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11 – 17 Mosbri Crescent, The Hill

BCA Assessment Report

Report 2018/2620 R1.2

Prepared for Crescent Newcastle Pty Ltd
January 2019

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SWP Quality System

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Disclaimer:

This report is based on a desktop audit of preliminary documentation only.
Details contained in the report address issues of significance to broad BCA compliance relevant to this stage of design resolution.

This report is based on a review of the design documentation only. It represents a compliance report for "documentation to this point in time" and will be subject to amendment and expansion as project documentation develops

Executive Summary

An assessment of the design of the proposed residential unit development comprising of 172 dwellings located at 11 – 17 Mosbri Crescent, The Hill has been undertaken against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia and the applicable Building Regulations.

This report details the non-compliances identified that require either amendments to plans or a Performance Solution to satisfy the Performance Requirements of the BCA.

Summary of BCA Parameters:

Building Use:	Construction of residential accommodation comprising 172 dwellings, car parking for use by occupants and visitors and associated landscaping and civil works to the site
Class of Occupancy	Class 2 & 7a
Type of Construction Required	Type A & B
Rise Storeys:	Buildings A, B & C – 9 Storeys Townhouse Units – 3 Storeys
Number of Storeys:	Buildings A, B & C – 9 Storeys Townhouse Units – 3 Storeys
Effective Height:	Buildings A, B & C 26.05m (Level 8 - RL54.15 - Ground Level RL 28.10) Townhouse Units 9.00m (Level 1 - RL34.40 – Lower Ground Level RL25.4)

The following are the main issues proposed to be addressed by the Fire Safety Engineer via a Performance Solution:

1. Single exits provided to areas throughout the building which require the provisions of alternative exits (Clause D1.2);
2. Extended travel distances throughout the development (Clauses D1.4 & D1.5);
3. Discharge paths of fire isolated exits discharge past unprotected openings (Clause D1.7);
4. Discharge arrangement of alternative exits being next to each other (Clause D1.10);
5. Use of a push to exit button in lieu of sliding doors failing open upon fire alarm trip (Clause D2.19);
6. Location of the Fire Hydrant booster assembly, pump room and associated infrastructure (Clause E1.3);
7. Omission of fire hose reel coverage to certain rooms within the development (Clause E1.4);

8. Omission and rationalisation of the sprinkler system serving the building (Clause E1.5);
9. Location of fire extinguishers associated with the townhouse units (Clause E1.6); and
10. Location of the fire control centre (Clause E1.8);

The design is capable of complying with the requirements of the relevant sections of the Environmental Planning Assessment Act 1979, the Environmental Planning and Assessment Regulations 2000 and the Building Code of Australia 2016 amendment 1. Compliance is subject to resolution of the identified areas of non-compliance and compliance with the recommendations provided within the report.

Further detailed regulatory reviews will need to be progressively undertaken as designs advance and become more resolved to ensure compliance is achieved.

Whilst not precluding the issue of a Construction Certificate, it is noted that many detailed design issues are not indicated on the drawings. These issues are designated "Compliance Readily Achievable" in the *"Status*" column of the assessment in Section 14 of the report and should be resolved prior to construction.

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1. Introduction

This report presents the findings of a preliminary assessment undertaken of the proposed design of the residential unit development located at 11 – 17 Mosbri Crescent, The Hill against the Deemed-to-Satisfy (DtS) provisions of Building Code of Australia (BCA) 2016.

It has been prepared by Steve Watson and Partners for Crescent Newcastle Pty Ltd

2. Purpose

The purpose of this report is to provide an assessment of the design documentation against the current requirements of the BCA.

The assessment is undertaken for the purpose of, and to the extent necessary for, construction certification to be issued under Part 6 of the NSW Environmental Planning and Assessment Act 1979 (The Act) and Environmental Planning and Assessment Regulation 2000 (EPAR).

3. Scope and Limitations

3.1. Scope

The scope of this assessment is limited to the the design documentation referenced in Appendix A of this report.

3.2. Limitations

The following limitations apply to the assessment:

- The report considers matters of a significant nature only and should not be considered exhaustive.
- The plans are assessed to the extent necessary to issue a construction certificate under Part 6 of The Act. This means the design has been assessed to be capable of complying with the BCA without necessarily having all the detailed design completed at this stage.
- Details in regard to access for people with disabilities have been assessed to the extent of the deemed-to-satisfy provisions of the BCA/Premises Standard only. A detailed assessment against AS 1428 series, AS/NZS 2890.6 – 2009 and AS 4299 – 1995 is outside the scope of this report
- Generally, the assessment does not incorporate a detailed assessment of the requirements of the Australian Standards.
- Structural and services documentation have not been reviewed.
- Appraisals are limited to the provisions of the BCA and the Premises Standards. Other legislative requirements have not been considered. It does not address additional or specific requirements stipulated under other areas such as Safety in Design, Construction Safety, Disability Discrimination, Planning and Environment, Occupational Health and Safety, Health, Dangerous Goods, etc, which may impact on the design and use of the building. It is recommended that appropriate advice from suitably qualified consultants should be obtained for further information on these areas.

4. National Construction Code 2016 Amendment 1 –Volume 1: Building Code of Australia Class 2 to Class 9 Buildings

The National Construction Code (NCC) is a uniform set of technical provisions for the design and construction of buildings, structures and plumbing/drainage systems which is separated into 3 volumes.

Volume 1 of the NCC is the Building Code of Australia (BCA) for Class 2 to 9 buildings which is the document to which the assessment in this report has been undertaken against. The BCA is legislated under The Act and specifies the Performance Requirements for the design and construction of Class 2 to 9 buildings that must be satisfied to achieve compliance. The Performance Requirements can only be satisfied by a Performance Solution, Deemed-to-Satisfy (DTS) solution or a combination of both.

5. Performance Solutions

The BCA is written in a performance format which allows performance based buildings. This has allowed for innovation and variation from the prescriptive deemed-to-satisfy requirements of the BCA, whilst maintaining the principle levels of health, safety and amenity of building occupants.

Performance solutions are generally adopted when a nominated deemed-to-satisfy provision appears inappropriate for the design, or when a proposed design varies from the prescriptive requirements of the BCA. Subsequently, a performance solution supported by Fire Engineering analysis can determine whether a proposed design that varies from prescriptive requirements, will satisfactorily meet the performance provisions of the BCA. Ultimately, it is with the discretion of the relevant building surveyor whether to accept a deviation from the prescriptive code requirements.

Utilising the performance provisions may result in more economical and somewhat safer building, however alternative solutions may require additional on-going maintenance. It is in this instance that all parties, such as the building owner, insurance companies, proposed tenants, etc., are aware of this decision making process and are kept informed of any additional requirements needed to maintain the level of safety.

6. Statutory Framework

The following table summarises the key statutory issues relating to fire safety and the BCA in relation to the certification of new building works.

Issue	Legislative reference	Comment
New Work	EPAR 145	All new works must comply
Residential Flat Development	EPAR 143A and 153A	Statement from a qualified designer verifying compliance with SEPP65 for residential developments
BASIX	EPAR 154B	BASIX certificate required for residential projects

6.1. New Work

Clause 145 of the EPAR requires that all new work comply with the current requirements of the BCA.

This means that all works proposed in the plans are required to comply but that existing features of an existing building need not comply with the BCA unless required to under other clauses of the legislation.

6.2. Residential flat development

Clause 143A of the EPAR requires a qualified designer to provide a statement that verifies that the plans and specifications achieve or improve the design quality of the development having regard to the design quality principles set out in Part 2 of the *State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development* (SEPP 65) prior to the issue of a Construction Certificate. Clause 154A of the EPAR requires a qualified designer to provide a statement that verifies that the residential flat development achieves the design quality of the development as shown in the plans and specifications having regard to the design quality principles set out in Part 2

of SEPP 65 prior to issuing an Occupation Certificate.

6.3. Fulfilment of BASIX Commitments

Clause 154B of the EPAR requires the certifying authority to monitor fulfilment of any commitments listed on the BASIX certificate, where the BASIX certificate requires the certifying authority to monitor those commitments. A final occupation certificate must not be issued until the certifying authority is satisfied that each of the commitments has been fulfilled.

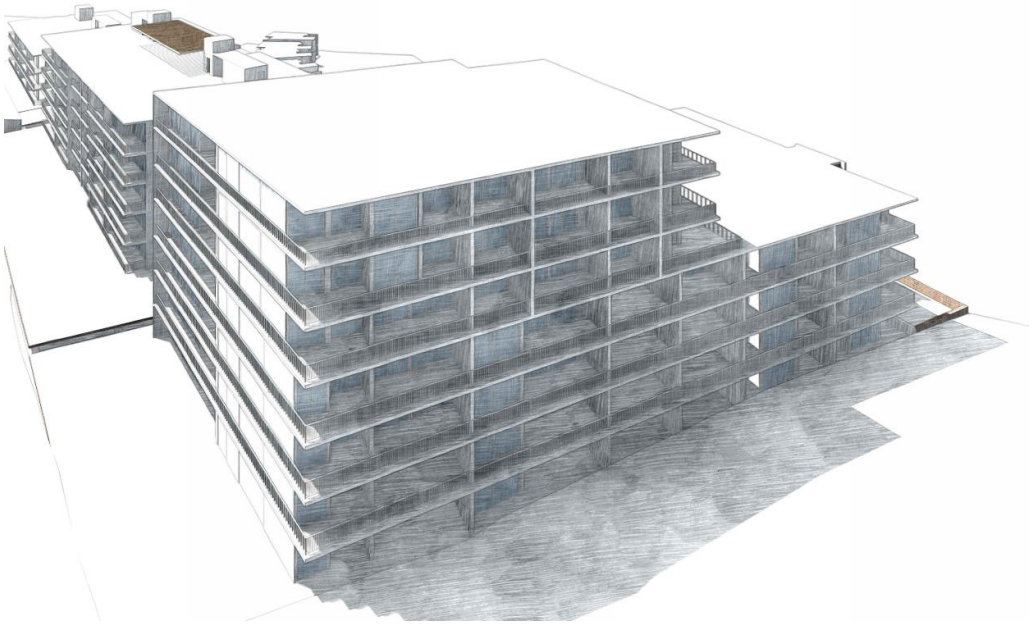
7. Methodology

7.1. Process adopted

The following method of assessment has been used in the preparation of this report:

1) Determine the basic assessment data for the building.
2) Assess the design of the building against the current Deemed-to-Satisfy requirements of Sections B, C, D, E, F, G, H and J of the BCA. Establish the status of each clause into the following categories:
    1. Clause is administrative information only **(Noted)**;
    2. Clause is or is not relevant to the proposed work **(Applicable or N/A)**
    3. The proposed work complies with the requirements of the clause **(Complies)**;
    4. Compliance with the requirements of the clause is unable to be determined from the documentation provided **(Compliance Readily Achievable)**. A recommendation in the "Comments" column will indicate what is required to achieve compliance. The design and construction teams are responsible to ensure compliance is achieved;
    5. Compliance with the requirements of the clause is unable to be determined from the documentation provided. Additional details or relevant information required to verify compliance (**Additional Details Required**);
    6. Proposed work does not comply with the requirements of the clause **(Does Not Comply)**. An indication will be given in the Comments field as to the nature of the issue and whether an alternative solution has been proposed to address the issue;
    7. Proposed work is to be addressed on a performance basis via an Alternative Solution satisfying the relevant Performance Requirements. (**Performance Solution**);
3) Nominate the status of the design against each BCA requirement;
4) Provide comments against each BCA requirement as appropriate.

8. Description of Proposed Development



The proposed development consists of the following:

- Demolition of all existing structures;
- Earthworks;
- Construction of residential accommodation comprising 172 dwellings, being:
    - Eleven (11) two storey townhouse style dwellings fronting Mosbri Crescent, located above a basement car park containing 34 visitor spaces and 11 resident spaces;
    - Three (3) residential flat buildings (Building A, B, and C) containing 161 dwellings, ranging from one to three bedrooms; being
        - Building A including a nine (9) storey east wing and six (6) storey west wing;
        - Building B comprising seven (7) storeys and a roof top communal open space, with (9) town house style dwellings facing the internal courtyard;
        - Building C comprising five (5) levels;
- Interconnected car parking for Building A, B & C located on the ground floor and first level, contains 1 visitor space and 196 resident spaces;
- Pedestrian path, providing connection from Mosbri Crescent to Kitchener Parade; and
- Associated landscaping, communal open space, services and site infrastructure.

9. Assessment Data Summary

The following basic assessment data has been drawn from the provisions of the BCA 2016 amendment 1.

9.1. Assumptions

No assumptions have been made in the preparation of this report.

9.2. Interpretations

A number of issues within the BCA are recognised to be interpretive in nature. Where these issues are encountered, interpretations are made that are consistent with Standard Industry Practise and/or Steve Watson & Partners policy formulated in regard of each issue:

- The townhouse units are located 6m from buildings A, B & C and as such are considered separable fire

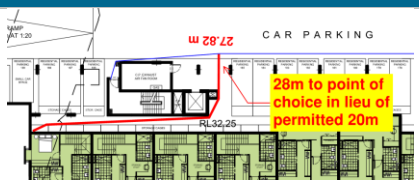
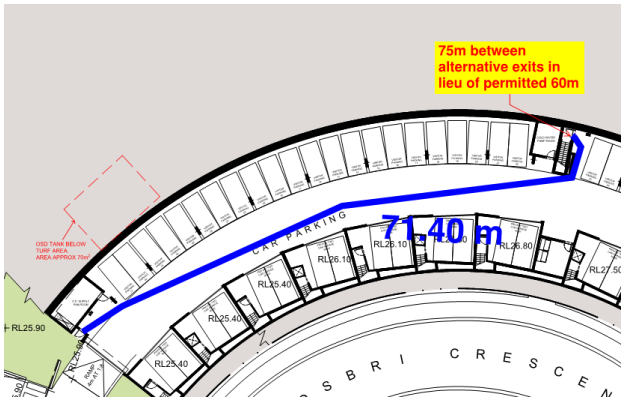
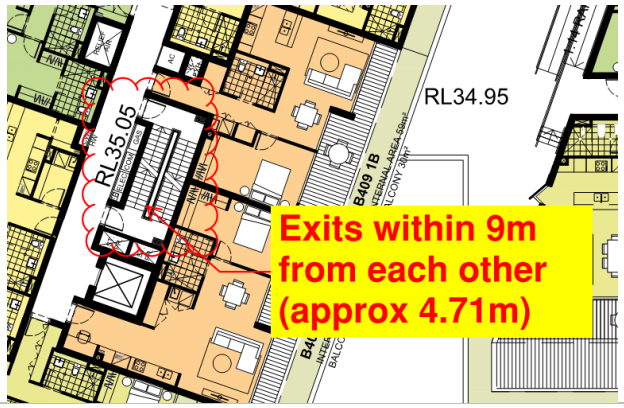
compartments. As such the over 25m provisions associated with the taller buildings are not required to be implemented within the townhouse units

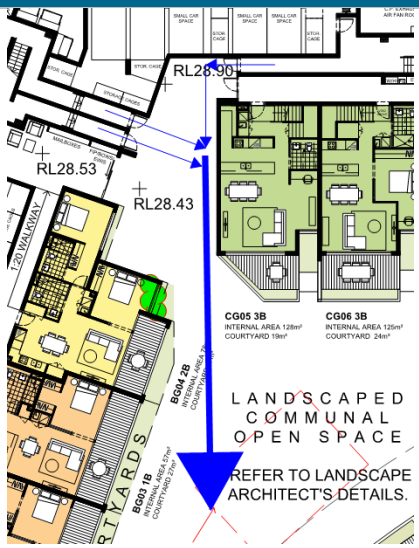
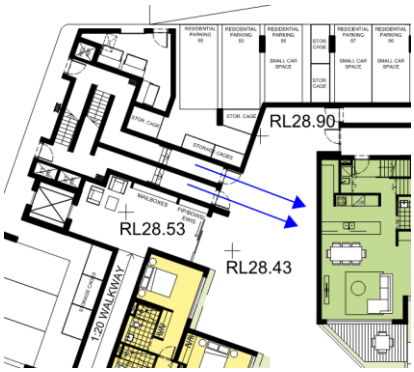
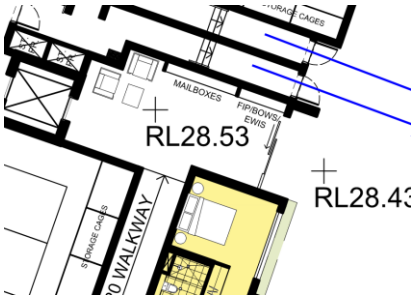
10. Issues Requiring Resolution

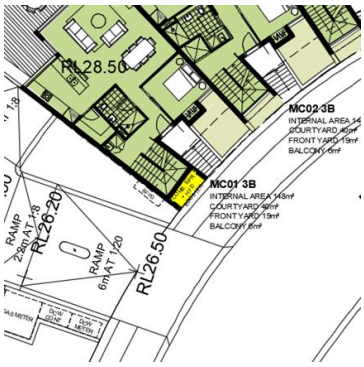
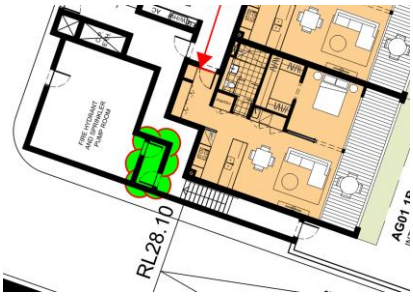
10.1. Performance solutions required – Fire Engineering

It is proposed to satisfy the following non-compliances via performance solutions:

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
1.	Number of exits required	D1.2	The following areas are served by a single fire isolated stairway in lieu of being provided with the provision of 2 exits: • Part of buildings A & Building B from ground floor through to level 6 **Building A**  **Building B**  **Details of the provision of a single exit in lieu of two (2) are required to be submitted to the projects qualified fire Engineer to determine whether a performance solution can be undertaken.**	DP4 & EP2.2
2.	Exit travel distances	D1.4	The following areas have been identified with distances exceeding 20m to a point of choice: • Ground Floor and Level 1 carpark – Up to 28m	DP4 & EP2.2

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
			 The following areas throughout the residential levels located on ground through to Level 8 exceed 6m to an exit or point of choice: • Up to 8m throughout all residential levels associated with buildings A, B & C 	
3.	Distance between alternative exits	D1.5	The following areas have been identified with distances between alternative exits exceeding 60m and which contain distances less than 9m: • Lower ground level – Up to 72m  • Building A – The alternative exits associated with the building A scissor stair is less than 9m apart (4.7m) 	DP4 & EP2.2
4.	Travel via fire isolated exits	D1.7	The path of discharge from multiple fire isolated stairways that service buildings A, B & C currently occurs within 6m of the external openings associated with some of the residential sole occupancy units. These openings are not proposed to be protected by a method listed within BCA Clause C3.4	DP4, DP5 & EP2.2

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
				
5.	Discharge from exits	D1.10	Alternative exits located on the ground floor discharge next to each other in lieu of being as far apart as practically possible 	DP4 & EP2.2
6.	Doorways and Doors	D2.19	All automatic doors throughout the development must be openable by means of manually using a force of not more than 110N and be fitted with a fail-safe device if the door is power operated.  *Should Security be of concern to the owner / operator a performance solution may be sought through the projects fire engineer to enable the external sliding doors permissibility to not fail open and be implemented with a push to exit button with battery back-up.*	DP2
7.	Fire Hydrants	E1.3	The following performance solution apply to the proposed design and are required to be documented by the projects fire engineer: • The fire brigade booster assembly is required to be	EP1.3

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
			separated from the building by 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 connection in the booster assembly. Currently unprotected openings are proposed within the separation zone  • The hydrant and sprinkle pump room is not provided with direct access into a fire isolated stairway  • The hydrant & Sprinkler booster is currently located as part of a building and is required to be within site of the main entry. As this development has multiple main building entries a technical departure has been assessed as it is unclear what can be determined as the main entry to this site.	
8.	Fire Hose Reels	E1.4	Fire Hose Reels coverage is not provided into the following areas of the site- • Garbage Rooms which have a chute facilitated to it which are located throughout the ground floor carpark associated with buildings A, B & C *Provisions of Fire Extinguishers are proposed inside these rooms in lieu of installing an additional Hose Reel.*	EP1.1
9.	Fire Sprinklers	E1.5	The following performance solution apply to the proposed design and are required to be documented by the projects fire engineer: • Omission of sprinklers within the shower cubicles to all bathrooms within each sole occupancy unit in the development; • Omission of sprinklers to the services cupboards located within the residential corridors; • Rationalization of sprinkler clearances associated with the storage cages throughout the basement levels of car parking; and • Implementation of wet sprinkler heads within the lift	EP1.4

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
			shaft in lieu of a dry head required under clause 13 of Specification E1.5	
10.	Portable Fire Extinguishers	E1.6	The townhouse units located off Mosbri Crescent are not provided with a common corridor to house a fire extinguisher. A performance solution is proposed to install an extinguisher within each unit in lieu of having a unit within 10m of unit doorway	EP1.2
11.	Fire Control Centre	E1.8	The following performance solution apply to the proposed design and are required to be documented by the projects fire engineer: • A Fire Control Centre is required to be located within the main entry to the building. As this development has multiple entries (multiple building lobbies) it is unclear what can be determined as the main entry to this site and as such a performance solution is required to be provided that documents the technical departure to the location of the panel; and • The fire control centre must have egress to road or open space which does not involve a change in level of more than 300mm. It appears that a variation in gradients will occur greater than 300mm from the front boundary to the fire control centre located in building A	EP1.6

11. Relevant Authorities

Where an alternative solution is proposed to meet the performance requirements contained in any one or more of the Category 2 fire safety provisions referral to Fire and Rescue NSW under Clause 144 of the EP&A Regulations is required in either of the following types of buildings:

(a) a class 9a building that is proposed to have a total floor area of 2,000 square metres or more, or

(b) a building (other than a class 9a building) that is proposed to have:

(i) a fire compartment with a total floor area of more than 2,000 square metres, or

(ii) a total floor area of more than 6,000 square metres,

12. Statutory Fire Safety Measures

All fire/essential safety measures installed within the building are required required to be certified upon completion of the project and prior to occupation of the building by the owner of the building, by issuing a Final Fire Safety Certificate under the Act.

The owner is also required under the Act to certify each of the Fire Safety Measures annually by issuing a Fire Safety Statement.

With performance solutions, additional or more frequent maintenance may result.

13. Conclusion

The design is capable of complying with the requirements of the relevant sections of the of the Act and EPAR and the BCA 2016 subject to resolution of the identified areas of non-compliance and compliance with the recommendations provided within the report.

Further detailed regulatory reviews will need to be progressively undertaken as designs advance and become more resolved to ensure compliance is achieved.

14. BCA 2016 – Clause by Clause Assessment

Clause	Description	Comment	Status
BCA Version			
BCA 2016	**BCA version** The BCA is generally updated every 3 years with amendments influencing health, safety and amenity features required within the building. Legislation typically allows future BCA changes to be ignored provided substantial progress on the design of the development has previously occurred.	This report assumes that the applicable BCA version is BCA 2016 amendment 1. In addition, requirements of the Premises Standards (PS) are covered as relevant.	Noted
Section A: General Provisions			
A3.2	**Classification and usage** Usage on each level of the building is as follows: **LEVEL** / **USE** / **CLASS** Lower Ground / Carpark / 7a Ground → Level 1 / Carpark / 7a Sole Occupancy Units / 2 Levels 2 → 8 / Sole Occupancy Units / 2		Noted
A2.1	**Suitability of Materials** Every part of a building must be constructed in an appropriate manner to achieve the requirements of the BCA, using materials that are fit for the purpose for which they are intended.	The builder is responsible to adopt and install appropriate proprietary accredited building products and is to ensure that those products/assemblies are fit for the purpose they are intended and are installed in accordance with the manufacturer's specifications/ requirements for that system.	Compliance readily achievable
Section B: Structure			
B1.1	**Resistance to actions** The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions	Certification from a qualified structural engineer will need to be provided at Construction Certificate stage	Compliance readily achievable
B1.2	**Determination of individual actions** The magnitude of individual actions must be determined in accordance with Clause B1.2 of the BCA.	Certification from a qualified structural engineer will need to be provided at Construction Certificate stage	Compliance readily achievable
B1.3	-	No provisions	-
B1.4	**Determination of structural resistance of materials and forms of construction** The structural resistance of materials and forms of construction must be determined in accordance with the relevant Australian Standards in accordance with Clause B1.4 of the BCA.	Certification from a qualified structural engineer will need to be provided at Construction Certificate stage. **Termite Protection – Use of Timber** Details of the method of protection against moisture and other associated termite attack should be documented within the specifications and on the drawings proposed for construction (Only applicable and confirmation should be given for the use of timber products)	Additional details required

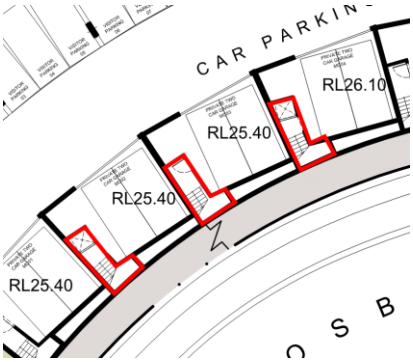
Clause	Description	Comment	Status
B1.5	**Structural software** Structural software used in computer aided design of a building or structure that uses design criteria based on DTS provisions of the BCA must comply with the ABCB Protocol for Structural Software.	-	Noted
B1.6	**Construction of buildings in flood hazard areas**	If applicable certification from a suitably qualified structural engineer will need to be provided at Construction Certificate stage. Clarification of this is to be documented by obtaining a section 149 (2 & 5) planning certificate from Council	Additional Details Required
Part B	**Structure and importance level** Assessment of the building structure will be required for dead, live, wind, earthquake, fire and other loads required by current day AS Codes. The design of the structure must be based on the appropriate 'Importance Level' under BCA Table B1.2a.	The building has an importance level 2 in accordance with Table B1.2a.	Compliance readily achievable

Clause	Description	Comment	Status
Section C: Fire Resistance			
Part C1 – Fire Resistance and Stability			
C1.1	**Type of Construction Required** **Type A Construction** BCA Type A fire resisting construction is required. Refer to Appendix C1.1 and Specification C1.1 below for the relevant fire resisting requirements	Fire resisting requirements to building elements 1. External walls: • Must be non-combustible; 2. Loadbearing walls must achieve the following FRLS: • Achieve an FRL of 120/120/120 to the Lower Ground floor, ground floor and level 1 carparks • Achieve an FRL of 90/90/90 to the residential levels from ground through to level 8; • All rooms and units that bound corridors and bounding walls between SOUs are required to achieve an FRL of not less than 90/90/90 or -/60/60 3. Any loadbearing internal walls must be of concrete or masonry; 4. Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must have an FRL and be non-combustible as required by Clause 2.2 of the Specification; 5. Any non-loadbearing internal walls required to be fire resistant or shafts must be non-combustible; and 6. Roof is not required to achieve a fire rating provided the covering is non-combustible as sprinklers are being installed throughout the development and the development is of class 2 dwellings. **Structural details & specifications of the wall types and relevant FRLs proposed are to be submitted from a suitably qualified Structural Engineer to the Certifying Authority upon application of the relevant Construction Certificate** *Note: A concession is provided under Spec C1.1 for the townhouse units whereas the floors separating multiple storeys in the same unit need not achieve an FRL. Please note that lateral support needs to be taken into consideration when considering this concession*	Additional details required
C1.1, Spec C1.1	**Combustible Materials to External Walls in Fire** External walls should be constructed of non-combustible materials and/or otherwise not contribute to the risk of fire spread via the external façade.	A detailed review of the external wall system and materials will be undertaken to ensure no combustible materials (including Aluminium Composite Panels ACP's) and non-compliant building products are proposed.	Additional details required

Clause	Description	Comment	Status
	The following materials may be used where non-combustible materials are required:- • Plasterboard. • Perforated gypsum. • Fibrous-plaster sheeting to AS 2185. • Fibre-reinforced cement sheeting. • Pre-finished metal sheeting. • Bonded laminated materials. • As determined by testing to AS 1530.1 • An appropriately BCA accredited product or system	**All materials proposed within and attached to the external wall are to be detailed and submitted as part of SWP's External & Common wall (Cladding and Wall register) Design Certificate. This also includes relevant test reports, Codemark certification and certificates of conformity demonstrating compliance with relevant Australian Standards.** *Should any deviation occur for the proposed cladding product or sarking material either an alternative solution will be required or a variation to the selected material will need to be implemented within the design*	
C1.2	**Calculation of rise in storeys** **Effective Height / Calculation of rise in storeys**. Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as vertical distance between the floor of the lowest storey included in the calculation of rise in storeys and 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). These parameters influence the BCA provisions applicable to the building.	The following parameters apply: **Rise Storeys:** Buildings A, B & C – 9 Storeys Townhouse Units – 3 Storeys **Effective Height:** <u>Buildings A, B & C</u> 26.05m (Level 8 RL54.15 - Ground Level RL 28.10) <u>Townhouse Units</u> 9.00m (Level 1 RL 34.40 – Lower Ground Level RL 25.4)	Noted
C1.3	**Buildings of multiple classification**	The building is required to be constructed of Type A fire resisting construction as the classification of the top storey is a Class 2	Noted
C1.4	**Mixed types of construction**		N/A
C1.5	**Two storey Class 2, 3 or 9c buildings**	The building is able to be constructed in Type C construction.	Applicable
C1.6	**Class 4 parts of buildings**		N/A
C1.7	**Open spectator stands and indoor sports stadiums**		N/A
C1.8	**Lightweight construction** Lightweight construction used in a wall system must comply with Specification C1.8. Lightweight construction used as a fire-resisting covering of a steel column or the like, and where the covering is not in continuous contact with the column must have the voids filled to a height of not less than 1.2m above the floor and where the column is liable to be damaged must be protected by steel or other suitable material.	Details of the proposed systems to be installed must be in accordance with a tested prototype.	Compliance readily achievable

Clause	Description	Comment	Status
C1.9	**Non-combustible building elements** In a building required to be of Type A construction, the following building elements and their components must be non-combustible: i. External walls and common walls, including all components incorporated within them including façade covering, framing and insulation; ii. The flooring and floor framing of lift pits; and iii. Non-loadbearing internal walls where they are required to be fire-resisting	A detailed review of the makeup of the wall systems and materials will be undertaken to ensure no combustible materials (including Aluminium Composite Panels ACP's) and non-compliant building products are proposed. **All materials proposed within and attached to the external wall are to be detailed and submitted as part of SWP's External & Common wall (Cladding and Wall register) Design Certificate. This also includes relevant test reports, Codemark certification and certificates of conformity demonstrating compliance with relevant Australian Standards.** *Should any deviation occur for the proposed cladding product or sarking material either an alternative solution will be required or a variation to the selected material will need to be implemented within the design*	Additional details required
C1.10	**Fire Hazard Properties** Floor materials, floor coverings and wall and ceiling lining materials need to comply with prescribed fire hazard properties. Refer to Appendix C1.10.	Compliance assumed and will require verification test data for all timber and other combustible linings and materials, including:- • Carpets • Vinyls (walling and flooring) • Timber flooring and wall linings • Veneered wall panelling • Spray-on insulation material • Other combustible finishes • Carpark soffit insulation fire test reports, based on 'room fire testing' will be required to meet fire brigade consent conditions if applicable.	Compliance readily achievable
		The fire hazard properties of floor linings and coverings, wall linings and ceiling linings must comply with Specification C1.10 and NSW Specification C1.10. Test reports to be provided certifying that: • the floor linings achieve a critical radiant flux 1.2 • The wall and ceiling linings achieve a group 1, 2 or 3 rating Test reports of all the proposed lining materials are required to be provided to the project certifying Authority for review and acceptance prior to the installation	
C1.11	**Performance of external walls in fire**		N/A

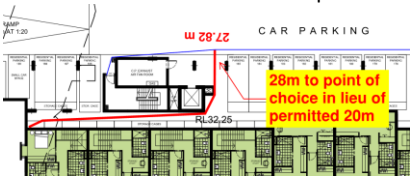
Clause	Description	Comment	Status
C1.12	**Non-combustible materials**	Gypsum, metal and laminated non-combustible materials containing combustible components are deemed to be non-combustible.	Noted
C1.13	**Fire-protected timber: Concession**		N/A
C1.14	**Ancillary elements**	An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is non-combustible or as specified under this clause.	Noted
Part C2 – Compartmentation and Separation			
C2.1	**Application of Part**	Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand.	Noted
C2.2	**Floor Area Limitations (Type A construction)**	• The BCA does not require Class 2 parts of the building to be considered; and • The basement carpark levels are not required to be considered as they're provided with a sprinkler system throughout	Complies
C2.3	**Large isolated buildings**		N/A
C2.4	**Perimeter vehicular access**		N/A
C2.5	**Class 9a and 9c buildings**		N/A
C2.6	**Vertical separation of openings in external walls** Only applicable to a building of Type A Construction, which is not sprinkler protected.	Buildings A, B & C are to be installed with a sprinkler system and as such spandrel separation is not considered. The townhouse units located on Mosbri Crescent are considered to be of Type C Construction *(Concession granted under Clause C1.5)* and as such Spandrel provisions are not required to be considered	N/A
C2.7	**Separation by fire walls**	A fire wall must extend to the underside of a floor having an FRL required for a fire wall or the roof covering. The fire wall must also be constructed to achieve an FRL applicable to the highest FRL.	Noted

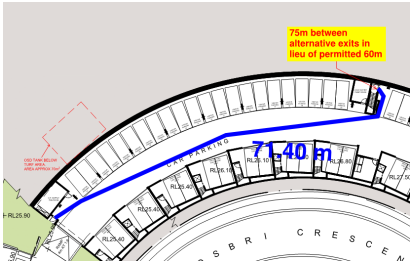
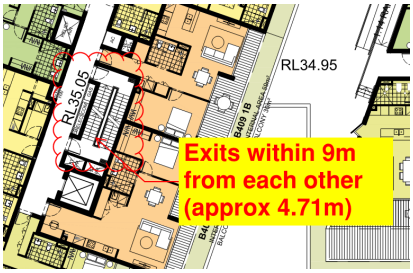
Clause	Description	Comment	Status
C2.8	**Separation of classifications in the same storey** As the building has parts of different classifications located alongside one another in the same storey each building element must have the higher FRL prescribed in Specification C1.1 of the BCA or the parts must be separated by a fire wall.	The following fire separation is required to separate classifications throughout the development including the provisions associated with separating sprinkler protected and non-sprinkler protected elements. • **Townhouse Units-** The construction around the interconnecting stair from the basement carpark to the units are required to be constructed to achieve an FRL of not less than 120/120/120.  • **Buildings A, B & C** The wall separating the class 7a to the class 2 portions located throughout the ground floor and level 1 are required to achieve an FRL of not less than 120/120/120  **Structural details & specifications are to be submitted to the certifying Authority upon application of the relevant Construction Certificate.**	Additional Details Required
C2.9	**Separation of classifications in different storeys** As different classifications are situated one above the other in adjoining storeys they must be separated in accordance with the DTS provisions of Table 4 of of BCA 2016 Specification C1.1.	As different classifications are situated one above the other in adjoining storeys they must be separated in accordance with the DTS provisions of the BCA. • The Carpark (Class 7a) is to be separated from the residential unit levels (Class 2) by a slab achieving an FRL of 120/120/120; • The residential unit levels (Class 2) are to be separated from other Residential levels (Class 2) by a slab achieving an FRL of 90/90/90 **Structural details & specifications are to be submitted to the certifying Authority upon application of the relevant Construction Certificate.**	Additional Details Required
C2.10	**Separation of Lift Shafts**	The proposed lift shafts serving the building must be separated as specified in Clause 2.10.	Additional details required

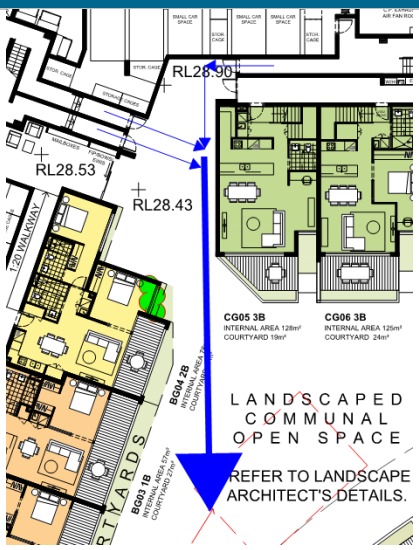
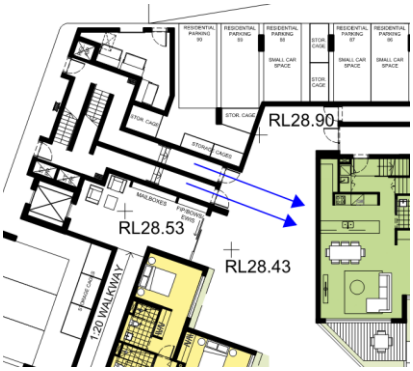
Clause	Description	Comment	Status
		Separation of the lift shaft must be achieved from the remainder of the building by complying with elements achieving the following nominated FRLs- • **Class 2 – 90/90/90; and** • **Class 7a - 120/120/120** Openings for lift landing doors and services must be protected in accordance with the DTS provisions of Part C3 of the BCA **Structural details & specifications of the wall types and relevant FRLs proposed are to be submitted from a suitably qualified Structural Engineer to the Certifying Authority upon application of the relevant Construction Certificate.**	
C2.11	**Stairs and Lift in One Shaft**	The lift is situated within a separate shaft to that of the Fire Isolated stairs	Complies
C2.12	**Separation of Equipment**	Equipment that comprises **boilers** or **batteries** (having a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours) including a pump room that is not installed within a sprinkler protected building / area must be separated from the remainder of the building by construction with an FRL as required under Specification C1.1 but not less than 120/120/120.	Compliance readily achievable
C2.13	**Electricity Supply System** A substation located within a building or main switchboard, which sustains emergency equipment, must be separated from the remainder of the building by 2hr fire rated construction.	Any switch rooms located throughout the building are required to be fire separated from the remainder of the building by no less than an FRL of 120/120/120 if they house services that sustain emergency equipment. **Structural details & specifications of the wall types and relevant FRLs proposed are to be submitted from a suitably qualified Structural Engineer to the Certifying Authority upon application of the relevant Construction Certificate.** *Note the building is being installed with an external kiosk and is to be installed in accordance with the requirements with the relevant energy authority*	Additional Details Required
C2.14	**Public corridors in Class 2 buildings**	All corridors are less than 40m in length	Complies
Part C3 – Protection of Openings			
C3.1	**Application of Part**		Noted
C3.2	**Protection of Opening in External Walls**	All external openings / walls are more than 3m from a fire source feature	Complies
C3.3	**Separation of Openings in Different Fire Compartments**		N/A
C3.4	**Acceptable method of protection**	The following methods of protection are permissible within Clause C3.4 of the BCA-	Noted

Clause	Description	Comment	Status
		Window Protection • Wall wetting sprinklers; • -/60/- Fire rated windows that are automatic closing or permanently fixed in the closed position; or • -/60/60 automatic fire shutters. **Doorway Protection** • wall wetting sprinklers used with doors that are self-closing; or • Automatic closing or -/60/30 self-closing or automatic closing fire doors.	
C3.5	**Doorways in fire walls**	The doors located in the walls that separate the carpark to the residential portions of the building are required to achieve an FRL of not less than -/120/30. A door schedule indicating compliance is required to be provided and will be checked upon an application for the main works Construction Certificate	Additional Details Required
C3.6	**Sliding Fire Doors**		N/A
C3.7	**Protection of doorways in horizontal exits**		N/A
C3.8	**Openings in Fire Isolated Exits** -/60/30 self-closing fire doors are required to doorways providing access to fire isolated stairways.	A door schedule indicating compliance is required to be provided and will be checked upon an application for the main works Construction Certificate	Additional Details Required
C3.9	**Service penetrations in fire isolated exits** Service penetrations other than electrical wiring for essential service installations, pressurisation ducts with an FRL of -/120/60, or water pipes for fire services are not permissible.		Noted
C3.10	**Openings in fire isolated lift shafts** Openings in lift shafts are to be protected by -/60/- fire doors complying with AS1735.11. Lift indicator panels are to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm2 (175 X 200 mm).	Certification from the lift supplier is required for the installation of the new lifts	Additional Details Required
C3.11	**Bounding construction: Class 2 buildings** All doorways within the Class 2 portions which provide access into the public corridor must be fitted with -/60/30 self-closing fire doors.	A door schedule indicating compliance is required to be provided and will be checked upon an application for the main works Construction Certificate	Additional details required
C3.12	**Openings in floors for services** Services passing through floors are to be placed within fire resisting shafts or in accordance with Clause C3.15.	**Type A Constructed Buildings – Buildings A, B & C** **Class 2** Loadbearing shafts are required to have an FRL of not less than 90/90/90, and for non-loadbearing shafts an FRL of not less than -/90/90. **Class 7a** Loadbearing shafts are required to have an FRL of not less than 120/90/90, and for non-loadbearing shafts an FRL of not less than -/90/90.	Additional details required

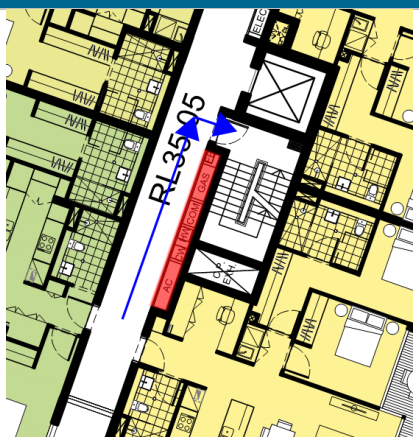
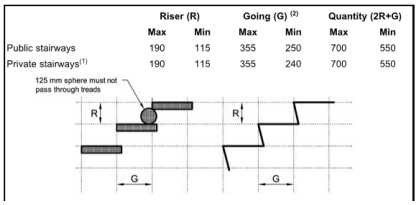
Clause	Description	Comment	Status
		Details of the Shaft wall and passive fire systems proposed to be used within the building are to be submitted within a schedule upon application of the relevant Construction Certificate to the Certifying Authority	
C3.13	**Openings in shafts**	In a building of Type A construction (Buildings A, B & C only), an opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by: • If it is a sanitary compartment - a door or panel which together with its frame, is non-combustible or has an FRL of not less than -/30/30, or • A self-closing -/60/30 fire door or hopper, or • An access panel with an FRL of not less than -/60/30, or • If the shaft is a garbage shaft - a door or hopper of non-combustible construction.	Compliance readily achievable
C3.14	-	This Clause has deliberately been left blank	-
C3.15	**Openings for service installation** Methods and materials used are to be identical to tested prototypes and in accordance with AS4072.1 and AS1530.4, and having achieved the required FRL or resistance to the incipient spread of fire or other specified method.	Any system used must be a certified system and installed in accordance with the tested method. Specifications of the methods of fire sealing need to be provided	Compliance readily achievable
C3.16	**Construction Joints** Construction joints in elements required to have a fire resistance with respect to integrity and insulation must be protected.	Construction joints are to be installed in accordance with a tested prototype in accordance with AS1530.4.	Compliance readily achievable
C3.17	**Columns protected with lightweight construction**	Columns must be protected in accordance with the identical tested prototype.	Compliance readily achievable
Section D: Access and Egress			
Part D1 - Provision for Escape			
D1.1	**Application of Part**		Noted
D1.2	**Number of exits required** The building has an effective height >25m therefore requires a minimum of 2 exits from each storey.	The following areas are served by a single fire isolated stairway in lieu of being provided with the provision of 2 exits: • Part of buildings A & Building B from ground floor through to level 6 **Building A**	Performance Solution

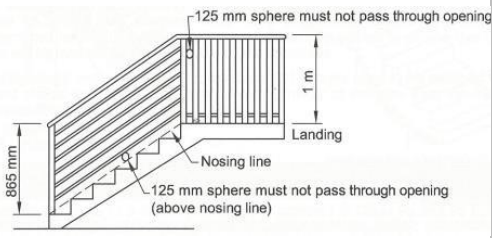
Clause	Description	Comment	Status
		 **Building B**  **Details of the provision of a single exit in lieu of two (2) are required to be submitted to the projects qualified fire Engineer to determine whether a performance solution can be undertaken.**	
D1.3	**When Fire Isolated Exits are Required**	Every stairway within this development is proposed to be fire isolated for the purposes of evacuating occupant safely to the road and / or open space. The shaft housing the fire isolated stairs is required to achieve an FRL of the following unless subject to an Alternative solution discussed within BCA Clause C2.8, C2.9 and Specification C1.1 • **Class 2 – 90/90/90; and** • **Class 7a – 120/120/120**	Compliance Readily Achievable
D1.4	**Exit Travel Distances** <u>Lower Ground, Ground, Level 1 and the communal roof to building B</u> No point on the floor must be more than 20m to an exit or a point in which travel in different directions to 2 exits is available, in which case, the maximum distance to 1 exit cannot exceed 40m. <u>Ground through to Level 8 (Residential Apartments)</u> The entrance doorway of the sole-occupancy units must be not more than 6m from an exit or a point from which travel in different directions to 2 exits is	The following areas have been identified with distances exceeding 20m to a point of choice: 1. Ground Floor and Level 1 – Up to 28m  The following areas throughout the residential levels located on ground through to Level 8 exceed 6m to an exit or point of	Performance Solution

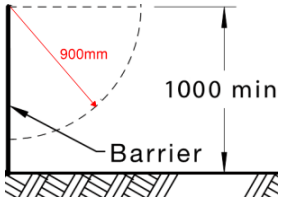
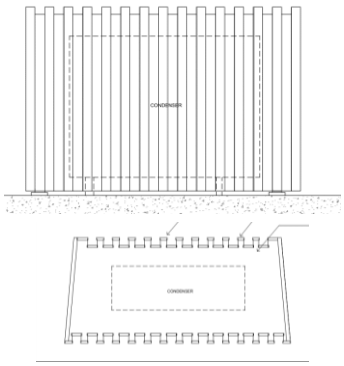
Clause	Description	Comment	Status
	available.	choice: • Up to 8m throughout all residential levels associated with buildings A, B & C  Details of the extended travel distances are required to be documented by the projects fire engineer as part of a performance solution	
D1.5	**Distance between alternative exits** The following travel distance limits apply: • ≤ 20m to a single exit or to a point of choice to alternative egress paths, and • ≤ 40m to the closest alternative exit; • ≤ 60m travel distance between alternative exits and not less than 9m between alternative exits; • Exit paths to alternative exits should not converge at any point to be less than 6m apart.	The following areas have been identified with distances between alternative exits exceeding 60m and which contain distances less than 9m: • Lower ground level – Up to 72m  • Building A – The alternative exits associated with the building A scissor stair is less than 9m (4.7m)  Details of the extended travel distances and reduced distances between alternative exits are required to be documented by the projects fire engineer as part of a performance solution	Performance Solution
D1.6	**Dimensions of exits and paths of travel to exits**		Complies
D1.7	**Travel via fire-isolated exits**	The path of discharge from multiple fire isolated stairways that service buildings A, B & C currently occurs within 6m of the external openings associated with some of the residential sole occupancy units. These openings are not proposed to be protected by a method listed within BCA Clause C3.4	Performance Solution

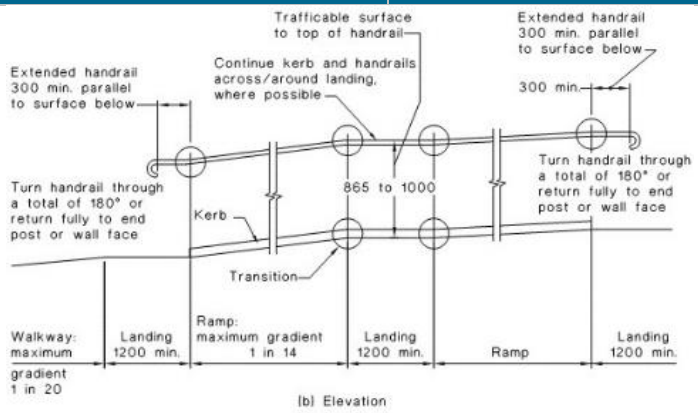
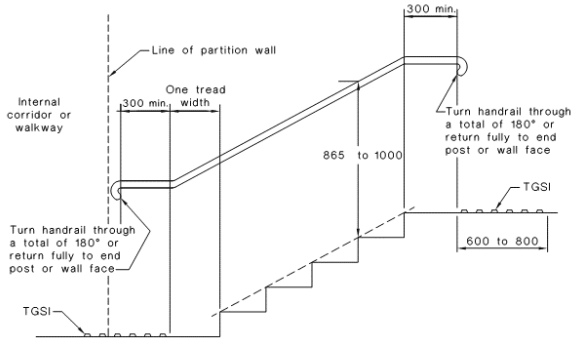
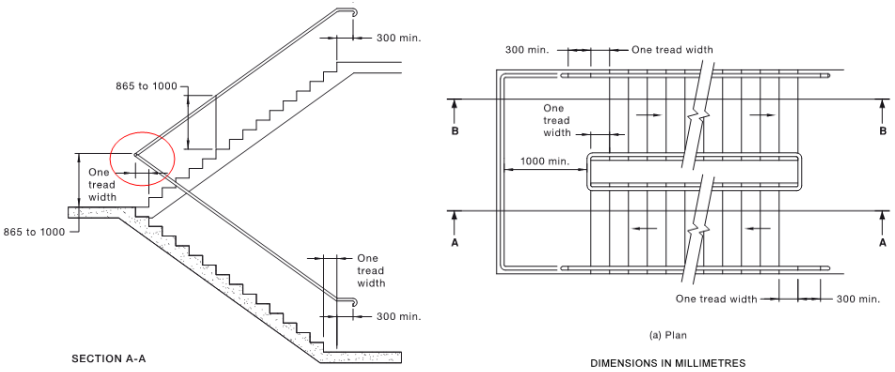
Clause	Description	Comment	Status
		 **Details of the non-compliant discharge arrangements are required to be submitted to the projects fire safety engineer to determine the feasibility of assessing the non-compliance by means of a performance solution.**	
D1.8	**External stairways or ramps in lieu of fire-isolated exits**		N/A
D1.9	**Travel by non-fire-isolated stairways or ramps**		N/A
D1.10	**Discharge from exits** Suitable barriers such as bollards are to be provided to prevent the blockage of exits by vehicles, etc. An unobstructed path of travel to the road must be provided with a width not less than the width of the required exit.	Details of the methods of protection of the doors are required to be provided on the plans to demonstrate compliance against the requirements of BCA Clause D1.10	Additional Details Required
		Alternative exits located on the ground floor discharge next to each other in lieu of being as far apart as practically possible  This technical non-compliance is required to be reviewed by the projects Fire Engineer and if deemed feasible incorporated within a performance solution	Performance Solution
D1.11	**Horizontal Exits**		N/A
D1.12	**Non-required stairs, ramps or escalators**		N/A
D1.13	**Number of persons accommodated**		N/A
D1.14	**Measurement of distance**		Noted

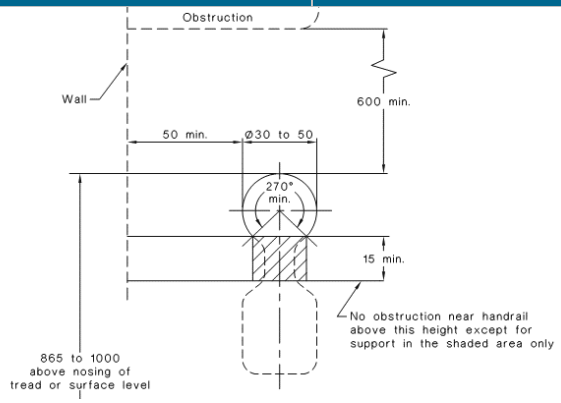
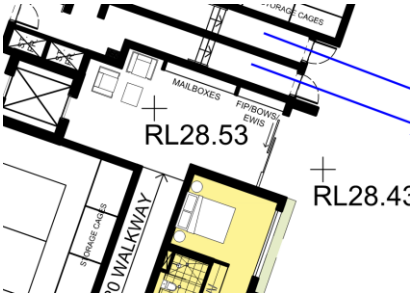
Clause	Description	Comment	Status
D1.15	**Method of measurement**		Noted
D1.16	**Plant rooms and lift machine rooms: Concession**		Noted
D1.17	**Access to lift pits**		Noted
Part D2 – Construction of Exits			
D2.1	**Application of Part**		Noted
D2.2	**Fire Isolated Stairs or Ramps**	A stairway or ramp that is required to be within a fire-resisting shaft must be constructed- a) Of non-combustible materials; and b) So that if local failure occurs it will not cause structural damage to, or impair the fire resistance of the shaft	Compliance Readily Achievable
D2.3	**Non Fire Isolated Stairways and Ramps**	The proposed stairs serving the basement level of the townhouse units are required to be constructed in accordance with the provisions of D2.3, or only of- a) Reinforced or pre-stressed concrete; or b) Steel in no part less than 6mm thick; or c) Timber that- I. Has a finished thickness of not less than 44mm; and II. Has an average density of not less than 800kg/m3 at a moisture content of 12%; and III. Has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue **Details of the proposed methods of construction and materials used for this staircase are required to be submitted to the Certifying Authority upon application for the Construction Certificate for review**	Additional Details Required
D2.4	**Separation of rising and descending stair flights**	All rising and descending stair flights are fire & smoke separated	Complies
D2.5	**Open access ramps and balconies**		N/A
D2.6	**Smoke lobbies**		N/A
D2.7	**Installations in Exits and Paths of Travel**	Electrical boards and the like are to be located within and enclosed by non-combustible construction or have a fire-protective covering with the doorway suitably sealed against smoke spreading from the enclosure. Generally the services or equipment may be enclosed in non-combustible construction such as MDF with a solid core	Additional details required

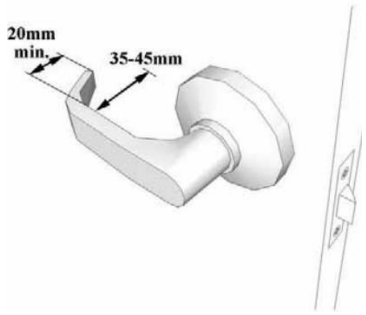
Clause	Description	Comment	Status
		 **Details of the proposed doors including notation of smoke seals and / or metal backed solid core doors are to be incorporated within a door schedule to be submitted for the issue of the relevant Construction Certificate**	
D2.8	**Enclosure of Space Beneath Stairs**		N/A
D2.9	**Width of stairways**		N/A
D2.10	**Pedestrian ramps**	Ramps serving as required exit must have a gradient not less steep than 1:8. If the ramp is required for disabled access under Part D3 it must comply with AS1428.1. The surface of the ramp must have a non-slip finish.	Noted
D2.11	**Fire-isolated passageways** Fire isolated passageways are to have an FRL equivalent to the fire resisting stair shaft as specified in Table A of Specification C1.1.	**A Structural Engineer is to determine adequate FRLs and nominate these on structural plans associated with the application with the relevant Construction Certificate**	Additional Details Required
D2.12	**Roof as open space** The roof is required to have an FRL of not less than 120/120/120 and not incorporate any roof lights or other openings within 3m of the path of travel.	Fire stairs serving the residential buildings and basement levels of the building discharge to the ground floor. This level is technically the roof of the carpark level below. It should be noted that any path of travel on this area is to be located no less than 3m from any openings or roof lights. **A Structural Engineer is to determine adequate FRLs and nominate these on structural plans associated with the application of the relevant Construction Certificate**	Applicable
D2.13	**Going and Risers**	 Details and specifications of stairways are to be submitted to the Certifying Authority for the relevant Construction Certificate	Additional Details Required

<table>
<tr><th>Clause</th><th>Description</th><th>Comment</th><th>Status</th></tr>
<tr><td></td><td>Stairways within this development are to be constructed and comply with the following-
Stairs are to have risers measuring between 115-190mm and goings between 250-355mm.
Goings and Risers are to satisfy the equation of 2R+G=700(max) and 550(min).
Adjacent risers, or between adjacent goings a variation no greater than 5mm is permitted and the largest and smallest riser within the flight or the largest and smallest going within a flight is not to exceed a variation of 10mm.
Under the requirements of AS1428.1-2009 open riser are not permitted.
All treads to be fitted with non-slip finish or non-skid strips.
Treads are required to have a surface or nosing strip with a slip-resistance classification not less than listed in Table D2.14 when tested in accordance with AS 4586</td><td></td><td></td></tr>
<tr><td>D2.14</td><td>Landings
Ramps Surfaces, stair tread surfaces or nosing strips, and stair landing surfaces, or landing nosing strips to a flight below, must achieve slip-resistance classifications to AS4586-2013 as follows: -<table><tr><th><u>Application</u></th><th><u>Dry Surface Conditions</u></th><th><u>Wet Surface Condition</u></th></tr><tr><td>1:14 or steeper ramps</td><td>P4 or R11</td><td>P5 or R12</td></tr><tr><td>Ramps of 1:14 to 1:20</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Tread or Landing Surface</td><td>P3 or R10</td><td>P4 or R10</td></tr><tr><td>Nosing Strip or Landing Strip</td><td>P3</td><td>P4</td></tr></table></td><td>Certification / test reports on the slip resistance of the surfaces will need to be provided on constructed elements.
All external stairways and ramps located throughout the ground floor are considered to adopt slip ratings associated with wet surface conditions within the table to the left.</td><td>Compliance readily achievable</td></tr>
<tr><td>D2.15</td><td>Thresholds
Steps should not occur at doorways without a threshold landing except as follows:
A single 190mm step is permitted (other than in health or aged care buildings) at doors leading to the exterior.</td><td>Note that where access for people with disabilities is required it is not permitted to have a step at the threshold of a doorway</td><td>Compliance readily achievable</td></tr>
<tr><td>D2.16</td><td>Barriers to Prevent Falls
 
</td><td>Balustrades complying with Deemed-to-Satisfy provisions of the BCA are to be provided to where the level of the surface below is 1m or more.
Where the level of the surface below is 4m or more, a balustrade or other barrier must not facilitate climbing of horizontal elements between 150mm and 760mm above the floor.
Any opening in the balustrade must</td><td>Additional Details Required</td></tr>
</table>

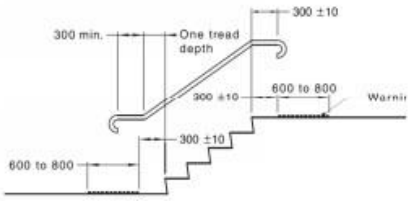
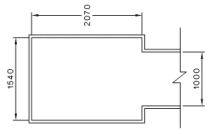
Clause	Description	Comment	Status
		not permit a 125mm sphere to pass through the balusters.	
		• Climbable elements cannot be located within 900mm of the top rail of each balustrade where the fall is greater than 4m. This measurement is taken in an arc as seen in the extract to the left.	
		• Should a condenser unit be installed within the climbable region of a balustrade that has a fall greater than 4m, the unit is required to be concealed by means of a shroud or similar device to ensure climbable elements are not provided. An example of a shroud design can be seen to the left. **Detailed drawings of any proposed balustrades and other occupant barriers are to be provided at the relevant Construction Certificate stage for verification.**	
D2.17	**Handrails** Handrails to exits including parts of fire isolated exits serving an area required to be accessible to people with disabilities must comply with Clause 12 of AS1428.1: - • Handrails not to obstruct circulation space • 30-50mm diameter • 865-1000mm above nosing line of stairs • 865-1000mm above ramps and landings • Consistent height throughout • 50mm grip clearance and no obstructions to handhold • Continuous at internal (return) landings • Provided with handrail extensions and 180 degree curled ends	Handrails are to be provided in compliance with Clause D3.3 and include the following- • **Non-Fire Isolated Stairways and Ramps** All stairs and ramps not used as an emergency exit are to have handrails installed on both sides that comply with Clause 10 & 11 of AS1428.1-2009 • **Fire Isolated Stairways and Ramps** In Fire Isolated Stairways & Ramps a handrail is required to be installed to at least one side of stair flights and located not less than 865mm above the nosing's of stair treads and the floor surfaces of landings • **Consistent Handrail Heights for all stairways** The height of the top of the handrail, measured at a height of between 865mm – 1000mm vertically from the stair nosing shall be consistent throughout the ramp (or stairs) and any landings. All stairs including fire stairs are required to be designed to comply with Clause 12 of AS1428.1 – 2009 **Detailed designs, drawings and specifications of the handrail design are to be submitted to the certifying Authority for a further detailed review upon application of the relevant Construction Certificate.**	Additional Details Required
	Ramps		

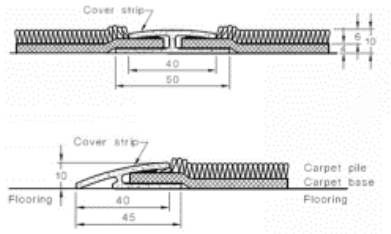
Clause	Description	Comment	Status
	 (b) Elevation DIMENSIONS IN MILLIMETRES FIGURE 14 RAMP HANDRAILS **Stairways**  SECTIONAL VIEW DIMENSIONS IN MILLIMETRES FIGURE 26(B) STAIRWAY LOCATION AND HANDRAIL EXTENSIONS AT END OF STAIRWAY OTHER THAN AT LINE OF BOUNDARY  SECTION A-A (a) Plan DIMENSIONS IN MILLIMETRES **Handrail Profile**	

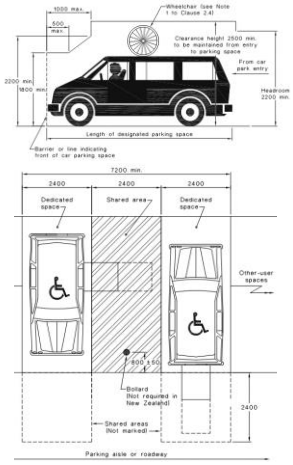
Clause	Description	Comment	Status
			
D2.18	**Fixed Platforms, Walkways, Stairways and Ramps**	Platforms, walkways, stairs, ladders and the like that give access to and around plant and equipment, machine rooms, attic spaces and other low use areas of the building are permitted provided that construction details are to AS1657.	Noted
D2.19	**Doorways and doors**	All automatic doors throughout the development must be openable by means of manually using a force of not more than 110N and be fitted with a fail-safe device if the door is power operated.  *Should Security be of concern to the owner / operator a performance solution may be sought through the projects fire engineer to enable the external sliding doors permissibility to not fail open and be implemented with a push to exit button with battery back-up.*	Performance Solution
D2.20	**Swinging doors**		Complies
D2.21	**Operation of latch** Exit doors should be provided with "free handle" egress via a downward or pushing action and, if serving an area accessible to people with disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances.	All exit doors and doors in the path of travel must comply with provisions documented below in the extract from AS1428.1-2009	Compliance readily achievable

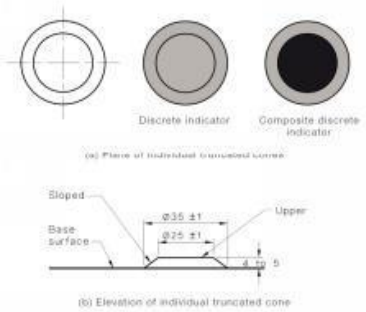
Clause	Description	Comment	Status
		(A) Example of Lever Handle Design  	
D2.22	**Re-Entry from Fire-Isolated Exits** Doors of fire-isolated exits must not be locked from the inside of a fire-isolated exit, unless: <u>Option 1</u> All doors are fitted with a fail-safe device that automatically unlocks the door upon activation of a fire alarm; **AND** • On at least every fourth storey, the doors are not able to be locked at all and are sign posted stating re-entry is available at that level. <u>Option 2</u> • All doors are fitted with a fail-safe device that automatically unlocks the door upon activation of a fire alarm; **AND** An intercommunication or audible/visual alarm system is provided within the stair to assist persons who may accidentally be locked within the stair.	Levels which service a building over an effective height of 25m are required to facilitate re-entry provisions throughout the flights. Doors of fire-isolated exits must not be locked from the inside of a fire-isolated exit, unless all doors are automatically unlocked by a failsafe device by activation of a fire alarm. Additionally, on at least every fourth storey, the doors should not be locked at all and should be sign posted that re-entry is available at that level. Alternatively, an intercommunication or audible/visual alarm system is required within the stair to assist persons who may accidentally be locked within the stair. **Details of the proposed method of re-entry is required to be submitted to the Certifying Authority upon application for the relevant Construction Certificate.** *Note: Should a deviation be proposed to this DTS method a performance based solution should be sought by the projects accredited fire engineer*	Additional Details Required
D2.23	**Signs on doors** Signage in capital letters not less than 20mm high to be provided on doors as follows i. An automatic door held open by an automatic hold-open device: **FIRE SAFETY DOOR - DO NOT OBSTRUCT** ii. for a self-closing door **FIRE SAFETY DOOR** **DO NOT OBSTRUCT** **DO NOT KEEP OPEN** iii. for a door discharging from a fire-isolated exit **FIRE SAFETY DOOR - DO NOT OBSTRUCT**	Under Clause 183 of the Environmental Planning and Assessment Regulation 2000 a notice is to be displayed in a conspicuous location adjacent to a doorway providing access to but not within a fire isolated stairway, passageway or ramp. The words "**OFFENCES RELATING TO FIRE EXITS**" are to be provided in letters at least 8mm high and the remaining words are to be at least 2.5mm high. The notice is to state the following:	Additional Details Required

Clause	Description	Comment	Status
		OFFENCES RELATING TO FIRE EXITS It is an offence under the Environmental Planning and Assessment Act 1979 (a) to place anything in or near this fire exit that may obstruct persons moving to or from this exit, or (b) to interfere with or obstruct the operation of any fire doors, or (c) to remove, damage or otherwise interfere with this notice. **A signage schedule is required to be provided to the Certifying Authority upon application of the relevant Construction Certificate**	
D2.24	**Protection of Openable Windows**	Window openings must be provided with protection if the floor below the window is 2m or more above the surface beneath in the bedrooms of Class 2 buildings. The openable portion of the window must be protected with: • a device to restrict the window opening; or • a screen with secure fittings A device or screen required must: • Not permit a 125mm sphere to pass through the window opening or screen; and • Resist an outward horizontal action of 250N against the window restrained by a device or screen protecting the opening and have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. **Details of compliance by means of a window schedule will be required to be provided to the certifying Authority issued for the relevant Construction Certificate.**	Additional Details Required
D2.24	**Timber stairways: Concession**		N/A
NSW D2.101	**Doors in the path of travel in an Entertainment Venue**		N/A
Part D3 – Access for People with Disabilities			
An Access Report prepared by the projects accredited access consultant is to be provided to accompany the Construction Certificate. Any deviation from the DTS Provisions will require a Performance Solution to be developed and endorsed under a Construction Certificate.			
D3.1	**General building access requirements** Access is generally required for persons with a disability throughout all areas unless specifically exempted.	Access is required throughout complying with AS1428.1 – 2009 as follows: • Throughout all levels containing the accessible car spaces • All common areas throughout the	Additional Details Required

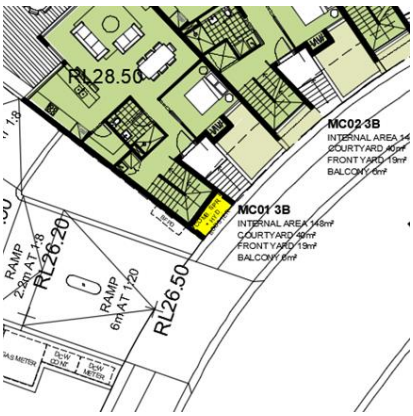
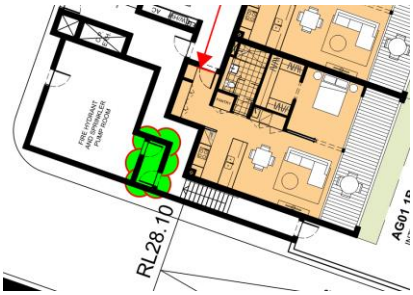
Clause	Description	Comment	Status
		development; and • From the pedestrian entrance on Ground floor to the entrance doorway of each sole-occupancy unit on the ground floor through to Level 8 **A full review is to be undertaken by the access consultant with the provisions of a report to be submitted to the Certifying Authority**	
D3.2	**Access to buildings** External access to the building for people with a disability must be provided: - • From main pedestrian entry points at the allotment boundary; • Through the principle pedestrian entrance; • From accessible car parking spaces; and • Through at least 50% of all pedestrian entries	Access must be provided in accordance with AS1428.1 – 2009 **A detailed report from an access consultant is required to be provided to the certifying Authority upon application of the main works Construction Certificate**	Compliance Readily Achievable
D3.3	**Parts of the Building to be Accessible** All parts of the building required under table D3.1 of the BCA must be accessible to people with a disability except for areas where access would be inappropriate due to the particular use or areas that would pose a health or safety risk to people with a disability.	All common areas throughout the proposed building are to be readily accessible and comply with the requirements of Part D3 of the BCA, AS142.8.1 – 2009 & the Disability (Access to premises – buildings) standard 2010 Areas to be aware of include the following- • Every ramp, except a fire isolated ramp, must comply with Clause 10 if AS 1428.1. • Every stairway, except a fire isolated stairway, must comply with Clause 11 of AS 1428.1.  • A fire isolated stairway must comply with Clause 11(f) and (g) of AS 1428.1. • Every passenger lift must comply with Clause E3.6. • Access ways must have passing spaces and turning spaces complying with AS 1428.1 (1540 x 2070)  • Pile height or pile thickness of carpets shall comply with the requirements of this Clause and AS 1428.1.	Additional Details Required

Clause	Description	Comment	Status
		 **Design Documentation including a full review is to be undertaken upon receipt of the construction issued set of drawings which are to include a full detailed set of specifications, drawings of stairways, ramps showing compliance against AS1428.1 – 2009.**	
D3.4	**Exemptions** Certain areas may not need to be accessible if the area is deemed inappropriate because of the particular use or the area would pose a health or safety risk for people with disabilities.		Noted

Clause	Description	Comment	Status
D3.5	**Accessible Car Parking** The accessible parking spaces must comply with AS/NZS 2890.6 – 2009. General requirements are: - • 2.4m x 5.4m. • 2.2m head clearance for access and egress routes to and from accessible car spaces. • 2.5m head clearances over accessible car spaces. • Flat even surfaces. • Designated and sign posted for disabled users.	Accessible car parking spaces for people with disabilities are to be provided in compliance with AS/NZS 2890.6.  **Details of height clearances including service drawings and Architectural sections & elevations of the accessible car spaces are to be submitted upon application of the Construction Certificate for review.** ***Class 2*** *Please note that council as a part of their Development Consent or DCP will nominate the required amount of accessible spots to be provided for the class 2 components.* **The number of required car parking spaces throughout this development is required to be assessed by the project Access Consultant and provide confirmation to the Certifying Authority that the correct numbers have been implemented to the serve the site against the BCA & Relevant DA Conditions**	Additional Details Required
D3.6	**Signage** Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access in accordance with AS1428.1 must identify every accessible sanitary facility.  Every doorway required to be provided with an exit sign under Clause E4.5 is to be provided with braille and tactile signage that states "EXIT" and identify the floor level "LEVEL #".	Signage details for the proposed works must be in accordance with AS1428.1 - 2009 and Specification D3.6 of the BCA. **Details and a signage schedule are required to be submitted upon application of the main works Construction Certificate**	Additional details required

Clause	Description	Comment	Status
	 Signage identifying ambulant accessible sanitary facilities in accordance with AS 1428.1 must be located on the door of the facility.  		
D3.7	**Hearing augmentation**		N/A
D3.8	**Tactile Indicators (TGSIs)** Tactile indicators are to be provided to all stairways, ramps and escalators must be provided to warn people who are blind or have a vision impairment that they are approaching: • a stairway, other than a fire-isolated stairway, • a ramp other than a fire-isolated ramp, step ramp, kerb ramp, or • in the absence of a suitable barrier an overhead: ○ obstruction less than 2 m above floor level, other than a doorway; and ○ an access way meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in D3.4, if there is no kerb or kerb ramp at that point • Tactile ground surface indicators must comply with sections 1 and 2 of AS/NZS 1428.4.1	 **Tactile indicators are to be provided and shown on all the required Architectural drawings on submission for the Construction Certificate.** *Note - All tactile indicators are required to achieve a 30% luminance contrast to achieve compliance*	Additional details required
D3.9	**Wheelchair seating spaces in Class 9b assembly buildings**		N/A
D3.10	**Swimming Pools**	As the proposed swimming pool located on the roof of Building B is communal and has a perimeter greater than 40m the implementation of an accessible means of entry / exit is to be provided. The method of entry / exit is to be implemented as per one of the requirements listed under Clause D3.10 (b)	Compliance readily achievable
D3.11	**Ramps**		N/A
D3.12	**Glazing on an Access way** On an *access way*, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	Glazed shopfronts will need to have decals installed in accordance with AS 1428.1	Compliance readily achievable

Clause	Description	Comment	Status
Section E: Services and Equipment			
Part E1 – Fire Fighting Equipment			
E1.1	-	This Clause has deliberately been left blank	
E1.2	-	This Clause has deliberately been left blank	
E1.3	**Fire hydrants** Fire hydrant cover is required throughout to AS2419.1 from hydrants located externally, within fire stairs or at other approved locations.	Fire hydrants must conform to the pressure and flow requirements and distance limitations specified in AS 2419.1 – 2005.	Compliance Readily Achievable
		Detailed hydraulic drawings & Specifications identifying the locations of all fire hydrants and the booster assembly are to be provided to the certifying Authority for review. The hydraulic engineer must ensure that compliant coverage is provided to all areas of the building from the internal hydrants and must provide design certification to accompany the drawings certifying the design complies with Clause E1.3 of the BCA and AS2419.1 – 2005 (noting any non-compliances, which are to be addressed as an Alternative Solution). *Note 1: Hydrant hose must extend at least 1m into rooms to be counted for coverage* *Note 2: If full coverage is not provided from hydrants located within the stairs alone. Intermittent hydrant outlets can be installed to achieve a compliant coverage.* *Note 3: As the building has an effective height of greater than 25m the system is required to be installed in the configuration of a ring main*	Additional Details Required
		The following performance solution apply to the proposed design and are required to be documented by the projects fire engineer: • The fire brigade booster assembly is required to be separated from the building by 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 connection in the booster assembly. Currently unprotected openings are proposed within the separation zone	Performance Solution

Clause	Description	Comment	Status
		 • The hydrant and sprinkle pump room is not provided with direct access into a fire isolated stairway  • The hydrant & Sprinkler booster is currently located as part of a building and is required to be within site of the main entry. As this development has multiple main building entries a technical departure has been assessed as it is unclear what can be determined as the main entry to this site.	
E1.4	**Fire Hose Reels** • Fire hose reels are required to be provided within the Basement Car parking levels. Fire hose reels are not required to be provided within the Class 2 Residential areas of the development. • Fire hose reels are to be installed internally within 4m of an exit or internally adjacent to a fire hydrant. • Additional hose reels are permitted to be installed further then 4m from exit to achieve coverage. • Fire hose reels are to be installed accordance with AS2441. • Hoses are not permitted to pass through fire or smoke doors to achieve hose reel cover where coverage is not achieved due to the installation of such door an additional intermediate hose reel is required the be installed.	Details hydraulic plans identifying the locations of all fire hose reels are to be provided to the certifying Authority for review. The hydraulic engineer must ensure that compliant coverage is provided to all areas of the building and must provide design certification to accompany the drawings certifying the design complies with Clause E1.4 of the BCA and AS2441 – 2005. **Hydraulic plans showing details of the fire hose reels for the class 7a portions will be required to be submitted to the Certifying Authority for review upon application of the relevant Construction Certificate** *Note 1: Within the basement carpark consideration needs to be made with the provisions of aisle width requirements against AS2890.1 to ensure fire hose reels are not installed to obstruct vehicular access around the site.*	Additional Details Required

Clause	Description	Comment	Status
		Fire Hose Reels coverage is not provided into the following areas of the site- • Garbage Rooms which have a chute facilitated to it which are located throughout basement level 1 *Provisions of Fire Extinguishers are proposed inside these rooms in lieu of installing an additional Hose Reel.* **This non-compliant hose reel coverage is required to be reviewed by the projects Fire Engineer and if deemed feasible incorporated within a Performance Solution**	Performance Solution
E1.5	**Sprinklers** Fire sprinkler protection in accordance with the provisions of AS2118.1-1999 are required to be provided throughout the proposed development as the building contains the following- • The building has an effective height that exceeds 25m; and • The basement carpark levels contains provisions of more than 40 car spaces.	The building is to be provided with a sprinkler system throughout in accordance with Specification E1.5 due to the development having an effective height of greater than 25m in effective height and having a basement carpark with provisions of more than 40 car spaces. **Please note the 2 storey townhouse units are not proposed to be protected by a sprinkler system**	Applicable
		Provisions of a sprinkler system and associated infrastructure are required to be demonstrated within the services drawings in accordance with clauses 1 – 11 & 13 of Specification E1.5 of the BCA	Compliance readily achievable
		The designing services engineer is to prepare the sprinkler system design incorporating but not limited to the following items and submit it to the certifying Authority for review: • Sprinkler booster locations, schematics and specifications; • Layout Schematics, Specifications and design documentation of the pump and valve sets and water tanks; • Layout Schematics, Specifications and design documentation of the sprinkler system layout throughout the building The Hydraulic Engineer is to advise compliance of the system against the requirements of BCA Clause E1.5, BCA Specification E1.5 and AS2118.1-1999.	Additional Details Required
		The following performance solution apply to the proposed design and are required to be documented by the projects fire engineer: • Omission of sprinklers within the shower cubicles to all bathrooms within each sole occupancy unit in the development; • Omission of sprinklers to the services cupboards located within the residential corridors;	Performance Solution

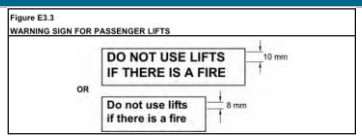
Clause	Description	Comment	Status
		• Rationalization of sprinkler clearances associated with the storage cages throughout the basement levels of carparking; and • Implementation of wet sprinkler heads within the lift shaft in lieu of a dry head required under clause 13 of Specification E1.5	
E1.6	**Portable Fire Extinguishers**	Portable fire extinguishers are required to be provided in accordance with Table E1.6 of the BCA and Sections 1, 2, 3 and 4 of AS 2444.	Compliance readily achievable
		Within the Class 2 portion of the proposed development, portable fire extinguishers must be installed. The fire extinguishers are to be ABE type extinguishers, a minimum size of 2.5kg and distributed outside sole-occupancy units to serve only the storey at which they are located. The extinguishers are also to be located no greater than 10m from each SOU doorway. **Fire Extinguisher locations are to be nominated within the Architectural or Dry Fire Services drawings and submitted to the certifying authority for further assessment upon application of the relevant construction certificate.**	Additional Details Provided
		The townhouse units located off Mosbri Crescent are not provided with a common corridor to house a fire extinguisher. A performance solution is proposed to install an extinguisher within each unit in lieu of having a unit within 10m of unit doorway	Performance Solution
E1.7	**-**	This Clause has deliberately been left blank	
E1.8	**Fire control centre**	As the building has an effective height of greater than 25m a specific fire control centre is required to be provided in accordance with clauses 2 to 5 of Specification E1.8. **Details of compliance with clauses 2 to 5 of Specification E1.8 will be required to be provided for the Construction Certificate**	Additional Details Required
		The following performance solution apply to the proposed design and are required to be documented by the projects fire engineer: • A Fire Control Centre is required to be located within the main entry to the building. As this development has multiple entries (multiple building lobbies) it is unclear what can be determined as the main entry to this site and as such a performance solution is	Performance Solution

Clause	Description	Comment	Status
		required to be provided that documents the technical departure to the location of the panel; and • The fire control centre must have egress to road or open space which does not involve a change in level of more than 300mm. It appears that a variation in gradients will occur greater than 300mm from the front boundary to the fire control centre located in building A	
E1.9	**Fire Services During Construction** Fire services are required during construction, including fire hydrants and hose reels which must be active and operational after the building reaches a construction stage effective height of 12m. When the building reaches 12m effective height:- • All required hydrants and hose reels must be operational on every storey covered by a roof or floor slab over, except for the two uppermost storeys. • Any required booster connections must be installed.	BCA compliance with respect to fire services during construction can be problematic as hydrants with required pressures and flows and booster connections often cannot be achieved at the required time. A temporary fire protection system, possibly with temporary boosters and no fire pumps, may need to be agreed with the fire brigade. This needs to be put in place early in the construction programme and may require liaison with the builder and his fire services contractor.	Compliance Readily achievable
E1.10	**Provisions for special hazards**		N/A
Part E2 – Smoke Hazard Management			
E2.1	**Applicable of Part**	Part is not applicable to • open deck car parks • open spectator stands • a Class 8 electricity network substation with a floor area not more than 200m^2 • storerooms, etc. less than 30m^2 • sanitary compartments • plant rooms or the like	Noted
E2.2	**Smoke hazard management –** **<u>Residential Building – Class 2</u>** As the building has an effective height greater than 25m the following are required to be implemented within the building to serve the residential levels located on Ground → Level 8:- • An air-handling system that does not form part of the smoke hazard management system and recycles air from one fire compartment to another must be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1 or incorporate smoke dampers and automatically shut down upon activation of smoke detectors in accordance with Clause 4.10 of AS/NZS 1668.1. • Fire isolated exits / stairways are to be provided with automatic stair pressurisation ***(For buildings which have levels over an effective height of 25m);***	Details demonstrating compliance with the relevant standards such as however not limited to drawings, specifications and design certification are required to be submitted to the Certifying Authority from the relevant services Engineer for approval upon application of the relevant Construction Certificate	Additional Details Required

Clause	Description	Comment	Status

	• Provided with an automatic smoke detection system in accordance with Specification E2.2a which consist of one of the following:
	  ○ a smoke alarm system complying with Clause 3; or
	  ○ a smoke detection system complying with Clause 4; or
	  ○ a combination of a smoke alarm system complying with Clause 3 within sole-occupancy units and a smoke detection complying with Clause 4 in areas not within the sole-occupancy units.
	• The building must be provided with a sprinkler system complying with Specification E1.5;
	• A smoke detection system to activate air Pressurisation systems for fire-isolated exits must be installed in accordance with Clause 5 of Specification E2.2a, AS1670.1 and have additional smoke detectors installed adjacent to each bank of lift landing doors;
	• A Building occupant warning system is required to be installed throughout the building in accordance with Clause 6 of Specification E2.2a. The proposed BOWS system is to adaptive for provisions associated with SSISSEP which is required to be adopted in accordance with Clause E4.9 of the BCA and AS1670.4-2015; and
	• The carpark is to be provided with fans with metal blades suitable for operation at normal temperature and electrical power and control cabling need not be fire rated.
	Note: Each bedroom sole-occupancy unit in the Class 2 SOU is treated as a separate fire compartment for the purposes of this requirement.		

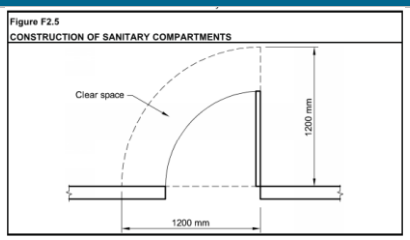
E2.3	**Provisions of special hazards**		N/A
Part E3 – Lift Installations			
E3.1	**Lift Installations** Electric and electrohydraulic lifts must comply with the design requirements of BCA Specification E3.1.	Certification of lift design to be provided	Compliance readily achievable
E3.2	**Stretcher Capacity Lifts** Buildings greater than 12m in effective height require a lift sized to accommodate a stretcher of 2m x 0.6m x 1.4m high. The lift must serve every level to which lift access is provided.	Ensure a suitably sized lift serves each level.	Compliance readily achievable
E3.3	**Warning Against Use of Lift in Fire** Warning signage is required at lift doors advising that lifts should not be used in the event of a fire.	The warning sign is to comply with the details and dimensions set out in Figure E3.3 of the BCA.	Compliance readily achievable

Clause	Description	Comment	Status
			
E3.4	**Emergency Lifts** All of the lifts provided throughout this development are to have emergency Lift requirements prescribed size, operation and fire isolation are required in buildings where: - • the building has an effective height over 25m; and • Where more than two passenger lifts serve a storey, two emergency lifts must be provided, and these must be in separate shafts if multiple lift shafts occur	The following requirements apply to an emergency lift: - • Must serve all storeys served by a passenger lift; and • An emergency lift is required to be contained within a fire isolated shaft constructed in accordance with the requirements of clause C2.10 of the BCA (Shaft having an FRL of not less than 120/120/120) It should be noted that as the proposed development contains only 2 lifts within the same shaft both lifts are required to be installed to act in the capacity of serving the building as emergency lifts	Compliance Readily Achievable
E3.5	**Landings**		Complies
E3.6	**Passenger lifts**	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 reply on a constant pressure device for its operation if the lift car is fully enclosed.	Compliance readily achievable
E3.7	**Fire Service Control**	Where lifts serve a storey above 12m in effective height: - • A fire service control switch is required for each lift or lift group; and • A lift car fire service drive control is required for each lift.	Compliance readily achievable
E3.8	**Aged Care Buildings**		N/A
E3.9	**Fire service recall control switch** .	The fire service control switch must be located at the landing nominated by the appropriate authority and, when activated, must return all lifts to the nominated floor. If a lift car drive control has been activated, it shall override the landing fire service control switch	Compliance readily achievable
E3.10	**Lift car fire service drive control switch**	The lift car service drive control must be activated from within the lift car. The switch is to be located between 600mm and 1500mm above the lift car floor and be labelled '**FIRE SERVICE**" in indelible white lettering on red background. The "**OFF**" and "**ON**" positions are to be identified.	Compliance readily achievable
Part E4 – Emergency Lighting, Exit and Warning Systems			
E4.1	-	This clause has been intentional left blank	-

Clause	Description	Comment	Status
E4.2	**Emergency Lighting requirements** Emergency lighting is to be provided throughout the building in accordance with Clause E4.2 of the BCA	Emergency lighting is to be provided in: • every fire-isolated stairway, fire-isolated ramp or fire-isolated passageway. • Every passageway, hallway, corridor or the like, and • Every passageway, hallway, corridor or the like, that is part of the path of travel to an exit. • In every room having a floor area more than 100m2 that does not open to a corridor or space that has emergency lighting or to a road or open space. • In any room having a floor area more than 300m2. • In every required non-fire isolated stairway **Design Documentation including electrical specifications, plans and a design certificate are to be provided to the Certifying Authority amongst the documentation submitted for the relevant Construction Certificate application for further review**	Additional Details Provided
E4.3	**Measurement of distances**		Noted
E4.4	**Design and operation of emergency lighting**	Emergency lighting must comply with to AS2293.1	Compliance readily achievable
E4.5	**Exit signs** Exit signs are to be provided in accordance with Clause E4.5 of the BCA.	Exit signs must be clearly visible to a person approaching the exit and must be installed on, above or adjacent to; 1. A door providing direct egress from a storey to a stairway, passageway or ramp serving as a required exit; 2. A door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space; and 3. A door serving as or forming part of a required exit in a storey required to be provided with emergency lighting. **Design Documentation including electrical plans, specifications and a design certificate are to be provided to the certifying Authority upon application of the relevant Construction Certificate**	Additional details required
E4.6	**Direction signs**	Where an exit is not readily apparent then exit signs with directional arrows must be installed in appropriate positions in corridors, hallways, lobbies and the like indicating the direction to a required exit in accordance with Clause E4.6 of the BCA. **Design Documentation including electrical plans, specifications and a design certificate are to be provided to the certifying Authority upon application of the relevant Construction Certificate**	Additional details required

Clause	Description	Comment	Status
E4.7	**Class 2 and 3 buildings and Class 4 parts: Exemptions** E4.5 does not apply to- a Class 2 & 3 building in which every door referred to is clearly and legibly labelled on the side remote from the exit or balcony- 1. with the word "EXIT" in capital letters 25mm high in colour contrasting with that of the background: 2. by some other method; or 3. an entrance door of a sole-occupancy unit in a Class 2 part of the building.		Applicable
E4.8	**Design and operation of exit signs** Exit signs are to operate in accordance with AS 2293.1. Photo luminescent exit sign are to comply with Specification E4.8		Compliance readily achievable
E4.9	**Sounds systems and intercom systems for emergency purposes** A sound system and intercom system for emergency purposes (SSISEP) complying with AS 1670.4 must be installed throughout the building.	Details demonstrating compliance and design certification will be required from services consultants at Construction Certificate stage.	Additional details required
Section F: Health and Amenity			
Part F1 – Damp and Weatherproofing			
F1.0	**Water Proofing of External Walls** Weatherproofing of external wall systems must be in accordance with BCA Verification Method FV1.	A test report on the proposed wall system is to be provided to the certifying Authority for review. The test report must conform that the external wall complies with the provisions of the performance requirement FP1.4.	Additional details required
F1.1	**Stormwater Drainage** Stormwater drainage must comply with AS/NZS 3500.3.	Hydraulic drawings and design certification to be provided at Construction Certificate stage.	Additional details required
F1.2	-	This clause has deliberately been left blank	-
F1.3	-	This clause has deliberately been left blank	-
F1.4	**External above ground membranes** External waterproofing membrane systems for roofs, decks, balconies and the like must comply with AS4654 Parts 1 and 2.	The standard membrane detailing for waterproofing including minimum upturn termination lengths, requirements for stepped balcony details at doorways and windows and provision of continuous grates where stepping does not occur.	Compliance readily achievable
F1.5	**Roof coverings**		N/A
F1.6	**Sarking**	Sarking type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2.	Compliance readily achievable
F1.7	**Water Proofing of Wet Areas in Buildings**	Water proofing of wet areas within a building to comply with AS 3740.	Compliance readily achievable
F1.8	-	This clause has deliberately been left blank	-
F1.9	**Damp-proofing** Moisture from the ground must be prevented from	Details of the method of protection against moisture and other associated termite	Additional details

Clause	Description	Comment	Status
	reaching the lowest timber element of the building should there be any and the walls above the lowest floor joists, the walls above the dam proof course and the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders. Damp proof course must consist of a material that complies with AS/NZS 2904 or an impervious termite shield in accordance with AS 3660.1.	attack should be documented within the specifications and on the drawings proposed for construction (Termite protection is only applicable to and confirmation should be given for the use of timber products)	required
F1.10	**Damp-proofing of floors on the ground**	A vapour barrier in accordance with AS2870 is to be provided beneath the basement floor slab.	Compliance readily achievable
F1.11	**Provision of Floor Wastes** The floor of each bathroom and laundry in each sole occupancy of the Class 2 and 3 building portions must have a floor waste and the floor graded to the floor waste to permit drainage of water.	Detailed hydraulic Engineers plans are required to be submitted to the Certifying Authority upon application for the Construction Certificate.	Additional Details Required
F1.12	**Sub-floor ventilation**		N/A
F1.13	**Glazed assemblies** Windows, sliding doors with a frame, adjustable louvres, shopfronts and window walls with one piece framing in an external wall must comply with AS 2047 requirements for resistance to water penetration.		Compliance readily achievable
Part F2 – Sanitary and Other Facilities			
F2.1	**Facilities in residential buildings** Sanitary facilities must be provided within each sole-occupancy unit in the Class 2 portions are required by Table F2.1 of the BCA	The following facilities must be provided within each sole-occupancy unit: Class 2 1. A kitchen sink and facilities for the preparation and cooking of food; and 2. Shower; and 3. Closet pan and wash basin; and 4. Allocated space for laundry facilities Noting that clothes drying facilities being either; space for a heat operated dryer or a clothes line with 7.5m of line is required. *Note: The area for laundry facilities must include a washtub and space for washing machine. (Class 2 only)*	Additional Details Required
F2.2	**Calculation of number of occupants and fixtures**		Noted
F2.3	**Facilities in Class 3 to 9 buildings**		Noted
F2.4	**Facilities for Persons with Disabilities**	Floor plans, internal elevations and relevant specifications of the proposed toilet blocks associated within the commercial level and retail spaces including accessible and ambulant facilities compliant against clauses 15 – 17 of AS1428.1-2009 are to be provided to the certifying Authority for review.	Additional details required
F2.5	**Construction of Sanitary Compartments** Where clear space between closet pan and doorway is less than 1.2m, doors must open outwards, slide	All hinged doors that swing inward to sanitary facilities and do not comply with achieving a 1200mm clearance to pan are required to be installed with lift-off hinges	Compliance readily achievable

Clause	Description	Comment	Status
	or be readily removable from outside.		
F2.6	**Interpretation: Urinals and washbasins**	Each 600mm length of a continuous urinal trough is counted as 1 urinal.	Noted
F2.7	*(NSW variation – Deleted)*	-	-
F2.8	**Waste management**		N/A
Part F3 – Room Heights			
F3.1	**Height of rooms and other spaces** The following ceiling heights apply- **Class 2 portion:** • Kitchen, laundry or the like – 2.1m • Corridor, passageway or the like – 2.1m • Habitable room excluding a kitchen – 2.4m *Note: Provisions under SEPP65 require ceiling heights in all habitable areas of the SOUs require a ceiling height of 2.7m* **Class 7a portions:** • General floor areas – 2.4m • Basement carpark – 2.1m (Note requirements under AS/NZS2890.6 – 2006 requires 2.2m leading to accessible car spaces and 2.5m above the actual accessible car spaces. • Corridor, passageways or the like – 2.1m • Bathroom, sanitary compartment, car parking area store room or the like – 2.1m • A commercial kitchen – 2.4m; and • Above a stairway, landing or the like – 2m measured vertically above nosing of stairway treads or floor surface of landing.	The project Architect is to provide detailed sections to the certifying Authority for an assessment upon application of the relevant Construction Certificate stage to verify compliance.	Additional Details Required
Part F4 – Light and Ventilation			
F4.1	**Provisions of natural Light** Natural lighting aggregating 10% of room floor area is required as follows:- • To all habitable rooms in residential buildings	Natural light is required to be provided to all habitable areas within the Class 2 Sole Occupancy Unit portion	Applicable
F4.2	**Methods and extent of natural lighting**	All habitable / bedrooms must be provided with natural lighting via windows which have an aggregate transmitting area not less than 10% of the floor area of the room. **Architect must demonstrate compliance via detailed window / door schedule identifying size of room and proposed aggregate area for transmitting light.**	Additional Details Required
F4.3	**Natural Light borrowed from adjoining room**		Noted
F4.4	**Artificial lighting**		Compliance

Clause	Description	Comment	Status
	The artificial lighting system must comply with AS/NZS 1680.0.		readily achievable
F4.5	**Ventilation of rooms** Ventilation shall be provided throughout the building in by means of natural ventilation complying with Clause F4.6 or mechanical ventilation complying with the requirements of AS1668.2 as required by Clause F4.5 of the BCA.	Mechanical details including drawings, specification and a design certificate are required to be provided to the Certifying Authority from the projects Mechanical Engineer	Additional Details Required
F4.6	**Natural ventilation**	Natural ventilation must be provided via permanent openings, windows, doors or other devices which can be opened and achieve an aggregate size not less than 5% of the floor area of the room required to be ventilated. Architect must demonstrate compliance via detailed window / door schedule identifying size of room and proposed aggregate area for ventilation.	Additional Details Required
F4.7	**Ventilation borrowed from adjoining room**		Noted
F4.8	**Restrictions on position of water closets and urinals**		Complies
F4.9	**Airlocks**	If a sanitary compartment opens directly into a space, which is occupied by more than one person one of the following is required to be installed / implemented: 1. Implementation of an airlock, hallway or other room with a floor area of not less than 1.1m^2 and fitted with self closing doors; or 2. The sanitary compartment must be provided with mechanical exhaust ventilation and the doorway serving the room adequately screened from view	Noted
F4.10	-	This clause has intentionally been left blank	-
F4.11	**Carparks** Basement carparks must be provided with a system of mechanical ventilation complying with AS 1668.2	Design certification from mechanical engineer to be provided *Note – Should the use of Jet fans be proposed the Fire Safety Engineer is to assess the non-compliance and address via means of an alternative solution*	Additional Details Required
F4.12	**Kitchen local exhaust ventilation**		N/A
Part F5 – Sound Transmission and Insulation			
F5.1	**Application of Part** Applicable only to the Class 2 portions on Ground floor to level 8	A detailed assessment will need to be undertaken by a qualified acoustic consultant at the Construction Certificate stage to verify compliance. A copy of an acoustic report that also demonstrates specifications and compliance of the proposed wall types systems are required to be provided to the certifying authority for review.	Additional Details Required
F5.1	**Determination of airborne sound insulation ratings** Construction required to have an airborne sound insulation rating must have the value for weighted		Additional Details Required

Clause	Description	Comment	Status
	sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term ($R_w + C_{tr}$) determined in accordance with AS/NZS1276.1 or ISO717.1 using result from laboratory measurements, or comply with Specification F5.2 of the BCA.		
F5.3	**Determination of impact sound insulation ratings** A floor required to have an impact sound insulation rating must have the required value for weighted normalised impact sound pressure level with spectrum adaptation term ($L_{n,w}+C_I$) determined in accordance with AS/ISO 717.2 using results from laboratory measurements or comply with Specification F5.2 of the BCA. Walls that are required to have an impact sound insulation rating must be of discontinuous construction.		Additional Details Required
F5.4	**Sound insulation rating of floors** Floors separating sole occupancy units or separating sole occupancy units from a plant room, lift shaft, public corridor, public lobby or the like or parts of different classifications must have an $R_w + C_{tr}$ of not less than 50 and an $L_{n,w} + C_I$ of not more than 62.		Additional Details Required
F5.5	**Sound insulation rating of walls** Walls must have an $R_w + C_{tr}$ of not less than 50 if it separates sole occupancy units and an R_w of 50 if it separates a sole occupancy unit from a plant room, lift shaft, public corridor, public lobby or the like or parts of different classifications. Compliance with F5.3(b) is required if the wall separates a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room (excluding a kitchen) in another adjoining unit or a sole occupancy unit from a plant room or lift shaft. Doors incorporated the walls that separate sole-occupancy units from a stairway, public corridor, public lobby or the like, provided the door assembly has an R_w not less than 30. Where a wall required to have sound insulation has a floor above, the wall must continue to the underside of the floor above or a ceiling that provides the sound insulation required for the wall. Where a wall required to have sound insulation has a roof above, the wall must continue to the underside of the roof above or a ceiling that provides the sound insulation required for the wall.		Additional Details Required
F5.6	**Sound insulation rating of internal services** Services passing through more than one sole-occupancy unit must be separated from the rooms by construction with an $R_w + C_{tr}$ (airborne) not less than: a) 40 if the adjacent room is a habitable room (other than a kitchen); or b) 25 if the adjacent room is a kitchen or non-habitable room.		Additional Details Required

Clause	Description	Comment	Status
	Note if a stormwater pipe passes through a sole – occupancy unit it must be separated in accordance with (a) and (b).		
F5.7	**Sound isolation pumps** A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.		Additional Details Required
Section G: Ancillary Provisions			
Part G1- Minor Structures and components			
G1.1	**Swimming pools** *(NSW variation for swimming pools)*	Details of the swimming pools and spas proposed to the development are required to be submitted to SWP to ensure compliance is met against the provisions of the following documents: • AS1926.1-2012 • AS1926.2-2007; and • The swimming pools act 1992	Additional Details Required
G1.2	**Refrigerated chambers, strong rooms and vaults**		N/A
G1.3	**Outdoor play spaces**		N/A
G1.101	**Provision for cleaning windows** A safe manner of cleaning windows is to be provided as windows are located 3 or more storeys above ground level.	The windows must either be able to be cleaned wholly from within the building, or a method complying with the Construction Safety Act 1912 and Regulations is required.	Compliance readily achievable
Part G2 - Boilers, pressure vessels, heating appliances, fire places, chimneys and flues			**N/A**
Part G3 - Atrium Construction			**N/A**
Part G4 - Construction in Alpine Areas			**N/A**
Part G5 - Construction in Bushfire Prone Areas			**N/A**
Section H: Special Use Buildings – Auditoriums, Public Halls, Public Transport Buildings			**N/A**
Part H1 - Class 9b Buildings			**N/A**
Part H2 - Public Transport Buildings			**N/A**
Part H3 - Farm Building and Farm Sheds			**N/A**
NSW Section J: Energy Efficiency Energy Efficiency for buildings requires buildings to reduce greenhouse gas emissions by efficiently using energy. A building's services must have features that facilitate the efficient use of energy. The discipline of Energy Efficiency with the BCA has become a specialised field where compliance with BCA Section J is to be certified with the issue of a Certificate of Compliance – Design from the relevant Services Engineer/Consultant. The purpose of this section is to provide a brief explanation of which areas are to achieve compliance with BCA Section J – Energy Efficiency during design and construction. The BCA should be referenced for exact requirements, clarification and further explanation.			
Section J	**Energy Efficiency Measures** Energy efficiency measures are prescribed for the following building elements to limit energy consumption:-	Compliance assumed, although further information is required to confirm compliance. A performance based BCA JV3 assessment	Compliance readily achievable

Clause	Description	Comment	Status
	• Building fabric • External glazing • Building sealing • Air movement. • Air-conditioning and ventilation systems. • Artificial lighting and power • Hot water supply • Access for maintenance	may be adopted for the project if compliance with BCA deemed to satisfy provisions are problematic.	
NSW Subsection J(A) & NSW J(B) Energy Efficiency - Class 2 - 9 Buildings			
Note: Assessment by energy efficiency consultant to be carried out on the design and a report provided with the documentation for Construction Certificate. **An inspection and completion report will be report will be required on completion.**			

15. Appendix A – Referenced Documentation

The following documentation was used in the preparation of this report:

Drawing No.	Title	Issue	Date	Drawn By
DA1.02	Existing Site Plan	P1	14/12/2018	Marchese Partners
DA1.03	Site Plan	P1	14/12/2018	Marchese Partners
DA2.01	Lower Ground Floor Plan	P1	14/12/2018	Marchese Partners
DA2.02	Ground Floor Plan	P1	14/12/2018	Marchese Partners
DA2.03	Level 1 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.04	Level 2 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.05	Level 3 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.06	Level 4 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.07	Level 5 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.08	Level 6 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.09	Level 7 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.10	Level 8 Floor Plan	P1	14/12/2018	Marchese Partners
DA2.11	Roof Floor Plan	P1	14/12/2018	Marchese Partners
DA3.01	Site Sections and Elevations 01 – Mosbri Crescent Town Houses	P1	14/12/2018	Marchese Partners
DA3.02	Site Sections and Elevations 02	P1	14/12/2018	Marchese Partners
DA3.03	Site Sections and Elevations 03	P1	14/12/2018	Marchese Partners
DA3.04	Site Sections and Elevations 04	P1	14/12/2018	Marchese Partners
DA3.05	Site Sections and Elevations 05	P1	14/12/2018	Marchese Partners
DA3.06	Site Sections and Elevations 06	P1	14/12/2018	Marchese Partners
DA3.07	Section AA	P1	14/12/2018	Marchese Partners
DA7.01	Perspective Views 01	P1	14/12/2018	Marchese Partners
DA7.02	Perspective Views 02	P1	14/12/2018	Marchese Partners

16. Appendix B – Statutory Fire Safety Measures

Schedule of Statutory Fire Safety Measures

Buildings A, B & C

Measure	Standard of Performance
Access panels, doors and hoppers to fire resisting shafts	BCA2016 (AMENDMENT 1) Clause C3.13 and tested prototypes (AS 1530.4 – 2014 and AS 4072.1-2005) Note: Systems tested to AS 1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS 4072.1]
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection and/or sprinkler activation in accordance with BCA2016 (AMENDMENT 1) Clauses D2.19 and D2.21.
Automatic fire detection and alarm system (smoke detection system)	BCA2016 (AMENDMENT 1) Clause 4 of Specification E2.2a and AS 1670.1 – 2015
Automatic fire detection and alarm system (smoke alarm system)	BCA2016 (AMENDMENT 1) Clause 3 of Specification E2.2a and AS 3786 – 2015
Automatic fire detection and alarm system (smoke detection system to operate stair pressurisation system) ***Building A Only***	BCA2016 (AMENDMENT 1) Clause 5 of Specification E2.2a and AS 1670.1 - 2015
Automatic fire suppression systems *(Combined sprinkler and hydrant system)*	BCA2016 (AMENDMENT 1) Specification E1.5, AS2118.1-1999, AS2419.1-2005 and AS 2118.6-2012 (combined sprinkler and hydrant systems in multistorey buildings)
Emergency lifts	BCA2016 (AMENDMENT 1) Clause E3.4
Emergency lighting	BCA2016 (AMENDMENT 1) Clause E4.2, E4.4 and AS 2293.1 – 2005
Sound System and Intercommunication System for Emergency Purposes (aka EWIS)	BCA2016 (AMENDMENT 1) Clause E4.9 and AS 1670.4 – 2015
Exit signs	BCA2016 (AMENDMENT 1) Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire control centre	BCA2016 (AMENDMENT 1) Specification E1.8
Fire dampers	BCA2016 (AMENDMENT 1) Clause C3.15 and AS/NZS 1668.1 – 2015 (AS 1682.1-1990 and AS 1682.2-1990)
Fire doors	BCA2016 (AMENDMENT 1) Specification C3.4 and AS 1905.1 – 2015
Fire hydrants systems *(Combined sprinkler and hydrant system)*	BCA2016 (AMENDMENT 1) Clause E1.3, AS 2419.1 – 2005 and AS2118.6-2012
Fire seals protecting opening in fire resisting components of the building	BCA2016 (AMENDMENT 1) Clause C3.15, Specification C3.15 and AS 1530.4 –2014 and AS 4072.1 – 2005 and installed in accordance with the tested prototype. *[Note: Systems tested to AS 1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS 4072.1]*
Hose reel system	BCA2016 (AMENDMENT 1) Clause E1.4 and AS 2441 – 2005
Mechanical air handling system *(automatic air pressurisation system)*	BCA2016 (AMENDMENT 1) Table E2.2a and AS/NZ 1668.1-2015
Mechanical air handling system *(carpark mechanical ventilation system)*	BCA2016 (AMENDMENT 1) Table E2.2a and Clause 5.5 of AS/NZ 1668.1-2015 and fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated
Portable fire extinguishers	BCA2016 (AMENDMENT 1) Clause E1.6 and AS 2444 – 2001
Warning and operational signs	BCA2016 (AMENDMENT 1) Clauses D2.23, D3.6, E1.8, E3.3, E3.9 and E3.10

Note the fire safety schedule will need to be amended subject to the inclusion of a fire engineered performance solution.

Townhouse Units

Measure	Standard of Performance
Automatic fire detection and alarm system (smoke alarm system)	BCA2016 (AMENDMENT 1) Clause 3 of Specification E2.2a and AS 3786 – 2015
Automatic fire suppression systems *(Combined sprinkler and hydrant system)* ***Basement Carpark only***	BCA2016 (AMENDMENT 1) Specification E1.5, AS2118.1-1999, AS2419.1-2005 and AS 2118.6-2012 (combined sprinkler and hydrant systems in multistorey buildings)
Building Occupant Warning System	BCA2016 (AMENDMENT 1) Clause 6 of Specification E2.2a and AS1670.1-2015
Emergency lighting	BCA2016 (AMENDMENT 1) Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2016 (AMENDMENT 1) Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire dampers	BCA2016 (AMENDMENT 1) Clause C3.15 and AS/NZS 1668.1 – 2015 (AS 1682.1-1990 and AS 1682.2-1990)
Fire doors	BCA2016 (AMENDMENT 1) Specification C3.4 and AS 1905.1 – 2015
Fire hydrants systems	BCA2016 (AMENDMENT 1) Clause E1.3 and AS 2419.1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2016 (AMENDMENT 1) Clause C3.15, Specification C3.15 and AS 1530.4 –2014 and AS 4072.1 – 2005 and installed in accordance with the tested prototype. *[Note: Systems tested to AS 1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS 4072.1]*
Hose reel system	BCA2016 (AMENDMENT 1) Clause E1.4 and AS 2441 – 2005
Mechanical air handling system *(carpark mechanical ventilation system)*	BCA2016 (AMENDMENT 1) Table E2.2a and Clause 5.5 of AS/NZ 1668.1-2015 and fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated
Portable fire extinguishers	BCA2016 (AMENDMENT 1) Clause E1.6 and AS 2444 – 2001
Warning and operational signs	BCA2016 (AMENDMENT 1) D3.6

Note the fire safety schedule will need to be amended subject to the inclusion of a fire engineered performance solution.

17. Appendix C1.1 – Fire Rating Requirements

Type A Construction: FRL of Building Elements				
Building element	**Class of building - FRL:** (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 9 or 7a	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 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/ 90/ 90	180/180/120	240/240/180
3 or more	90/60/30	120/ 60/ 30	180/120/90	240/180/ 90
For non-loadbearing parts-				
less than 1.5 m	-/90/90	- /120/120	- /180/180	- /240/240
1.5 to less than 3 m	-/60/60	- / 90/ 90	- /180/120	- /240/180
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
EXTERNAL COLUMN not incorporated in an external wall-				
For loadbearing columns	90/ - / -	120/ - / -	180/ - / -	240/ - / -
For non-loadbearing columns	- / - / -	- / - / -	- / - / -	- / - / -
COMMON WALLS and FIRE WALLS	90/90/90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS-				
Fire-resisting lift and stair shafts-				
Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120
Non-loadbearing	- /90/90	- /120/120	- /120/120	- /120/120
Bounding public corridors, public lobbies and the like-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Between or bounding sole-occupancy units-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of Combustion-				
Loadbearing	90/90/90	120/ 90/ 90	180/120/120	240/120/120
Non-loadbearing	- /90/90	- / 90/ 90	- /120/120	- /120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS	90/ - / -	120/ - / -	180/ - / -	240/ - / -
FLOORS	90/90/90	120/120/120	180/180/180	240/240/240
ROOFS	90/60/30	120/ 60/ 30	180/60/30	240/ 90/ 60

Type B Construction: FRL of Building Elements				
Building element	**Class of building - FRL:** (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 9 or 7a	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is-				
For loadbearing parts-				
less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/30	120/ 90/60	180/120/90	240/180/120
3 to less than 9 m	90/30/30	120/ 30/30	180/90/60	240/90/60
9 to less than 18 m	90/30/-	120/30/-	180/60/-	240/60/-
18 m or more	- / - / -	- / - / -	- / - / -	- / - / -
For non-loadbearing parts-				
less than 1.5 m	-/90/90	- /120/120	- /180/180	- /240/240
1.5 to less than 3 m	-/60/30	- / 90/60	- /120/90	- /180/120
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 is-				
Less than 18m	90/ - / -	120/ - / -	180/ - / -	240/ - / -
18 m or more	- / - / -	- / - / -	- / - / -	- / - / -
For non-loadbearing columns	- / - / -	- / - / -	- / - / -	- / - / -
COMMON WALLS and FIRE WALLS	90/90/90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS-				
Fire-resisting lift and stair shafts-				
Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120
Non-loadbearing	- /90/90	- /120/120	- /120/120	- /120/120
Bounding public corridors, public lobbies and the like-				
Loadbearing	60/60/60	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Between or bounding sole-occupancy units-				
Loadbearing	60/60/60	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS	60/ - / -	120/ - / -	180/ - / -	240/ - / -
ROOFS	- / - / -	- / - / -	- / - / -	- / - / -

18. Appendix C1.10 – Early Fire Hazard Properties for Materials

Floor materials, floor coverings and wall and ceiling lining materials are required to comply with BCA prescribed fire hazard properties.

Floor Linings and Floor Coverings	
General Non Sprinklered Areas	Minimum 2.2 (or 4.5 for Class 3 areas and 9a patient care areas) kw/m^2 critical radiant heat flux and, a maximum smoke development rate of 750 percent minutes.
General Sprinklered Areas	Minimum 1.2(or 2.2 for Class 3, 9a patient care, and 9c residential use areas) kw/m^2 critical radiant heat flux
Fire Isolated Exits and Fire Control Rooms	Minimum 2.2/(or 4.5 for Class 3, 9a and 9c areas) kw/m^2 critical radiant heat flux
Lift Cars	Minimum 2.2 kw/m^2 critical radiant heat flux

Wall Linings and Ceiling Linings	
Generally	Variously Group 1,2, or 3 materials (more restrictive Group number for non-sprinklered areas, public corridors, health care corridors and other prescribed locations) when tested to AS/ISO 9705 or clause 3 of BCA Spec A2.4 and AS/NZ 3837
Fire Isolated Exits	Group 1 material when tested as above
Lift Cars	Group 1 or 2 materials when tested as above

In addition, in non-sprinklered areas, wall and ceiling linings must have a smoke growth rate index not more than 100 or an average specific extinction area less than 250m^2/g.

Other than above, construction materials generally need to achieve as1530.3 early fire hazard indices requirements as follows:	
Generally	Spread of flame Index not > 9 Smoke developed index not > 8
Sarking	Flammability Index not > 5
Fire Isolated Exits and Fire Control Rooms	Spread of Flame Index 0 Smoke Developed Index not > 2 Sarking Flammability 0
Non Fire Isolated Stairs & Escalators and Auditorium Fixed Seating	Spread of Flame Index 0 Smoke Developed Index not > 5
Lifts	To AS 1735.2
Air Ducts	To AS4254

19. Appendix D2.24 – Protection of Openable Windows

Building Use	Openable Windows		
	<2m above surface beneath	>2m above surface beneath	>4m above surface beneath
Bedrooms	No restrictions	Window located below 1.7m above bedroom floor:- • Must be protected by device to restrict window opening **OR** screen with secure fittings; AND • No opening greater than 125mm; AND • Device and screen must resist outward horizontal action of 250N; AND • Have child resistant release if device or screen is able to be removed, unlocked or overridden; AND • If device or screen is able to be removed, unlocked or overridden minimum 865mm barrier required to protect window. Note: No 865mm barrier required if device or screen is permanent and cannot be removed, unlocked or overridden Window located min. 1.7m above bedroom floor • No restrictions	Comments as per >2m above surface beneath
Other rooms (i.e. lounge, dining room etc)	No restrictions	No restrictions	Barrier required • Min. 865mm above floor • No openings exceeding 125mm • No climbable elements between 150-760mm above floor
All other buildings	No restrictions	No restrictions	Barrier required • Min. 865mm above floor • No openings exceeding 125mm • No climbable elements between 150-760mm above floor

20. Appendix D3 – Significant Accessibility Requirements

Access for wheelchair users and people with disabilities generally must be to AS1428.1-2009. Principle requirements are:

- Continuous accessible paths of travel throughout
- Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc.
- No deep pile carpets or grates with large slots.
- Walls or 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard.
- 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways where a direct line of sight is not available.
- Turning spaces at 20m intervals and within 2m of dead end access ways. 1.5m x 1.5m 90 deg turning spaces (with splayed internal corner) and 1.54m x 2.07m long 180 deg turning spaces are required including at dead ends in passageways.
- Step ramps, kerb ramps and threshold ramps as prescribed.
- 1:14 maximum ramps with 9m between landings.
- 1.9m x 1 in 10 (maximum 190mm rise) step ramps
- 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps.
- 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc.
- 850mm clear width doors with 340 - 900mm latch side clearances and 1220-1670mm approach clearances depending on arrangements.
- Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs.
- Decals to glazing.
- 900-1100mm door hardware height.
- Lever handle hardware with low opening forces.
- Landings at doorways, direction changes and at intervals on ramps and inclined walkways.
- Walkways with colour contrast borders.
- Flat even surfaces.
- Colour contrasted hand rails and door frames.
- “D” pull handles to doors.
- Continuous protected paths from disabled persons’ car spaces to lifts, access points, etc.
- Ambulant disabled persons’ toilets with grab rails and outward swinging doors or longer cubicles.
- Prescribed types of water entry arrangements for swimming pools depending on pool size.
- Non fire enclosed stairs with opaque risers.
- Fire stairs and non-fire enclosed stairs with colour contrasting nosing strips.
- All switches and controls 900-1100mm above floor level.

The following general requirements apply to accessible toilets:

- Unisex facility.
- ~1.9 x 2.7m or 2.3 x 2.4m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies).
- 30-40mm grab rails with 50-60mm clearances.
- Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies
- Washbasins with clearances as required.
- Shielded hot water pipes.
- Mirror, shelf, dispensers and coat hooks.
- Mirrored layout for alternative facilities

21. Appendix J1 – Energy Efficiency R-Values

Roofs and Ceilings - Minimum Total R-Value (Table J1.3a)

Climate zone	1, 2, 3, 4 & 5	6	7	8
Direction of heat flow	**Downwards**		**Upwards**	
Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of not more than 0.4	3.2	3.2	3.7	4.8
Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of more than 0.4 but not more than 0.6	3.7	3.2	3.7	4.8
Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of more than 0.6	4.2	3.2	3.7	4.8

Adjustment of Minimum Total R-Value for Loss of Ceiling Insulation (Table j1.3b)

Percentage of ceiling area uninsulated	Minimum R-Value of ceiling insulation required to satisfy J1.3(a)										
	1.0	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**
	Adjusted minimum R-Value of ceiling insulation required to compensate for loss of ceiling insulation area										
0.5% to less than 1.0%	1.0	1.6	2.2	2.8	3.4	4.0	4.7	5.4	6.2	6.9	
1.0% to less than 1.5%	1.1	1.7	2.3	2.9	3.6	4.4	5.2	6.1	7.0		
1.5% to less than 2.0%	1.1	1.7	2.4	3.1	3.9	4.8	5.8	6.8			
2.0% to less than 2.5%	1.1	1.8	2.5	3.3	4.2	5.3	6.5				
2.5% to less than 3.0%	1.2	1.9	2.6	3.6	4.6	5.9	Not Permitted				
3.0% to less than 4.0%	1.2	2.0	3.0	4.2	5.7						
4.0% to less than 5.0%	1.3	2.2	3.4	5.0							
5.0% or more											

Note: Where the minimum *R-Value* of ceiling insulation *required* to satisfy J1.3(a) is between the values stated, interpolation may be used to determine the adjusted minimum *R-Value*.

Roof Lights - Thermal Performance of Transparent and Translucent Elements (Table j1.4)

Roof light shaft index (see Note 1)	Constant	Total area of roof lights serving the room or space as a percentage of the floor area of the room or space			
		Up to 2%	More than 2% to and up to 3%	More than 3% and up to 4%	More than 4% and up to 5%
Less than 0.5	*Total System SHGC*	Not more than 0.83	Not more than 0.57	Not more than 0.43	Not more than 0.34
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4
0.5 to less than 1.0	*Total System SHGC*	Not more than 0.83	Not more than 0.72	Not more than 0.54	Not more than 0.43
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4
1.0 to less than 2.5	*Total System SHGC*	Not more than 0.83	Not more than 0.83	Not more than 0.69	Not more than 0.55
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4
2.5 and more	*Total System SHGC*	Not more than 0.83	Not more than 0.83	Not more than 0.83	Not more than 0.83
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4

Notes:

- The roof light shaft index is determined by measuring the distance from the centre of the shaft at the roof to the centre of the shaft at the ceiling level and dividing it by the average internal dimension of the shaft opening at the ceiling level (or the diameter for a circular shaft) in the same units of measurement.
- The total area of roof lights is the combined area for all roof lights serving the room or space.
- The area of a roof light is the area of the roof opening that allows light to enter the building.
- The thermal performance of an imperforate ceiling diffuser may be included in the Total System U-Value and Total System SHGC of the roof light.
- The total area of roof lights serving the room or space as a percentage of the floor area of the room or space must not exceed 5% unless allowed by J1.4(b).

Options for Each Part of an External Wall that is Part of an Envelope (Table J1.5a)

Climate zone	Options
1, 2 and 3	(a) (i) Achieve a minimum *Total R-Value* of 3.3. (ii) The minimum *Total R-Value* in (i) is reduced (A) for a wall with a surface density of not less than 220 kg/m^2, by 0.5; and (B) for a wall that is (aa) facing the south orientation as described in Figure J2.3, by 0.5; or (bb) shaded with a projection shade angle in accordance with Figure J1.5 of (AA) 15 degrees to not more than 45 degrees, by 0.5; or (BB) more than 45 degrees, by 1.0; and (C) if the outer surface solar absorptance value is not more than 0.6, by 0.5.
	(b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like (i) achieve a minimum *Total R-Value* of 1.4; and (ii) satisfy *glazing* energy index Option B of Table J2.4a.
4, 5 and 6	(a) (i) Achieve a minimum *Total R-Value* of 2.8. (ii) The minimum *Total R-Value* in (i) is reduced - (A) for a wall with a surface density of not less than 220 kg/m^2, by 0.5; and (B) for a wall that is - (aa) facing the south orientation as described in Figure J2.3, by 0.5; or (bb) shaded with a projection shade angle in accordance with Figure J1.5 of (AA) 30 degrees to not more than 60 degrees, by 0.5; or (BB) more than 60 degrees, by 1.0.
	(b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like (i) achieve a minimum *Total R-Value* of 1.4; and (ii) satisfy *glazing* energy index Option B of Table J2.4a.
7	(a) Achieve a minimum *Total R-Value* of 2.8. (b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like (i) achieve a minimum *Total R-Value* of 1.4; and (ii) satisfy *glazing* energy index Option B of Table J2.4a.
8	(a) Achieve a minimum *Total R-Value* of 3.8.
	(b) Where the wall is an earth retaining wall or earth-berm, achieve a minimum *Total R-Value* of 2.0.

An Envelope Wall Other than an External Wall Minimum Total R-Value (Table J1.5b)

Location			Climate zone							
			1	2	3	4	5	6	7	8
(a)	Where the adjacent enclosed non- *conditioned space* has		1.0	1.0	Nil	Nil	1.0	1.0	1.5	2.5
	(i)	ventilation of not more than 1.5 air changes per hour of outside air during occupied hours; and								
	(ii)	glazing in the external fabric as required by Part J2; and								
	(iii)	*roof lights* in the external *fabric* as *required* by J1.4.								
(b)	For other than (a)		2.3	2.3	2.3	1.8	1.8	1.8	2.8	3.8

Note:
When assessing the glazing and roof lights as required by Part J2 and J1.4, assess the glazing and roof lights as if the non- conditioned space is the same separate conditioned space.

Floors - Minimum Total R-Value (Table J1.6)

Location			Climate zone							
			1	2	3	4	5	6	7	8
Direction of heat flow			Upwards	Downwards and upwards		Downwards				
(a)	A slab on ground:									
	(i)	Without an in-slab heating or cooling system	Nil	Nil	Nil	Nil	Nil	Nil	1.0	2.0
	(ii)	With an in-slab heating or cooling system	1.25	1.25	1.25	1.25	1.25	1.25	1.25	2.25
(b)	A suspended floor without an in-slab heating or cooling system where the non- *conditioned space* is		1.0	1.0	Nil	Nil	1.0	1.0	1.5	2.5
	(i)	enclosed; and								
	(ii)	where mechanically ventilated by not more than 1.5 air changes per hour.								
(c)	A suspended floor with an in-slab heating or cooling system where the non- *conditioned space* is		1.25	1.25	1.25	1.25	1.25	1.25	1.75	2.75
	(i)	enclosed; and								
	(ii)	where mechanically ventilated by not more than 1.5 air changes per hour								
(d)	For other than (a), (b) or (c)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.5

Note:
A sub-floor space with not more than 150% of the required sub-floor ventilation is considered enclosed.

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