensuring occupants evacuating from the building via the fire-isolated exit are protected from the effects of fire from within the building such as flames, smoke and radiant heat.	

Table 2: Summary of Proposed Performance Solutions

Performance Solution	BCA DTS Provisions	Variations to BCA DTS Provisions	BCA Performance Requirements
6	Specification E2.2a Mimic panels	To not provide a mimic panel or annunciator panel within each smoke compartment of the subject building.	EP2.1
	Summary of Fire Safety Strategy	The fire safety strategy is based on: <ul style="list-style-type: none"> ▪ The provision of a mimic panel on each level, located in the public corridors, directly across and facing the staff hub. ▪ Nominated staff to be provided with a suitable carry device (e.g. DECT phone) that is interfaced with the FIP. The staff carry devices will provide indication of the zone where the smoke detection system has activated. ▪ Reference to the DTS provisions applicable in Victoria. 	
	BCA Compliance and Assessment Method	A0.3(a)(i) and A0.5(b)(i) , Absolute Assessment, Qualitative Analysis.	
	Acceptance Criteria	Ensuring staff are provided with adequate warning and information on the detection of smoke so they can commence emergency evacuation procedures and ensure residents are evacuated to a safe place.	

REQUIRED FIRE SAFETY SYSTEMS

The following fire safety systems will be required to be installed throughout the subject building in accordance with relevant Australian Standards, and as where varied by the future Fire Engineering Report:

- Fire Hydrants - BCA Clause E1.3, AS 2419.1-2005
- Fire Hose Reels - BCA Clause E1.4, AS 2441-2005
- Sprinklers - BCA Specification E1.5, AS 2118.1-1999
- Wall Wetting Sprinklers - AS 2118.2-2010
- Portable Fire Extinguishers - BCA Clause E1.6, AS 2444-2001
- Automatic Smoke Detection and Alarm System - BCA Specification E2.2a, AS 1670.1-2015
- Building Occupant Warning System - BCA Specification E2.2a, AS 1670.1-2015
- Emergency Lighting - BCA Clauses E4.2 and E4.4, AS 2293.1-2005
- Exit Signs - BCA Clauses E4.5, E4.6 and E4.8, AS 2293.1-2005.

NOTE: The above list may change or vary during the design and development process, and / or as a result of the future Fire Engineering Report.

CONCLUSION

In consideration of the above, it is concluded that Performance Solutions can be developed to the DTS provisions of the BCA to ensure the proposed development can achieve compliance with the relevant Performance Requirements of the BCA.

Yours Faithfully

Innova Services Pty Ltd



Jason Powell

Director

C10 Accredited Fire Engineer (BPB0801)
MIEAust, CPEng