



**BLACKETT
MAGUIRE+
GOLDSMITH**

BCA ASSESSMENT REPORT

**Flower Power Garden Centre
277 Mona Vale Road, Terrey Hills**

Prepared For:

**Flower Power
C/- Statewide Project Management Pty Ltd**

Revision 1

Date: 08 March 2022

Project No.: 210350



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REPORT STATUS				
DATE	REVISION	STATUS	AUTHOR	REVIEWED
01.02.2022	0	Preliminary Assessment – for Client & Consultant Review	JB	DG
08.03.2022	1	DA Stage Assessment – Updated Following Client & Consultant Review	JB	DG

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1.0 INTRODUCTION

1.1 BACKGROUND / PROPOSAL

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by Flower Power C/- Statewide Project Management Pty Ltd to undertake a preliminary review of the proposed development, against the Deemed-to-Satisfy (DtS) provisions of the Building Code of Australia 2019 (Amendment 1) (BCA) pursuant to the provisions of Clause 19 of the *Environmental Planning & Assessment (EP&A) (Development & Fire Safety) Regulation 2021* (formerly clause 145 of the EP&A Reg. 2000) and Clauses 24 & 25 of the *Building & Development Certifiers Regulation 2020*.

The proposed development comprises construction of a new, two storey Flower Power building including basement carparking, along with a separate, new, single storey building comprising multiple retail tenancies, and additional on-grade car parking between the two buildings.



Figure 1. Perspective View 4, view from Mona Vale Road (Source: Leffler Simes Architecture dwg. no. DA02 Rev. 1, dated 01 March 2022)

1.2 AIM

The aim of this report is to:

- + Undertake an assessment of the proposed new garden centre against the Deemed-to-Satisfy (DtS) Provisions of the BCA 2019 (Amendment 1).

Note: The version of the BCA that is applicable to building work is the version that is in force at the time the application for the relevant construction certificate of complying development certificate is made. In this regard, it is highlighted that this report includes an assessment of the proposed development against the requirements of BCA 2019 (Amendment 1).

- + Identify any BCA compliance issues that require resolution/attention for the proposed development at the CC Application stage.

Note – Certification Work under the Building and Development Certifiers Regulation 2020:

- + *This statement has been prepared in strict accordance with Part 4 of the Building and Development Certifiers Regulation 2020. As such, it is clarified that this statement is a part of the contracted scope by BM+G for "Certification Work", and due to the requirements and limitations of the BDC Regulations, BM+G asserts that we cannot undertake any services other than "Certification Services" on this project.*



- + In this regard, it is noted that this report comprises a preliminary, certification assessment of the plans as part of the “Certification Work”, and no part of this statement is to be construed as involvement in the building design, preparation of plans/specifications, or provision of advice on how to amend plans/specifications, nor any other activity stated in a restriction imposed by the BDC Regulations.

1.3 PROJECT TEAM

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

- + Dean Goldsmith (Director)
- + Jackson Boyd (Building Surveyor)

1.4 DOCUMENTATION

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

- + BCA 2019 (Amendment 1)
- + Guide to the BCA 2019 (Amendment 1)
- + Architectural Plans prepared by Leffler Simes Architects:

Drawing No.	Rev.	Date	Drawing No.	Rev.	Date
DA000	8	02.12.21	DA02	1	01.03.22
DA10	6	14.12.21	DA11	6	14.12.21
DA15	10	10.11.21	DA100	10	10.11.21
DA101	6	13.01.22	DA102	6	13.01.22
DA111	6	13.01.22	DA112	6	13.01.22
DA113	6	13.01.22	DA114	6	13.01.22
DA115	6	13.01.22	DA120	8	10.11.21
DA150	8	10.11.21	DA151	8	10.11.21
DA160	8	10.11.21	DA161	7	09.12.21
DA162	7	09.12.21			

1.5 REGULATORY FRAMEWORK

Pursuant to cl. 19 of the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*, all new building work must comply with the current BCA.

1.6 RELEVANT VERSION OF THE BCA

Pursuant to clause 19(1)(c) of the *EP&A (Development & Fire Safety) Reg. 2021*, the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the time the application for the Construction Certificate was made. The current version of the BCA is the BCA 2019 (Amendment 1), with BCA 2022 coming into effect in September 2022. For the purpose of this statement, it is assumed that the Construction Certificate Application will be lodged prior September 2022, and as such the proposed development will be subject to compliance with the BCA 2019 (Amendment 1).

Where the application for CC is submitted post September 2022, a re-assessment against the provisions of BCA 2022 will be required.

1.7 LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

- + The following assessment is based upon a review of the architectural documentation.



- + No assessment has been undertaken with respect to the Disability Discrimination Act (DDA) 1992. The building owner should be satisfied that their obligations under the DDA have been addressed. In this regard, however, the provisions of the DDA Access to Premises – Buildings Standards have been considered as they are generally consistent with the accessibility provisions of the BCA.
- + The Report does not address matters in relation to the following:
 - (i) Local Government Act and Regulations.
 - (ii) NSW Public Health Act 1991 and Regulations.
 - (iii) Work Health and Safety (WH&S) Act and Regulations.
 - (iv) Work Cover Authority requirements.
 - (v) Water, drainage, gas, telecommunications and electricity supply authority requirements.
 - (vi) DDA 1992.
- + BM+G Pty Ltd do not guarantee acceptance of this report by Local Council, FRNSW or other approval authorities.
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1.8 TERMINOLOGY

+ **Alternative Solution / Performance Solution**

A Building Solution which complies with the Performance Requirements other than by reason of satisfying the DtS Provisions.

+ **Building Code of Australia (BCA)**

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 New South Wales (NSW) under the provisions of the EPA Act and Regulation. Building regulatory legislation stipulates that compliance with the BCA Performance Requirements must be attained and hence this reveals BCA's performance-based format.

+ **Construction Certificate**

Building Approval issued by the Certifying Authority pursuant to Part 6 of the EP&A Act 1979.

+ **Construction Type**

The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1, except as allowed for—

- (i) certain Class 2, 3 or 9c buildings in C1.5; and
- (ii) a Class 4 part of a building located on the top storey in C1.3(b); and
- (iii) open spectator stands and indoor sports stadiums in C1.7.

Note: Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.

+ **Climatic Zone**

Is an area defined in BCA Figure A1.1 and in Table A1.1 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

+ **Deemed to Satisfy Provisions (DtS)**

Provisions which are deemed to satisfy the Performance Requirements.



+ Effective Height

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.

+ Exit

Any, or any combination of the following if they provide egress to a road or open space;

- (i) An internal or external stairway.
- (ii) A ramp.
- (iii) A fire-isolated passageway.
- (iv) A doorway opening to a road or open space.

+ Fire Compartment

The total space of the building; or when referred to in

- (i) The Performance Requirements – any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or
- (ii) The Deemed-to-Satisfy Provisions – any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to-Satisfy Provisions of the relevant part.

+ Fire Resistance Level (FRL)

The grading periods in minutes for the following criteria-

- (i) structural adequacy; and
- (ii) integrity; and
- (iii) insulation,

and expressed in that order.

+ Fire Source Feature (FSF)

The far boundary of a road which adjoins 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.

+ National Construction Code Series (NCC)

The NCC was introduced 01 May 2011 by the Council of Australian Governments. The BCA Volume One (Class 2 to 9 Buildings) is now referenced as the National Construction Code Series Volume One — BCA.

+ Occupation Certificate

Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 6 of the EPA Act 1979.

+ Open Space

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 DtS Provisions; or
- (b) formulating an Performance Solution which-



- (i) complies with the Performance Requirements; or
- (ii) is shown to be at least equivalent to the DtS Provisions; or
- (c) a combination of (a) and (b).



2.0 BUILDING CHARACTERISTICS

2.1 BUILDING CLASSIFICATION

The following table presents a summary of relevant building classification items of the proposed new, Flower Power garden centre development:

Northern Building (Flower Power):

BCA Class:	Class 6 (Retail) Class 7a (Car parking)
Rise in Storeys:	Two (2)
Effective Height:	5.0m (RL 202 – RL196.5)
Type of Construction:	Type C Construction (Large Isolated Building)
Climate Zone:	Zone 5
Maximum Floor Area:	18,000m ² (Large Isolated Building)
Maximum Volume:	108,000m ³ (Large Isolated Building)
Importance Level:	Level 3 (to be confirmed by Structural Engineer)

Southern Building:

BCA Class:	Class 6 (Retail)
Rise in Storeys:	One (1)
Effective Height:	N/A (single storey)
Type of Construction:	Type C Construction
Climate Zone:	Zone 5
Maximum Floor Area:	2,000m ²
Maximum Volume:	12,000m ³
Importance Level:	Level 2 (to be confirmed by Structural Engineer)

2.2 FIRE SOURCE FEATURES

The distances from the nearest Fire Source Features are noted as follows:

Northern Building (Flower Power):

Fire Source Feature:	Distance to Fire Source Feature:
Northern (Far Boundary):	>3m
Southern (Adjacent Building):	>3m
Eastern (Far Boundary):	>3m
Western (Far Boundary):	>3m

Southern Building:

Fire Source Feature:	Distance to Fire Source Feature:
Northern (Adjacent Building):	>3m
Southern (Far Boundary):	>3m
Eastern (Far Boundary):	>3m
Western (Far Boundary):	>3m



3.0 BCA ASSESSMENT

BCA DEEMED-TO-SATISFY COMPLIANCE ISSUES

The following comments have been made in relation to the relevant BCA provisions relating to the compliance issues associated with the proposed Flower Power garden centre development.

3.1 SECTION B – STRUCTURE

PART B1 – STRUCTURAL PROVISIONS

+ **Clause B1.2/B1.4 – Determination of Individual Actions / Determination of Structural Resistance of Materials and Forms of Construction**

Structural engineering details prepared by an appropriately qualified structural engineer to be provided to demonstrate compliance with Part B1. This will include the following Australian Standards (where relevant):

- AS 1170.0 – 2002 General Principles,
- AS 1170.1 – 2002, including certification for balustrades (dead and live loads),
- AS 1170.2 – 2011, Wind loads,
- AS 1170.4 – 2007, Earthquake loads,
- AS 3700 – 2018, Masonry Structures,
- AS 3600 – 2018, Concrete Structures,
- AS 4100 – 1998, Steel Structures and/or,
- AS 4600 – 2018, Cold formed steel Structures,
- AS 2159 – 2009, Piling Design & Installation,
- AS 1720 – 2010, Design of Timber Structure,
- AS/NZS 1664.1 & 2 – 1997, Aluminium Structures,
- AS 2047 – 2014, Windows and External Glazed Doors in buildings,
- AS 1288 – 2006, Glass in buildings,
- AS 3660.1 – 2014, Termite control (or confirmation no primary building elements are timber).

Comments: Structural design details and certification will be required at CC application stage.

Note: Design certification will also be required from the Architect and Services Consultants to confirm compliance with Section 8 of AS 1170.4-2007 with regard to the design of non-structural parts and components and their fastenings for horizontal and vertical earthquake forces and inter-storey drift.

3.2 SECTION C – FIRE RESISTANCE

FIRE RESISTANCE AND STABILITY

+ **Clause C1.1 – Type of Construction Required**

The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1 except as allowed for in this clause.

Comments: Type C Construction applies to both buildings, being Class 6 (and 7a) buildings with a rise in storeys of 2 or less – see notes under Spec. C1.1 below regarding applicable FRL's from Table 5 applicable to Type C Construction buildings.



+ **Clause C1.2 – Calculation of Rise in Storeys**

The rise in storeys of a building is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space calculated in accordance with the requirements set out in this clause.

Comments: The Northern Building has a rise in storeys of 2, whilst the Southern Building has a rise in storeys of one (1).

+ **Clause C1.9 – Non-Combustible Building Elements**

This clause sets out requirements for specific building elements to be constructed of non-combustible materials in external walls and other locations.

Comments: The provisions of this clause do not apply in this instance, based on the fact both the buildings are proposed to be constructed of Type C construction. This clause is provided as compliance commentary only.

+ **Clause C1.10 – Fire Hazard Properties**

The fire hazard properties of the following linings, materials and assemblies in a Class 2 to 9 building must comply with **Specification C1.10** and the additional requirements of the **NSW Provisions** of the Code.

Comments: Design certification required at CC application stage and installation certification (including relevant test reports confirming the critical radiant flux (CRF) of floor linings and Group Number of wall and ceiling linings) required at OC stage.

COMPARTMENTATION AND SEPARATION

+ **Clause C2.2 – General Floor Area and Volume Limitations**

Sets out the parameters for the area and volume of Class 5, 6, 7, 8 & 9 buildings as required by sub-clauses (a), (b) & (c). Note: Table C2.2 maximum size of Fire Compartments or Atriums.

Comments: The proposed Northern Building is a Class 6 & 7a Large Isolated Building of Type C Construction (as identified under Clause C1.1 above) – as such the provisions for maximum fire compartment size under Table C2.2 do not apply. Refer to comments under C2.3 & C2.4 below in relation to the Large Isolated Building provisions applicable to the proposed development. It is noted that the compartment size is in the order of 14,600m².

The Southern Building has **not** been classified as a large isolated building and appears to be within the compartmentation limitations set out within the requirements of this clause, i.e. the max. compartment size is 2,000m², and the floor area is approx. 1,980m². The provided calculations on the architectural plans support this designation (refer to DA15).

+ **Clause C2.3 – Large Isolated Buildings**

A Large Isolated Building that contains Class 5, 6, 7, 8 or 9 parts, is required to be—

- (i) Protected throughout with a sprinkler system complying with Specification E1.5; and
- (ii) Provided with a perimeter vehicular access complying with C2.4(b).

Comments: The proposed Northern Building is required to be sprinkler protected throughout, and provided with perimeter vehicular access in accordance with Clause C2.4 (see notes below) pursuant to the Large Isolated Building designation under this clause.

The Southern Building is not subject to the above requirements.

+ **Clause C2.4 – Requirements for Open Spaces & Vehicular Access**

An open space and vehicular access required by C2.3 must comply with the requirements of sub-clauses (a) & (b) of this Part as that they must be 6m wide within 18m of the building and of a suitable bearing capacity and unobstructed height to permit the operation and passage of F&RNSW vehicles.

Comments: The proposed Northern Building does not fully comply with the provisions of C2.4 and thus the following non-compliance areas are identified on the site plan below. BM+G are of the understanding that these are proposed to be addressed via a Fire Engineered Performance Solution.



- A portion of the PVA is not within 18m of the building i.e. too far from the building (shown in **yellow** in the below figure),
- A portion of the PVA is closer than 6m of the building i.e. too close to the building (shown in **red** in the below figure),

Note: Perimeter Vehicular Access (PVA) is generally achieved around the building (shown in **green** in the below figure),

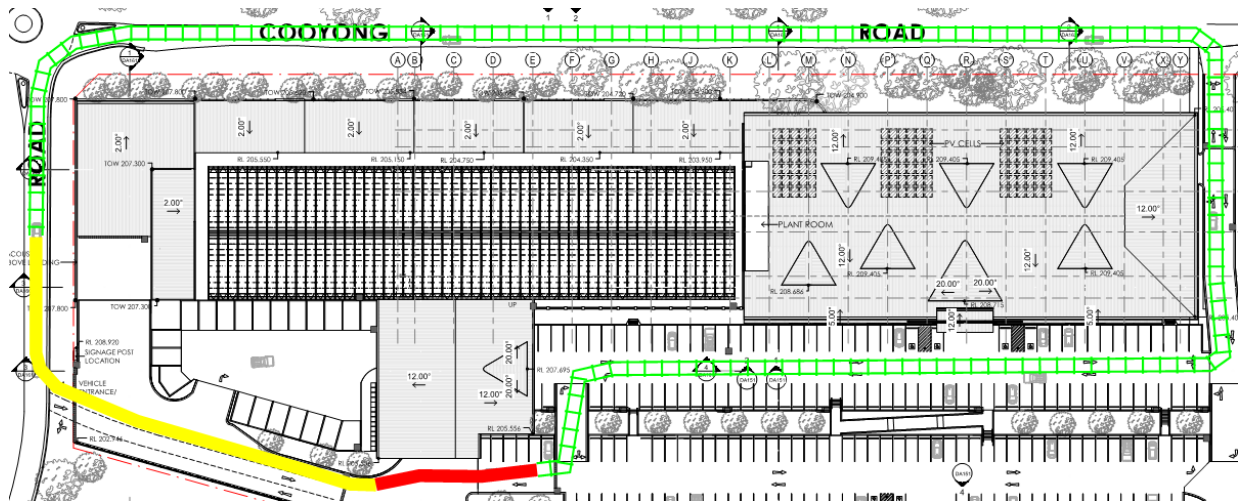


Figure 2. Site Perimeter Vehicular Access per BCA C2.4

Note 1: Any proposed gates are to achieve no less than 6m unobstructed width or the reduced width will need to be included in the above Performance Solution.

Note 2: The driveways providing vehicular perimeter access must be designed with adequate loading capacities to withstand a fire truck and the gradients of any ramps and swept paths should take into consideration the requirements of the FRNSW Fire Safety Guideline – Access for Fire Brigade Vehicles and Firefighters.

+ **Clause C2.12 – Separation of Equipment**

Equipment as listed below must be separated from the remainder of the building with construction complying with (d), if that equipment comprises –

- Lift motors and lift control panels; or
- Emergency generators used to sustain emergency equipment operating in the emergency mode; or
- Central smoke control plant; or
- Boilers; or
- A battery system installed in the building that has a voltage of 12 volts or more and a storage capacity of 200kWh or more.

Note: Separating construction must have –

- an FRL as required by Specification C1.1, but not less than 120/120/120; and
- any doorway protected with a self-closing fire door having an FRL of not less than - /120/30.

Comments: Where appropriate, details demonstrating compliance are to be included in the CC Application plans. Specific attention is drawn to the solar system in this regard.

+ **Clause C2.13 – Electricity Supply System**

An electricity substation or a main switchboard (which sustains emergency equipment operating in the emergency mode), located within a building must –

- Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and



- Have any doorway in that construction protected with a self-closing fire door having an FRL of not less than -/120/30.

Electrical conductors located within a building that supply an abovementioned substation or switchboard must –

- Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; or
- Have a classification in accordance with AS/NZS 3013 of not less than WS53W or WS52W (as applicable).

Note: Where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment switchgear is separated from the non-emergency equipment switchgear by metal partitions designed to minimise the spread of fault from the non-emergency equipment switchgear.

Comments: Where appropriate, details demonstrating compliance are to be included in the CC Application plans. This is particularly relevant to the main electrical switchroom(s) that are required to be fire separated in accordance with the above requirements.

PROTECTION OF OPENINGS

+ **Clause C3.8 – Openings in Fire Isolated Exits**

The provisions of this clause specify that the doorways that open into fire-isolated exits must be protected by -/60/30 fire doors that are self-closing or automatic. This clause also details the deemed-to-satisfy methods of activation. This does not apply to doors opening to a road or open space.

A window in the external walls of fire-isolated exits must be protected in accordance with C3.4 if it is within 6m of and exposed to a window or other opening in a wall of the same building other than in the same fire-isolated enclosure.

Doorways that open to fire-isolated exits (excluding those that open to a road or open space), must be protected by -/60/30 self-closing, or automatic closing fire doors.

A window in an external wall of a fire-isolated exit must be protected in accordance with C3.4 if it is exposed to and within 6m of another opening in wall of the same building. (excludes openings in the same fire-isolated exit).

Comments: The stairs serving the Northern Building have been designed and assessed as Fire Isolated Stairs and as such, the doors associated with these exits are to comply with the requirements of this clause. Compliance is to be confirmed at CC stage.

+ **Clause C3.15 – Openings for Services Installations**

All opening for services installations in building elements required to be fire-resisting with respect to integrity and insulation must be protected in accordance with the provisions of Spec. C3.15.

Comments: Note – see C2.12 & C2.13. Certification and appropriate test reports will be required for assessment at OC application stage.

SPECIFICATIONS

+ **Specification C1.1 – Fire Resisting Construction**

The new building works are required to comply with the requirements detailed under Table 5 of Specification C1.1 for Type C Construction. In this regard the proposed building elements are required to comply.

Comments: The building will be subject to compliance with the Type C Construction provisions of Table 5 of Spec. C1.1 – see Appendix 1. Based on the location/siting of the building there are no building elements (in addition to those identified under C2.12 & C2.13 above) that require an FRL.

+ **Specification C1.10 – Fire Hazard Properties**

This Specification sets out requirements in relation to the fire hazard properties of linings, materials and assemblies in Class 2 to 9 buildings as set out in the Tables.



Comments: Refer to comments under Clause C1.10 above – certification will be required at both CC and OC Application stages.

3.3 SECTION D – ACCESS & EGRESS

PROVISION FOR ESCAPE

+ **Clause D1.2 – Number of Exits Required**

This clause requires the provision of sufficient exits to enable safe egress in case of an emergency. D1.2 provides that all buildings must have at least one exit from each storey and sets out circumstances in which more than one exit may be required.

Not less than 2 exits must be provided from any storey that involves a vertical rise within the building of more than 1.5m unless the floor area of the storey is not more than 50m² and the distance of travel from any point on the floor to a single exit is not more than 20m.

Access to an exit must not necessitate passing through a separate tenancy.

Comments: The number of exits provided to each of the tenancies complies with the requirements of this Clause.

Each of the exits discharge directly to the outside from their respective tenancy, or via a common lobby, thus occupants are not required to pass through any other tenancy. Compliance is achieved in this regard.

+ **Clause D1.3 – When Fire Isolated Stairways & Ramps are Required**

This clause specifies the requirements for when fire isolated stairs or ramps are required in buildings based upon the number of storeys that they interconnect and the classification of the building.

Comments: The exit stairs do not connect more than 3 storeys (only 2 stories are connected) in a sprinkler protected building and as such are not required to be fire isolated in accordance with D1.3(b). It is however noted that the stairs are shown as fire isolated on the plans, and thus have been assessed as such.

+ **Clause D1.4 – Exit Travel Distances**

This clause specifies the permitted travel distances allowable from Class 2 to Class 9 buildings. Sub-clauses (a) to (f) specify the maximum distances to be taken into account for the various uses in each Class of building.

Note 1: Travel distance requirements are as follows:

- Max. 20m permitted to a point of choice (where two exits are provided), and
- Max. 40m permitted to the nearest exit, and
- Max. 30m to an exit where only 1x exit is provided (applies to the Southern Building).

Comments: The architectural plans provide only an indicative internal layout and thus the precise details of the travel distances are yet to be finalised. Notwithstanding, the below comprises a high-level review of the indicative travel distances, which will be addressed prior to the issue of the Construction Certificate.

Based on our review, the travel distances to the nearest exit will exceed those permitted by the DtS requirements in a number of locations. In this regard, it is understood that the following instances are proposed to be addressed via a Fire Engineered Performance Solution and/or design amendments (as relevant) prior to the issue of the Construction Certificate:

Northern Building:

- **Basement:** Northern end of basement car park – Up to **73m** to the nearest exit (33m in excess of DtS)
- **Basement:** Exhaust plenum – Up to **67m** to the nearest exit (22m in excess of DtS)
- **Ground Floor:** North-west storage – Up to **43m** to the nearest exit (3m in excess of DtS)



- **Ground Floor:** Generally (refer to below note) – Up to 65m to the nearest exit (20m in excess of DtS).
- **Ground Floor:** Staff Area – Up to **25m** to a point of choice between two exits (5m in excess of DtS).

Note: BM+G is advised that additional doors are to be introduced to the southern façade on Ground Floor in order to provide additional exits. In this regard, it is understood that the travel distances will exceed the maximum permitted under the DtS provisions, approximately to the extent noted above. This is proposed to be justified via a Fire Engineered Performance Solution.

Southern Building:

- BM+G is advised that additional door(s) are to be provided in the northern façade of the western tenancy in order to provide additional exits. In this regard it is understood that travel distances from within the southern building are to achieve compliance with the DtS Provisions of the BCA.

+ **Clause D1.5 – Distances Between Alternative Exits**

Exits required as alternative exits must be –

- Not less than 9m apart; and
- Not more than – 60m apart.
- Located so that the alternative paths of travel do not converge such that they become less than 6m apart.

Comments: The architectural plans provide only an indicative internal layout and thus the precise details of the travel distances between alternative exits are yet to be finalised. Notwithstanding, the below comprises a high-level review of the indicative travel distances between alternative exits, which will be addressed prior to the issue of the Construction Certificate.

Based on BM+G's high-level review, the travel distances between alternate exits exceed those permitted by the DtS requirements in a number of locations. In this regard, it is understood that the following instances are proposed to be addressed via a Fire Engineered Performance Solution and/or design amendments (as relevant) prior to the issue of the Construction Certificate:

Northern Building:

- **Basement:** Northern end of car park – Up to **140m** between alternate exits (80m in excess of DtS)
- **Basement:** Exhaust plenum – Up to **135m** between alternate exits (75m in excess of DtS)

Note: BM+G is advised that additional doors are to be introduced to the southern façade on Ground Floor in order to provide additional exits. In this regard, it is understood that the travel distances will exceed the maximum permitted under the DtS provisions, approximately to the extent noted above. This is proposed to be justified via a Fire Engineered Performance Solution.

- **Ground Floor:** Generally (refer to below note) – Up to **75m** between alternate exits (15m in excess of DtS)

Note: BM+G is advised that additional doors are to be introduced to the southern façade on Ground Floor in order to provide additional exits. In this regard, it is understood that the travel distances will exceed the maximum permitted under the DtS provisions, approximately to the extent noted above. This is proposed to be justified via a Fire Engineered Performance Solution.

Southern Building:

- It is understood that compliance is readily achievable subject to providing a revised design, as noted under cl. D1.4 in this report.

+ **Clause D1.6 – Dimensions of Exits**



This clause details the minimum dimensions such as height and width of paths of travel from Class 2 to 9 buildings. It also specifies the minimum dimensions of doorways from the various compartments and the width of exit doors from buildings depending on the uses and functions carried out within them.

Comments: The provided architectural plans do not currently demonstrate compliance in this regard, though BM+G is advised that additional exit doors are to be provided into the façade of the relevant buildings in order to achieve compliance with these requirements, along with others – refer to notes under D1.4 & D1.5 in this regard.

+ **Clause D1.7 – Travel via Fire-Isolated Exits**

A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from a public corridor/lobby, sole-occupancy unit occupying all of a storey or a sanitary compartment/airlock.

Each fire isolated stairway or ramp must provide independent egress from each storey served and must discharge to–

- A road or open space; or
- To a point in a space within the building that is only used for pedestrian movement or car parking that is open a minimum of 2/3 of its perimeter and from which a path of travel under 20m is available to a road or open space; or
- A covered area that adjoins a road or open space, is open for a minimum of 1/3 of its perimeter, has an unobstructed height of at least 3m throughout and provides a path of travel the point of discharge to a road or open space within 6m.

Where a path of travel from the point of discharge of a fire isolated exit necessitates passing within 6m of any part of an external wall of the same building, that part of the wall must have–

- An FRL of not less than 60/60/60; and
- Any openings protected internally in accordance with BCA Clause C3.4,
- For a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

Comments: The westernmost fire isolated stair discharges internally which is non-compliant with the requirements of this clause. It is understood this is proposed to be addressed via design amendment, such that its design reflects that of the other stairs.

Consideration is to be given to the requirements pertaining to occupants exposure to external walls following discharge from fire stairs.

+ **Clause D1.10 – Discharge from Exits**

The path of travel to the road from a required exit leading to open space must have an unobstructed exit width of that of the required exit, or if larger, 1m.

If the discharge point of the exit is at a different level from the road, a stairway or ramp achieving no more than 1:14 must be provided.

The discharge point of alternative exits must be located as far apart as practical and be suitably protected from vehicles potentially blocking the exit. Barriers such as bollards must be installed to prevent vehicles from blocking the discharge from exits.

Comments: The pedestrian path from the ground floor open deck car park to the allotment boundary must comply with the requirements of this clause. The provided plans indicate compliance is achievable, with further design detail required prior to the issue of the Construction Certificate.

+ **Clause D1.12 – Non-Required Stairways, Ramps or Escalators**

This clause sets out requirements and limitations on non-fire isolated, no-required stairs/ramps/escalators.

Comments: The escalators serve two consecutive floors with direct access to a road/open space, thus the meeting the requirements of this clause without requiring construction in accordance with Spec. D1.12. This note has been provided as compliance commentary only.



+ **Clause D1.16 - Plant Rooms, Lift Machine Rooms & Electricity Network Substations: Concession**

A ladder may be used in lieu of a stairway to provide egress from a plant room with a floor area of not more than 100m² or all but one point of egress from a plant room or a lift machine room with a floor area not more than 200m².

Sub-clause (b) sets out the parameters for the ladders permitted to be used in this circumstance.

Comments: The ladder providing access to the roof top plant is not permitted based on the requirements of this clause, noting the plant room appears to extend for an area of approx. 110m², i.e. 10m² more than the maximum area permitted. A stairway is required where the area exceeds 100m².

CONSTRUCTION OF EXITS

+ **Clause D2.2 - Fire-isolated Stairways & Ramps**

A stairway or ramp, including landings that are required to be within a fire-resisting shaft must be constructed of non-combustible materials to protect the structural integrity of the shaft.

Comments: Architect to note. Details to be provided at CC Application stage.

+ **Clause D2.7 - Installations in Exits & Paths of Travel**

This clause restricts the installation of certain services in fire-isolated exits, non-fire-isolated exits and certain paths of travel to exits. Sub-clauses (a) to (e) prescribes which services **shall not be installed** as well as the circumstances in which certain services **may be installed** in fire-isolated and non-fire-isolated exits.

Comments: This requirement applies to all cupboards containing electrical distribution boards or comms equipment that are located in a path of travel to an exit. In this regard, such cupboards are to be enclosed in non-combustible materials and are to be suitably sealed against the spread of smoke.

+ **Clause D2.9 - Width of Required Stairways & Ramps**

A required stairway or ramp that exceeds 2m in width is considered as having a width of only 2m unless it is divided by a handrail or barrier and each division has a width not more than 2m.

Comments: The above is to be observed with respect to the pedestrian egress path from the on-grade car park to the road. Details demonstrating compliance are to be submitted with the CC Application drawings for assessment against the above criteria.

+ **Clause D2.12 - Roof as Open Space**

If an exit discharges to a roof, it must have an FRL of at least 120/120/120 and not have any roof-lights or other openings within 3m of the path of travel of persons using the exit to reach a road or open space.

Comments: The above is to be observed with respect to the exit path which provides a path of travel from the basement car park to the on-grade car park above. The stair discharges to roof of the car park, thus rendering it 'roof as open space'. Details demonstrating compliance are to be submitted with the CC Application drawings for assessment against the above criteria.

+ **Clause D2.13 - Goings & Risers**

This clause sets out the detailed requirements for the construction and geometry of the goings and risers in required stairways. These details are set out in sub-clauses (a) to (c) and Table D2.13 Riser and Going Dimensions.

Comments: All stairs are to have dimensions that comply with Table D1.13 (below), have solid risers, and are to have contrasting nosings and slip resistant surfaces throughout in accordance with clause 11 of AS 1428.1-2009. Further commentary is to be provided by the Access Consultant in this regard.

Note: Refer to the slip resistance requirements for stairs below under Clause D2.14.



Riser and Going Dimensions (mm)			
	Riser (R)	Going (G)	Quantity (2R + G)
Maximum	190	355	700
Minimum	115	250	550

+ Clause D2.14 - Landings

The dimensions and gradients of landings in stairways are set out in this clause; the configuration will depend on the proposed use of a building.

Landing surfaces must be slip resistant OR have slip resistant nosings not less than that listed in Table D2.14 when tested in accordance with AS 4586.

Comments: Architect to note.

Application	Surface conditions	
	Dry	Wet
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11

+ Clause D2.15 - Thresholds

The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless –

- In a building required to be accessible by Part D3, the doorway –
- Opens to a road or open space; and
- Is provided with a threshold ramp or step ramp in accordance with AS1428.1;

In other cases –

- Opens to a road or open space, external stair landing or external balcony; and
- The door sill is not more than 190mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans.

+ Clause D2.16 - Balustrades or Other Barriers

This clause details where balustrades are required to be provided and sets out in specific detail the construction requirements. Typically, the following will apply to this class of building:

- Balustrades are required where the fall to the level below is more than 1m in height. The minimum height of a balustrade is 1m above the floor of the landing, walkway or the like; and 865mm above the floor of a stairway or a ramp.
- For a fall of more than 4m to the surface level below, a window sill must be a minimum of 865mm in height above the height of the floor surface.
- Where the floor is more than 4m above the surface beneath the balustrade any horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing.
- Balustrades must be constructed so as to not permit a sphere of 125mm diameter to pass through. The exception to this is within fire isolated exits within the building, where the rails can be positioned a maximum of 460mm apart, so long as a bottom rail is located so a sphere of 150mm cannot pass through the opening between the nosing of the stair treads and the rail or between the floor of the landing, balcony or the like.

Comments: Details demonstrating compliance are to be submitted with the CC Application drawings for assessment against the above criteria.

+ Clause D2.17 - Handrails



This Clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings.

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans. Further commentary is to be provided by the Access Consultant in this regard.

+ **Clause D2.19 - Doorways and Doors**

This clause applies to all doorways and refers to the types of doors that cannot be used in buildings of prescribed uses, the use of power operated doors and the force required to operate sliding doors.

If the door is also power operated, it must be capable of being opened manually under a force of not more than 110N in the event of a malfunction or failure to the power source; or upon the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.

Comment: Architect to note. Details demonstrating compliance will be required to be included in the CC plans.

+ **Clause D2.20 - Swinging Doors**

A swinging door in a required exit or forming part of a required exit must be installed to the requirements of sub-clauses (a), (b) & (c). This clause only applies to swinging doors in doorways serving a required exit or forming part of a required exit. It does not apply to other doorways – see notes in the Guide to the BCA.

Comments: The proposed egress doors are required to swing in the direction of egress in accordance with D2.20 (a). The current architectural drawings indicate that compliance is generally achieved, however the door from the Landscape Shop is shown as swinging against the direction of egress, which does not comply with the requirements of this clause.

Regarding the smaller, westernmost tenancy in the Southern Building, it is noted that the doors are permitted to swing against the direction of egress, as shown on the provided plan, so long as they are provided with a mechanism to hold them in the open position. This concession is based on the tenancy having a total area no greater than 200m².

+ **Clause D2.21 - Operation of Latch**

A door in a required exit or forming part of a required exit and in a 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 downward action or pushing action on a single device which is located between 900mm & 1.1m from the floor. This clause prohibits the use of devices such as deadlocks and knobs where knobs must be operated in a twisting motion in accordance with sub-clauses (a) & (b). D2.21 also sets out exceptions in relation to buildings where special security arrangements are required in relation to the uses carried out.

Comments: Architect to note. Details demonstrating compliance will be required to be included in the CC plans.

ACCESS FOR PEOPLE WITH A DISABILITY

+ **Clause D3.2 - General Building Access Requirements for People with Disabilities**

Access must be provided to and within all areas normally used by occupants (as required by Clause D3.1) within this building from the main points of pedestrian entry at the allotment boundary; from another accessible building connected by a pedestrian link; and any accessible car parking space.

Access must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances (including the principal pedestrian entry). In addition, as the buildings are greater than 500m², the non-accessible entrance must not be greater than 50m from an accessible entrance.

Comments: Access for persons with a disability is required as outlined below.

- **From;** The main points of pedestrian entry at the allotment boundaries, and
Each of the accessible car parking spaces, and
Each of the accessible entry doors to the Northern and Southern buildings,



- **To;** *The main entry of the Northern Building, and
At least 50% of the other entries to the Northern Building, and
If an non-accessible entry is provided, it mustn't be more than 50m from an accessible entry, and
The sole entry doors to each of the 3 Southern Building tenancies.*

Access is also required throughout all areas within the two buildings, unless exempted under cl. D3.4. Refer to D3.3 and D3.4 below for further details. There is not currently a dedicated path shown on the drawings satisfying all of the above, though it is understood this is to be addressed through design development.

+ **Clause D3.3 – Parts of the Building to be Accessible**

This part specifies the requirements for accessways within buildings which must be accessible. In accordance with Clause D3.3; ramps & stairways must comply with Clause 10 & 11 of AS 1428.1-2009 (respectively). In addition, any storey with a floor area more than 200m² must be served by a passenger lift that is designed to comply with Clause E3.6, and all accessways must include passing & turning spaces per AS 1428.1-2009.

Clause D3.3(g) and (h) requires that the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm. Moreover, the carpet pile height or pile thickness dimension shall not exceed 11mm, the carpet backing thickness dimension shall not exceed 4mm and their combined dimension shall not exceed 15mm.

Comments: As indicated above, the proposed buildings are required to be accessible throughout, in accordance with BCA Part D3 and AS 1428.1-2009. Details and design certification will be required to be provided at Construction Certificate Application stage along with any proposed performance solutions relating to accessibility.

The following is a summary of some of the key matters which need to be considered from Clause D3.3 and AS 1428.1-2009:

- *Access for persons with disabilities must be provided, at a minimum, to and within all areas normally used by the occupants, unless a D3.4 concession is applied – see D3.4 below.*
- *An accessway complying with AS 1428.1-2009 is required between all points noted under D3.1.*
- *The minimum width of an accessible doorway must have a clear opening of not less than 850mm and a minimum clear height of not less than 1980mm. An accessway must have a minimum clear width of 1000mm and 2000mm clear height*
- *All doorways on a continuous path of travel shall have a minimum luminance contrast of 30% provided between: door leaf and door jamb; or door leaf and adjacent wall; or architrave and wall; or door leaf and architrave; or door jamb and adjacent wall. The minimum width of the area of luminance contrast shall be 50mm.*
- *Clause D3.3(g) and (h) requires that the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm. Moreover, the carpet pile height or pile thickness dimension shall not exceed 11mm, the carpet backing thickness dimension shall not exceed 4mm and their combined dimension shall not exceed 15mm.*
- *Circulation space to the new doorways that are required to be accessible are to comply with Section 13 of AS 1428.1-2009.*
- *Turning Spaces and Passing Spaces for occupants in wheelchairs are required to be provided throughout, in accordance with Clauses 6.4 & 6.5 of AS 1428.1-2009.*

Handrails

- *Handrails shall be installed along stairways and ramps as follows:*
 - *Shall be continuous through the flight and where practicable, around landings and have no obstruction on or above up to a height of 600mm,*
 - *Installed along both sides of the stairway (giving consideration also to 1m unobstructed width),*



- Shall have a compliant hand clearance in accordance with Figure 29 of AS 1428.1-2009.

+ **Clause D3.4 - Exemptions**

This clause provides details on buildings or parts of buildings not required to be accessible under the BCA where providing access would be inappropriate because of the nature of the area/use or the tasks undertaken.

Comments: It is understood that advice is to be obtained from an accredited Access Consultant at the CC Application stage. Confirmation from the client will be required that includes a request for concession, where this would be applied and the reasons why it would be inappropriate for access for people with disabilities within the facility.

+ **Clause D3.5 - Accessible Parking**

This clause provides details of the number of accessible carparking spaces required in a carpark depending on the classification of the building.

Comments: Compliant Accessible Parking spaces are to be provided at a rate of 1 per 50 spaces for the retail building. The plans comply with the requirements of this clause (386 spaces, 8 of which are accessible).

+ **Clause D3.6 Signage**

Braille and tactile signage must be provided to required accessible sanitary facilities, spaces with hearing augmentation, ambulant sanitary facilities, pedestrian entrances that are not accessible, **and** to each door required by Clause E4.5 to be provided with an exit sign. The latter is to state EXIT and state the level e.g. LEVEL 1.

Comments: Architect to note.

+ **Clause D3.8 - Tactile Indicators**

This clause provides for the installation of tactile indicators in buildings required to be accessible and must be provided to warn people who are blind or have a vision impairment that they are approaching a stairway, escalator, passenger conveyor, ramp, overhead obstruction or an accessway meeting a vehicular way, except for areas exempted by D3.4.

Comments: Stairways and ramps serving the buildings, any overhead projections less than 2m in height and any paths leading directly to a driveway or roadway without a kerb – will need to be provided with Tactile Ground Surface Indicators in accordance with AS1428.4.

+ **Clause D3.11 - Ramps**

Ramps may be used as part of an accessway where there is a change of level and must comply with the requirements set out in AS 1428.1.

Comments: Architect to note. Details demonstrating compliance will be required to be included in the CC plans.

+ **Clause D3.12 - Glazing on an Accessway**

This part requires the provision of a contrasting strip, chair rail, handrail or transom across all frameless or fully glazed doorways and surrounding glazing capable of being mistaken for an opening.

Comments: Glazing capable of being mistaken for an opening as listed above is required to be clearly marked for its full width with a solid and non-transparent contrasting line being not less than 75mm wide and the lower edge must be located between 900mm and 1000mm above the plane of the finished floor level.

3.4 SECTION E - SERVICES AND EQUIPMENT

FIRE FIGHTING EQUIPMENT

+ **Clause E1.3 - Fire Hydrants**

E1.3(a) – A fire hydrant system must be provided to serve a building having a total floor area greater than 500m² and where a fire brigade is available to attend a building fire.

E1.3(b) – Requires that the fire hydrant system must be installed in accordance with the provisions of AS 2419.1 and also details where internal hydrants must be located.



Where required, a hydrant pump room is required to have a door opening to a road or open space, or a door opening direct into a fire isolated airlock connected to a fire stair.

A Fire Hydrant Booster Assembly is required to either;

- If within, or affixed to, the external wall of the building, the booster shall be—
 - (i) Within sight of the main entrance to the building; and
 - (ii) Separated from the building by a construction with a fire resistance rating of not less than FRL 90/90/90 for a distance of not less than 2m each side of and 3m above the upper hose connections in the booster assembly
- If remote from the building, the booster shall be—
 - (i) At the boundary of the site and be within sight of the main entrance of the building;
 - (ii) Adjacent to the principal vehicular access to the site; and
 - (iii) Located not less than 10 m from the external wall of any building served

Comments: Both the Northern and Southern Buildings are required to be served by a fire hydrant system, with the Northern Building requiring a hydrant ring main due to its classification as a large isolated building. Details demonstrating compliance with the provisions of E1.3 and AS 2419.1-2005 are required to be provided at CC Application stage.

The fire hydrant booster assembly is required to achieve compliance with the requirements as specified above (as well as all other requirements of AS 2419.1). Where any deviations from the requirements of this standard are proposed, a Fire Engineered Performance Solution would be required.

The pump room is required to be accessed directly from the outside. The Northern Building does not achieve compliance in this regard. BM+G is advised that the design is to be revised to achieve compliance.

Additionally, where hydrants that are located outside the building but are not open to the sky (e.g. located under an awning or the like) are proposed to be treated as external hydrants, and/or where external hydrants are not proposed to be provided with a radiant heat shield, a Performance Solution from the Fire Engineer will be required demonstrating compliance with Performance Requirement EP1.3.

+ **Clause E1.4 – Fire Hose Reels**

A fire hose reel system must be provided to serve a building where one or more internal fire hydrants are installed or in a building with a floor area greater than 500m².

This clause requires that the fire hose reel system must be installed in accordance with AS 2441 and sets out the detail for location and uses of fire hose reels.

Comments: The proposed building is required to be served throughout by fire hose reels. Details demonstrating compliance are to be provided at the CC application stage.

+ **Clause E1.5 – Sprinklers**

A sprinkler system must be installed in a building or part of a building when required by Table E1.5 and comply with Specification E1.5. Table E1.5 sets out which types of building occupancies and Classes which are required to have sprinkler systems installed in them.

Specification E1.5 sets out requirements for the design and installation of sprinkler systems.

Comments: The proposed Large Isolated Building (i.e. the Northern Building) is required to be sprinkler protected throughout in order to address the requirements of Clause C2.3 and Table E1.5. Details demonstrating compliance are to be provided at the CC application stage.

The pump room is required to be accessed directly from the outside. The Northern Building does not achieve compliance in this regard. BM+G is advised that the design is to be revised to achieve compliance.

*The Southern Building does **not** require sprinkler protection.*



In accordance with Clause 4.14.1 of AS 2118.1-2017, sprinkler boosters are required to comply with the requirements of AS 2419.1 – 2005 for a hydrant booster – refer to comments under cl. E1.3 above, regarding the requirements for booster assemblies.

+ **Clause E1.6 – Portable Fire Extinguishers**

Portable fire extinguishers must be provided as listed in Table E1.6 and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444.

Comments: Fire extinguishers will be required to be installed in the proposed building in accordance with Table E1.6 and AS 2444-2001.

SMOKE HAZARD MANAGEMENT

+ **Clause E2.2 – General Requirements**

Class 2 to 9 buildings must comply with the provisions of this Clause to remove smoke during a fire, to control the operation of air handling systems and to prevent the spread of smoke between compartments.

Buildings must comply with the provisions of **Table E2.2a**, as applicable to Class 2 to 9 buildings. It deals with the design and construction of air handling systems that are part of a smoke hazard management system and air handling system that are not part of a smoke hazard management system.

The details relating to the installation and operation of the systems are set out in **Specifications E2.2a, E2.2b** and **E2.2c**.

Comments: Based on the provisions for Class 6 buildings over 3,500m², the Northern Building is required to be provided with a smoke exhaust system and associated smoke detection and alarm system. Commentary is to be provided from the relevant design consultants as to any proposed **Performance Solutions** pertaining to this system.

Note that the sprinkler system is required to be connected to trigger the occupant warning system also in accordance with the provisions of E1.5.

The Southern Building does **not** require the installation of a smoke detection and alarm system under the DtS provisions of E2.2.

LIFT INSTALLATIONS

+ **Clause E3.3 – Warning Against use of Lifts in Fire**

Warning signs required be provided must be displayed where they can be readily seen and must comply with the details and dimensions of **Figure 3.3**.

Comments: Applies to all lifts in the proposed building – Lift Contractor to note.

+ **Clause E3.5 – Landings**

Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Part D, including the accessibility requirements of AS 1428.1-2009.

Comments: Architect and Lift Contractor to Note.

+ **Clause E3.6 – Passenger Lifts**

In an accessible building, every passenger lift must be one of the types identified in **Table E3.6a**, have accessible features in accordance with **Table E3.6b** and not rely on a constant pressure device for its operation if the lift car is fully enclosed.

Comments: Lift Contractor to note – details and certification confirming compliance are to be submitted with the CC Application.

EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS

+ **Clause E4.2 – Emergency Lighting Requirements**

This clause details when emergency lighting must be installed in Class 2 to 9 buildings. The requirements for buildings and parts of buildings are detailed in sub-clauses (a) to (i) and each sub-clause must be considered as more than one may apply to any single building

Comments: Emergency Lighting is required throughout the building in accordance with E4.2, E4.4 and AS/NZS 2293.1-2018.



+ **Clause E4.4 - Design & Operation of Emergency Lighting**

Every required emergency lighting system must comply with AS2293.1.

Comments: Electrical Consultant to note.

+ **Clause E4.5 - Exit Signs**

An exit sign must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress from a building. Sub-clauses (a) to (d) set out the situations where exit signs are required to be installed.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

+ **Clause E4.6 - Direction Signs**

If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

+ **Clause E4.8 - Design & Operation of Exit Signs**

Every required exit sign must comply with AS/NZS 2293.1 and be clearly visible at all times when the building is occupied by any person having the legal right of entry into the building.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

3.5 SECTION F - HEALTH & AMENITY

DAMP AND WEATHERPROOFING

+ **Performance Requirement FP1.4**

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause

- Unhealthy or dangerous conditions, or loss of amenity for occupants; and
- Undue dampness or deterioration of building elements.

Note 1: There are no Deemed-to-Satisfy provisions for this Performance Requirement in respect to External Walls.

Note 2: Refer to Clause F1.5 for roof coverings.

Comments: Design statement and a documented Performance Solution is to be provided with the Construction Certificate application for the building, either by using:

- The Verification Methods in Clause FV1; or
- Other verification methods deemed acceptable by the Certifier; or
- Evidence to support that the use of the material or product, form of construction or design meets the Performance Requirements or the DtS provisions, such as a Certificate of Conformity (e.g. CodeMark); or
- By way of Expert Judgement.

+ **Clause F1.1 - Stormwater drainage**

Stormwater drainage must comply with AS/NZ 3500.3.

Comments: Details of stormwater disposal, from a suitably qualified consultant are required to be submitted with documentation for the CC.

+ **Clause F1.5 - Roof Coverings**

This clause details the materials and appropriate standards, with which roofs must be covered with. The roofing requirements are set out in sub-clauses (a), (b) (c), (d), (e) & (f)



which set out the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation.

Comments: Note – design certification required at CC Application stage.

+ Clause F1.6 – Sarking

Sarking-type materials used for weatherproofing of roofs must comply with AS/NZS 4200 parts 1 and 2.

Comments: Note.

+ Clause F1.7 – Waterproofing of Wet Areas

This clause requires that wet areas in Class 2 to 9 buildings must be waterproofed. It prescribes the standards to which the work must be carried out in sub-clauses (a) to (e) with emphasis in sub-clauses (c), (d) & (e) on the construction of rooms containing urinals and their installation.

Note: Figures F1.7(1) & F1.7(2) of the Guide to the BCA contain diagrams indicating the areas of walls and floors to be protected around baths, washbasins and showers.

Comments: Note.

+ Clause F1.13 – Glazed Assemblies

Glazed assemblies in an external wall must comply with AS 2047 requirements for resistance to water penetration for windows, sliding doors with a frame, adjustable louvres, shop fronts and windows with one-piece framing

Comments: Details to be provided with the application for the Construction Certificate.

SANITARY AND OTHER FACILITIES

+ Clause F2.3 – Facilities in Class 3 to 9 Buildings

This clause provides the requirements for sanitary facilities to be installed in Class 3, 5, 6, 7, 8 and 9 buildings in accordance with **Table F2.3**. The requirements and variations are set out in sub-clauses (a)-(h).

Comments:

The following is noted with respect to the sanitary facilities calculations:

Northern Building:

The area of each of the uses of the northern building are as follows:

Use	Area	Population Density	Adjustment	Total Population
Retail – Ground Floor	7,300m ²	1 occupant per 3m ²	x0.25	609 patrons
Café	160m ²	1 occupant per 1m ²	x0.75	120 patrons
Storage	1,450m ²	1 occupant per 30m ²	x0.75	37 staff
Office	78m ²	1 occupant per 10m ²	x1	8 staff

In order to increase the accuracy of the population calculations, the outputs from BCA Table D1.13 have been utilised with adjustments based on advice provided to BM+G to consider areas which will not contribute to population numbers such as racking, stocked areas, storage, etc.

Class 6 – (Retail Patrons)						
Closet Pans		Urinals		Washbasins		Total Population Served
Proposed	Pop. Served	Proposed	Pop. Served	Proposed	Pop. Served	
2	2400	2	1800	2	1800	2400 patrons
4	3000	-	-	2	1200	
Class 6 – (Café Patrons)						
Closet Pans		Urinals		Washbasins		Total Population Served
Proposed	Pop. Served	Proposed	Pop. Served	Proposed	Pop. Served	
2	300	2	100	2	200	200 patrons
3	100	-	-	3	350	
Class 6 – (Staff)						



Closet Pans		Urinals		Washbasins		Total Population Served
Proposed	Pop. Served	Proposed	Pop. Served	Proposed	Pop. Served	
2	45	1	25	3	90	50 Staff
2	30	-	-	3	90	

Note that unisex facilities are only permitted under the DtS provisions of this clause where the total staff numbers do not exceed 10 (this of course does not apply to unisex accessible WCs, required by F2.4).

Based on the above calculations the Northern Building demonstrates compliance is achieved. Notwithstanding, where more accurate occupancy calculations are available, a reassessment is to be undertaken and the design amended where required.

Southern Building:

The area of each of the uses of the northern building are as follows:

Use	Area	Population Density	Adjustment	Total Population
Office (Eastern Tenancy)	1620m ²	1 occupant per 10m ²	x1	162 staff
Office (Centre & Western Tenancy)	78m ²	1 occupant per 10m ²	x1	8 staff

In order to increase the accuracy of the population calculations, the outputs from BCA Table D1.13 have been utilised with adjustments based on advice provided to BM+G to consider areas which will not contribute to population numbers such as racking, stocked areas, storage, etc.

Class 5 - (Staff - Centre & Western Tenancy)						
Closet Pans		Urinals		Washbasins		Total Population Served
Proposed	Pop. Served	Proposed	Pop. Served	Proposed	Pop. Served	
2	40	1	25	2	60	50 Staff
3	45	-	-	2	60	

Note that unisex facilities are only permitted under the DtS provisions of this clause where the total staff numbers do not exceed 10 (this of course does not apply to unisex accessible WCs, required by F2.4). This is understood to apply to the Eastern tenancy, based on the above.

Based on the above calculations the Southern Building demonstrates compliance is not presently achieved, however BM+G understands that the sanitary facility layout is to be revised to achieve compliance prior to the issue of the CC.

Notwithstanding, where more accurate occupancy calculations are available, a reassessment is to be undertaken and the design amended where required.

+ **Clause F2.4 - Accessible Sanitary Facilities**

Refer to comments from the Access Consultant with regards to the requirements of this Part of the BCA, though high level comments are provided below;

Accessible unisex sanitary compartments must be provided, in accordance with **Table F2.4(a)** and unisex showers must be provided in accordance with **Table F2.4(b)**, in buildings or parts that are required to be accessible. The details for the provision of disable facilities and the standard, AS 1428.1, are set out in sub-clauses (a) to (i).

Comments: The proposed accessible toilet facilities and ambulant sanitary facilities are required to achieve compliance with the provisions of Table F2.4. It is noted that the provided design do not appear to provide accessible and ambulant facilities in all required locations, however details demonstrating that the design of each facility complies with AS 1428.1 are to be provided at the CC application stage, once the appropriate design finalisation has occurred.

ROOM HEIGHTS

+ **Clause F3.1 - Height of Rooms and Other Spaces**

The ceiling heights in Class 2 to 9 buildings must not be less than required in sub-clauses (a) to (f) of this clause.



The minimum ceiling heights, as set out within this clause, are as follows:

- Corridor/passage, bathroom, storeroom, tea preparation room, car park, etc. – 2.1m
- All other areas – 2.4m.

Comments: The Architect is to ensure compliance is achieved in this regard, noting that addition requirements are set out under AS 2890.1 & 6, AS 1428 and BCA cl. D1.6. Ceiling heights to be reviewed at the CC application stage with the detailed section drawings.

LIGHT AND VENTILATION

+ **Clause F4.4 – Artificial Lighting**

Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. Sub-clauses (a), (b) & (c) sets out the places where artificial lighting is always required in all classes of buildings and the standard to which it must be installed.

Comments: Design certification to be submitted at CC Application Stage.

+ **Clause F4.5 – Ventilation of Rooms**

A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F4.6 **or** a mechanical or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1.

Note: NSW F4.5(b) a mechanical ventilation or air-conditioning system complying with AS 1668.2 – the reference to AS/NZS 2666.1 is deleted from the BCA in NSW as the need to comply with this standard is regulated under the relevant section of the Public Health Act 1991.

Comments: Design certification to be submitted at CC Application Stage.

3.6 SECTION G – ANCILLARY PROVISIONS

+ **Part G6 – Outdoor Occupiable Areas**

The provisions of this part stipulate that, generally, the requirements of BCA Sections C-E apply to outdoor areas which require travel back through the building for egress, as if the outdoor area were an indoor area.

Comments: No such areas are proposed in the provided plans.

3.7 SECTION J – ENERGY EFFICIENCY

+ **Part J1 – Building Fabric**

The provision of insulation of the building envelope will be required in the proposed Building, in accordance with **Clauses J1.0 to J1.6**, and the **Tables therein**, including Thermal Construction General, Roof and Ceiling Construction, Rooflights, Walls, and Floors. Design details and/or certification of design will be required to be provided in this regard.

Comments: This section applies to any air-conditioned spaces proposed within the proposed building. Design details and/or certification of building envelope design will be required to be submitted with the application for a Construction Certificate.

+ **Part J3 – Building Sealing**

The proposed building envelope will be required to be sealed to prevent air infiltration in accordance with the requirements of **Clauses J3.0 to J3.6**. Details or certification that the proposed building design complies with the requirements of **Part J3** is required to be provided.

*Comments: This section applies to any air-conditioned spaces proposed within the proposed building. Details or certification that the proposed design complies with the requirements of **Part J3** will need to be submitted with the application for a Construction Certificate.*



+ **Part J5 – Air-Conditioning & Ventilation Systems**

Details and/or design certification which confirm that any proposed air-conditioning system or unit within the proposed building achieves compliance with the relevant requirements of **Part J5** will be required to be provided from the mechanical engineer.

Comments: Details or certification demonstrating that the mechanical ventilation design is compliant will need to be submitted with the application for a Construction Certificate.

+ **Part J6 – Artificial Light & Power**

Details and/or design certification which confirm that all artificial lighting, power control, and boiling/chilled water units within the proposed building achieves compliance with the relevant requirements of **Part J6** will be required to be provided from the electrical engineer.

Comments: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.

+ **Part J7 – Hot Water Supply, & Swimming Pool & Spa Pool Plant**

Details and/or design certification which confirm that any proposed hot water supply system within the proposed building achieves compliance with the relevant requirements of **Part J7** (Section 8 of AS 3500.4) will be required to be provided from the hydraulic engineer.

Comments: Details or certification demonstrating compliance with Clause J7.2 will need to be submitted with the application for a Construction Certificate.

+ **Part J8 – Facilities for Energy Monitoring**

Provision for monitoring of energy consumption must be provided to a building where the floor area exceeds 500m², and must be capable of recording the consumption of gas and electricity. In addition, where the floor area of the building exceeds 2,500m² the energy monitoring facilities must be capable of individually recording air-conditioning, lighting, appliance power, central hot water supply, lifts/escalators, and other ancillary plant.

Comments: Details or certification demonstrating compliance with J8.3 (b) and (c) will need to be submitted with the application for a Construction Certificate.



4.0 SUMMARY OF KEY COMPLIANCE ISSUES

The following comprises a summary of the key compliance issues identified under the assessment contained above in this report and includes the required Performance Solutions. These matters are to be addressed prior to issue of the Construction Certificate.

4.1 MATTERS REQUIRING FURTHER RESOLUTION & NON-FIRE SAFETY PERFORMANCE SOLUTIONS

BCA Clause/s		Description
1.	Spec. C1.1 & D2.12	Confirm the fire rating requirements are achieved in the proposed design.
2.	D1.4 & D1.5	Design finalisation is required to determine the exact distances of egress paths.
3.	D1.6	Further detail is to be provided regarding the proposed occupant loads and door configuration in order to confirm the available egress widths are adequate for the proposed occupant load.
4.	D1.7	The westernmost stair discharges within the building, on Ground level. BM+G is advised that the design is to be revised to achieve compliance. Ensure paths of travel after discharge from fire stairs do not necessitate passing within 6m of the external walls of the building.
5.	D1.16	A ladder is not permitted to be utilised for egress from a plant room with an area exceeding 100m ² . It is understood the design is to be amended to achieve compliance in this regard.
6.	D2.20 & D2.21	Confirm the proposed final exit doors will achieve compliance with the requirements of these clauses.
7.	D2.20	The exit door from the landscape shop swings against the direction of egress. BM+G is advised that the design is to be revised to achieve compliance.
8.	Part D3 & F2.4	Refer to the Access Report by MGAC, noting further design documentation/development is required in order to establish compliance.
9.	E1.3 & E1.5	The pump room is required to be accessed directly from the outside. The Northern Building does not achieve compliance in this regard. BM+G is advised that the design is to be revised to achieve compliance.
10.	FP1.4	There are no DtS provisions with respect to weatherproofing of external walls. A Performance Solution is required in this regard.
11.	F2.3 & F2.4	Further detail is to be provided regarding the proposed occupant loads and sanitary facility layouts in order to establish a compliant design.

4.2 MATTERS TO BE ADDRESSED AS FIRE SAFETY ENGINEERED PERFORMANCE SOLUTIONS

BCA Clause/s		Description
1.	C2.4	It is understood that a number of variations from the DtS provisions relating to Perimeter Vehicle Access to the Northern Building are proposed to be addressed via a Fire Engineered Performance Solution .



BCA Clause/s		Description
2.	D1.4	<p>It is understood that a number of excessive distances to an exit are proposed to be addressed via a Fire Engineered Performance Solution, namely;</p> <p><u>Northern Building:</u></p> <ul style="list-style-type: none"> + Basement: Northern end of basement car park – Up to 73m to the nearest exit (33m in excess of DtS) + Basement: Exhaust plenum – Up to 67m to the nearest exit (22m in excess of DtS) + Ground Floor: North-west storage – Up to 43m to the nearest exit (3m in excess of DtS) + Ground Floor: Generally (refer to below note) – Up to 65m to the nearest exit (20m in excess of DtS). + Ground Floor: Staff Area – Up to 25m to a point of choice between two exits (5m in excess of DtS).
3.	D1.5	<p>It is understood that a number of excessive distances to an exit are proposed to be addressed via a Fire Engineered Performance Solution, namely;</p> <p><u>Northern Building:</u></p> <ul style="list-style-type: none"> + Basement: Northern end of car park – Up to 140m between alternate exits (80m in excess of DtS). + Basement: Exhaust plenum – Up to 135m between alternate exits (75m in excess of DtS). + Ground Floor: Generally (refer to below note) – Up to 75m between alternate exits (15m in excess of DtS).
4.	E1.3, E1.5 & E2.2	<p>Design documentation is required to be provided by the relevant services designers with respect to any proposed Performance Solutions.</p>



5.0 CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed construction of a new, Flower Power garden centre and associated works in Terrey Hills, against the Deemed-to-Satisfy Provisions of the BCA 2019 (Amendment 1). Arising from our review it is considered that the proposed development can readily achieve compliance with the relevant provisions of the BCA. Where compliance matters are proposed to comply with the Performance Requirements (rather than DtS Provisions), the development of a Performance Solution Report will be required prior to the issue of the Construction Certificate.

The following forms a **draft** list of fire safety measures are required for each of the new buildings, which will likely be subject to change as the design progresses towards CC stage:

Northern Building:

Statutory Fire Safety Measure	Design / Installation Standard	Existing	Proposed
Access Panels, Doors & Hoppers	BCA Clause C3.13 AS 1530.4 – 2014 Manufacturer's Specifications		✓
Alarm Signalling Equipment	AS 1670.3 – 2018		✓
Automatic Fail Safe Devices	BCA Clause D2.21		✓
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a AS 1670.1 – 2018		✓
Automatic Fire Suppression Systems	BCA Spec. E1.5 AS 2118.1 – 2017		✓
Emergency Lighting	BCA Clauses E4.2 & E4.4 AS 2293.1 – 2018		✓
Emergency Evacuation Plan	AS 3745 – 2010		✓
Exit Signs	BCA Clauses E4.5, NSW E4.6 & E4.8 AS 2293.1 – 2018		✓
Fire Blankets	BCA Clause E1.6 AS 3504 – 1995 & AS 2444 – 2001		✓
Fire Dampers	BCA Clause C3.15 AS 1668.1 – 2015 & AS 1682.1 & 2 – 2015 Manufacturer's Specification		✓
Fire Doors	BCA Clauses C2.12, C2.13 & C3.8 AS 1905.1 – 2015 Manufacturer's Specification		✓
Fire Hose Reels	BCA Clause E1.4 AS 2441 – 2005		✓
Fire Hydrant Systems	BCA Clause E1.3 AS 2419.1 – 2005		✓
Fire Seals	BCA Clause C3.15, AS 1530.4 – 2014 & AS 4072.1 – 2014 Manufacturer's Specification		✓
Lightweight Construction	BCA Clause C1.8 AS 1530.4 – 2014 and Manufacturer's Specification		✓



Statutory Fire Safety Measure	Design / Installation Standard	Existing	Proposed
Paths of Travel	Part D1 & D2 EP&A (DC&FS) Regulation 2021 Clause 109 <i>Fire Engineered Performance Solution Report TBC</i>		✓
Perimeter Vehicular Access	BCA Clause C2.4 <i>Fire Engineered Performance Solution Report TBC</i>		✓
Portable Fire Extinguishers	BCA Clause E1.6 AS 2444 – 2001		✓
Required Exit Doors (Power Operated)	BCA Clause D2.19(b)		✓
Smoke Hazard Management Systems (Smoke Exhaust)	BCA Part E2 AS/NZS 1668.1 –2015		✓
Warning & Operational Signs	EP&A (DC&FS) Regulation 2021 Clause 108 BCA Clauses D2.23, D3.6 & E3.3 AS 1905.1 – 2015		✓
Fire Engineered Performance Solutions relating to:	<i>Fire Engineered Performance Solution Report TBC</i>		✓

Southern Building:

Statutory Fire Safety Measure	Design / Installation Standard	Existing	Proposed
Automatic Fail Safe Devices	BCA Clause D2.21		✓
Emergency Lighting	BCA Clauses E4.2 & E4.4 AS 2293.1 – 2018		✓
Emergency Evacuation Plan	AS 3745 – 2010		✓
Exit Signs	BCA Clauses E4.5, NSW E4.6 & E4.8 AS 2293.1 – 2018		✓
Fire Blankets	BCA Clause E1.6 AS 3504 – 1995 & AS 2444 – 2001		✓
Fire Doors	BCA Clauses C2.12, C2.13 & C3.8 AS 1905.1 – 2015 Manufacturer's Specification		✓
Fire Hose Reels	BCA Clause E1.4 AS 2441 – 2005		✓
Fire Hydrant Systems	BCA Clause E1.3 AS 2419.1 – 2005		✓
Fire Seals	BCA Clause C3.15, AS 1530.4 – 2014 & AS 4072.1 – 2014 Manufacturer's Specification		✓
Lightweight Construction	BCA Clause C1.8 AS 1530.4 – 2014 and Manufacturer's Specification		✓
Paths of Travel	Part D1 & D2 EP&A (DC&FS) Regulation 2021 Clause 109 <i>Fire Engineered Performance Solution Report TBC</i>		✓



Statutory Fire Safety Measure	Design / Installation Standard	Existing	Proposed
Portable Fire Extinguishers	BCA Clause E1.6 AS 2444 – 2001		✓
Required Exit Doors (Power Operated)	BCA Clause D2.19(b)		✓
Warning & Operational Signs	BCA Clauses D2.23 & D3.6 AS 1905.1 – 2015		✓
Fire Engineered Performance Solutions relating to:	<i>Fire Engineered Performance Solution Report TBC</i>		✓



6.0 APPENDIX 1 – SPEC. C1.1 FRL REQUIREMENTS (TYPE C CONSTRUCTION)

Building Element	Class of building — FRL: (in minutes)			
	Structural adequacy/ Integrity/Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is—				
For loadbearing parts—				
less than 1.5 m	90/ 90/ 90	90/90/90	90/90/90	90/90/90
1.5 to less than 3 m	-/-/-	60/60/60	60/60/60	60/60/60
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed —				
less than 1.5 m	90/-/-	90/-/-	90/-/-	90/-/-
1.5 to less than 3 m	-/-/-	60/-/-	60/-/-	60/-/-
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/90/90	90/90/90	90/90/90
INTERNAL WALLS—				
Bounding public corridors, public lobbies and the like –	60/60/ 60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units –	60/60/ 60	-/-/-	-/-/-	-/-/-
Bounding a stair if required to be rated –	60/60/ 60	60/60/ 60	60/60/ 60	60/60/ 60
ROOFS	-/-/-	-/-/-	-/-/-	-/-/-

Notes:

1. New external walls that are located 1.5m or more from an allotment boundary/fire source feature require no FRL's.
2. An external wall required to have an FRL is only required from the outside.
3. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification C1.8.
4. Any insulation installed in the cavity of the wall is required to be non-combustible.
5. The method of attaching or installing a finish, lining, ancillary element, or service installation to a building must not reduce the fire-resistance of that element to below that required.
6. Any internal loadbearing wall or column is required to achieve an FRL of not less than 90/90/90.
7. The floor separating the two storeys is required to achieve an FRL of not less than 90/90/90 to achieve separate fire compartments.
8. No structural elements are permitted to pass through fire-rated walls.
9. Fire rated shafts are required to be enclosed at the top and bottom by construction having an FRL of not less than what the shaft requires.