C202039

BCA 2019 REPORT

2-18 Station Street Marrickville NSW

Boarding House

Revision: 1

12 June 2020

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

TABLE OF CONTENTS Page No.

PO Box 94 Spit Junction NSW 2088. ABN: 24 606 570 825, ACN: 606 570 825

1.0 – Executive Summary

This BCA 2019 Report has been prepared to assess the proposed plans appurtenant to the Development Application that is to be submitted to Council for a *Boarding House* containing 130 rooms and 46 car parking spaces over 11 storeys and 3 basement levels at 2-18 Station Street Marrickville NSW.

The assessment of the documentation has revealed that the building is primarily capable of complying with the *Deemed-to-Satisfy* [herein 'DTS'] provisions of the Building Code of Australia Amendment 1 (Volume 1, Class 2-9 Buildings,) [herein 'BCA 2019'], and where necessary the Performance Requirements, without modification that would require the development consent to be modified.

1.1 – Design Considerations

No.	Recommendation	DTS Clause
1	All following parts must be non-combustible. - external walls; - lift pits; - fire resisting non lead bearing walls; - Shafts. Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5 do not have to comply with this clause. Preformed UPVC concrete walls do not comply with this clause as the UPVC is combustible. The use of such walling systems must be subject to a fire engineered performance solution.	C1.9
2	The fire hazard properties of floor linings, floor coverings, wall linings, ceiling linings and air-handling ductwork, must comply with this clause. As the building will be sprinklered, the floor linings can achieve a critical radiant flux *not less than* 1.2.	C1.10
3	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 one of the elements detailed in this clause. It is note that the external walls will have ancillary elements that look like timber attached to the external walls, which must be non-combustible. Actual timber would require a fire engineered performance solution.	C1.14
4	As the fire isolated stairs serving the upper levels and the basement levels are assumed to share one of two shafts, there configuration results in a rising and descending scenario. As such, the discharge doors to the fire isolated passageways at ground level must be non-combustible and smoke proof in accordance with Clause 2 of Specification C2.5.	C2.4
5	An accessway must be provided from the main points of a pedestrian entry at the allotment boundary to the building. The northern entries to the commercial space will require amendment to comply with AS 1428.1-2009.	D3.3 / D3.3
6	A stretcher facility must be provided within at least one emergency lift. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level.	E3.2
7	As two of the proposed three lifts serve the same storeys (all of the storeys), two of the three lifts must be emergency lifts. The other lift can be a passenger lift. The two emergency lifts must be in a fire resisting shaft that achieves a minimum of 120/120/120.	
8	A lining, material or assembly in an occupiable outdoor area must comply with	G6.2

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
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	C1.10 as for an internal element. However, the following fire hazard properties of a lining, material or assembly in an occupiable outdoor area are not required to comply with C1.10: *Average specific extinction area*. *Smoke-Developed Index*. Smoke development rate. Smoke growth rate index ($SMOGRA_{RC}$). As such, the following is required: Floor linings: a critical radiant flux not less than 1.2 and a group number 1, 2 or 3 for any portion of the floor covering that is continued more than 150 mm up a wall. Wall and ceiling linings: a group number 1, 2 or 3. Note: The provisions of Clause C1.9, C1.14, C2.4 of Spec. C1.1 still apply.	

1.2 – Fire Engineering

No.	Recommendation	DTS Clause	Performance requirements
1	The required FRL's prior to the application of concessions for sprinklers or non-load bearing elements: - Class 3 – 90 minutes; - Class 5 – 120 minutes; - Class 7a – 120 minutes; - Class 6 – 180 minutes. - Emergency lifts – 120 minutes; - Substation – 120 minutes; - Fire pump room – 120 minutes. The proponent has indicated that they intend to seek a performance solution to reduce the Class 6 FRL's to 120 minutes so the basements, ground floor have an FRL of 120 minutes	C1.1, Clause 3 of Spec. C1.1, C2.8, C2.9, C2.10	CP1, CP2
2	The sidelight panels to the communal room 101 on level 1, form part of the bounding construction to the public corridor and therefore must either: - comply with Table 3 of Specification C1.1, which requires solid walls with an FRL of 90/90/90 or - comply with C3.11(g)(v), which requires internal drenchers, to the sidelight panels and self-closing, 35mm thick, solid core doors. The proponent has indicated that this will be subject to a fire engineered performance solution to maintain light to the subject communal room.	C1.1, Clause 3 of Spec. C1.1, or C3.11(g)(v)	CP2, DP4, EP2.2
3	The public corridors on level 1 – 9 appear to be more than 40m in length, excluding the external parts around the void. As such, they must be divided at intervals of not more than 40 m with smoke-proof walls and doors complying with Clause 2 of Specification C2.5, which would be installed perpendicular to the eastern and western side of the lift shafts. It is noted that a less conservative calculation would result in a public corridor less than 40m. The proponent has indicated that if the public corridors are determined to be more than 40m at construction certificate stage, that they intend to seek a fire engineered performance solution to	C2.14	CP2, DP4, EP2.2

	delete the smoke doors. Any performance solution must also take into consideration the potential impact to the ventilation of the public corridors and the stair pressurisation		
4	A number of openings require protection as per this clause. Refer to clause C3.2 for specific openings. The proponent has indicated that they intend to seek a fire engineered performance solution based on the use of internal drenchers, blade walls and radiant heal calculations.	C3.2	CP2
5	The discharge of the western fire isolated passageway does not comply with Clause D1.7(b) as it discharges to the enclosed residential foyer. The proponent has indicated that they intend to seek a fire engineered performance solution.	D1.7(b)	DP4, DP5, EP2.2

1.3 – Report Version

Revision	Date	Comments	Prepared & Approved
DRAFT	02 June 2020	Draft report.	Greg Evans, Accredited Certifier BPB 1870.
Revision 1	12 June 2020	Final report.	Greg Evans, Accredited Certifier BPB 1870.

Prepared by:

Greg Evans
Director
Accredited Certifier BPB 1870
360 Certification

Date: **12 June 2019**

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

2.0 – Property Description

2.1 – Building Location

The subject building is proposed to be located on Lot 100, Deposited Plan No. 1229420, and is known as 2-18 Station Street Marrickville NSW.

Site plan: 2-18 Station Street Marrickville NSW.

2.2 – Basis of Assessment

This BCA 2019 Report has been prepared based of the following: -

- The *Deemed-to-Satisfy* provisions of BCA 2019 including NSW Variations and relevant Australian Standards;
- Were relevant, the *Performance Requirements* of BCA 2019;
- Plans prepared by Tier Architects, pages 1-34, Issue A, 18 May 2020;
- The *Environmental Planning & Assessment Act 1979;*
- *Environmental Planning & Assessment Regulations 2000*;
- *Disability (Access to Premises — Buildings) Standards 2010*.

2.3 – Report Purpose

This BCA 2019 Report has been prepared to assess the proposed plans appurtenant to the Development Application that is to be submitted to Council for a *Boarding House* containing 130 rooms and 46 car parking spaces over 11 storeys and 3 basement levels at 2-18 Station Street Marrickville NSW. The BCA 2019 Report will:

- compare the proposed building against the *Deemed-to-Satisfy* provisions of BCA 2019 including NSW Variations and relevant Australian Standards;
- Identify DTS breaches that can be altered to comply with the DTS provisions of BCA 2019;
- Identify DTS breaches and relevant performance requirements to be considered for Performance Solutions by the fire engineers and other consultants.

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

2.4 – Report Methodology

This BCA 2019 report initially relies upon the plans of the proposed building, and a review of the structure against *Deemed-to-Satisfy* provisions of BCA 2019 and adopted Australian Standards.

Consideration can be given to the Performance Requirements of BCA 2019 where appropriate. Where relevant the assessment can include the following categories –

- Structural;
- Fire resistance and compartmentation;
- Occupant Access/Egress;
- Fire Safety/Protection Services
- Health & Amenity;
- Energy Efficiency.

Where compliance is not achieved with the relevant Deemed-to-Satisfy provisions, recommendations will be made to comply with the DTS or the relevant performance requirements.

2.5 – Exclusions, Assumptions and Limitations

- The report is limited to the proposed building;
- This report does not imply, nor refer to structural design or operating capability or design of any electrical, fire, hydraulic or mechanical services;
- Limited reference is made to the Disability (Access to Premises — Buildings) Standards 2010 and the *Disability Discrimination Act 1992 (Cth);*
- This report excludes a detailed Section J Assessment;
- Property protection, asset protection, environment protection, business interruption, issues associated with insurance or community impact are specifically excluded in this report;
- No liability is accepted for the accuracy of any documents / drawings provided by others which may form the basis of the analysis in this report;
- This report is specifically limited to the project / building and all contents (including data, methodologies, calculations and conclusions) in this report shall not be used for any other projects / buildings or any other purposes. No liability is accepted for the use of findings of this report by others;
- Modifications, changes or future developments to the building and / or any fire safety systems may invalidate the findings of this report. A re-assessment should be sought if these changes happen.

2.6 – Building Description

<table>
<tr><td>Building</td><td>Mixed use building.</td></tr>
<tr><td>Use/Classifications</td><td>
<table>
<tr><th>Storey</th><th>Description</th><th>Classification(s)</th></tr>
<tr><td>Basement 3</td><td>Carpark</td><td>7a</td></tr>
<tr><td>Basement 2</td><td>Carpark</td><td>7a</td></tr>
<tr><td>Basement 1</td><td>Carpark</td><td>7a</td></tr>
<tr><td>Ground floor</td><td>Boarding House
Commercial
Carpark</td><td>3
5 or 6
7a</td></tr>
<tr><td>Level 1</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 2</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 3</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 4</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 5</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 6</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 7</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 8</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 9</td><td>Boarding House</td><td>3</td></tr>
<tr><td>Level 10</td><td>Boarding House</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>Rise in Storeys</td><td>The proposed building has a rise in storeys of eleven.</td></tr>
<tr><td>Storeys contained</td><td>The proposed building will contain fourteen storeys.</td></tr>
<tr><td>Type of Construction</td><td>The proposed building requires Type ‘A’ Construction.</td></tr>
<tr><td>Effective Height</td><td>The building will have an effective height of 30.30m.
Note: Level 10 – 40.30m minus the Ground Level 10.00).</td></tr>
<tr><td>Floor Area</td><td>The maximum floor areas and volumes do not apply to Class 3 parts and sprinkler protected carparks.</td></tr>
<tr><td>Primary FRL’s</td><td>Class 3 – 90 minutes.
Class 7a – 120 minutes
Class 5 – 120 minutes
Class 6 – 180 minutes</td></tr>
<tr><td>Fire Compartments</td><td>Fire compartment A: Basement 3, 2, 1 and the ground floor.
Fire compartment B-K: Levels 1-10.
Note: The boarding house bedrooms and common rooms are fire separated not separate fire compartments, unless connected by mechanical ventilation for the purpose of Clause E2.2(b)(ii) of BCA 2019.</td></tr>
<tr><td>Car parking Spaces</td><td>46 parking spaces on the basement levels 3, 2 and 1.</td></tr>
<tr><td>HBCF Insurance</td><td>HBCFI is NOT applicable as the building is commercial or boarding house.</td></tr>
<tr><td>Bushfire Prone Land</td><td>No</td></tr>
<tr><td>Flood Prone</td><td>No</td></tr>
<tr><td>Acid Sulphate Soils</td><td>Yes – Class 5.</td></tr>
<tr><td>Zoning</td><td>B2 – Local Centre (MLEP 2011).</td></tr>
<tr><td>Heritage</td><td>No</td></tr>
<tr><td>Conservation Area</td><td>No</td></tr>
</table>

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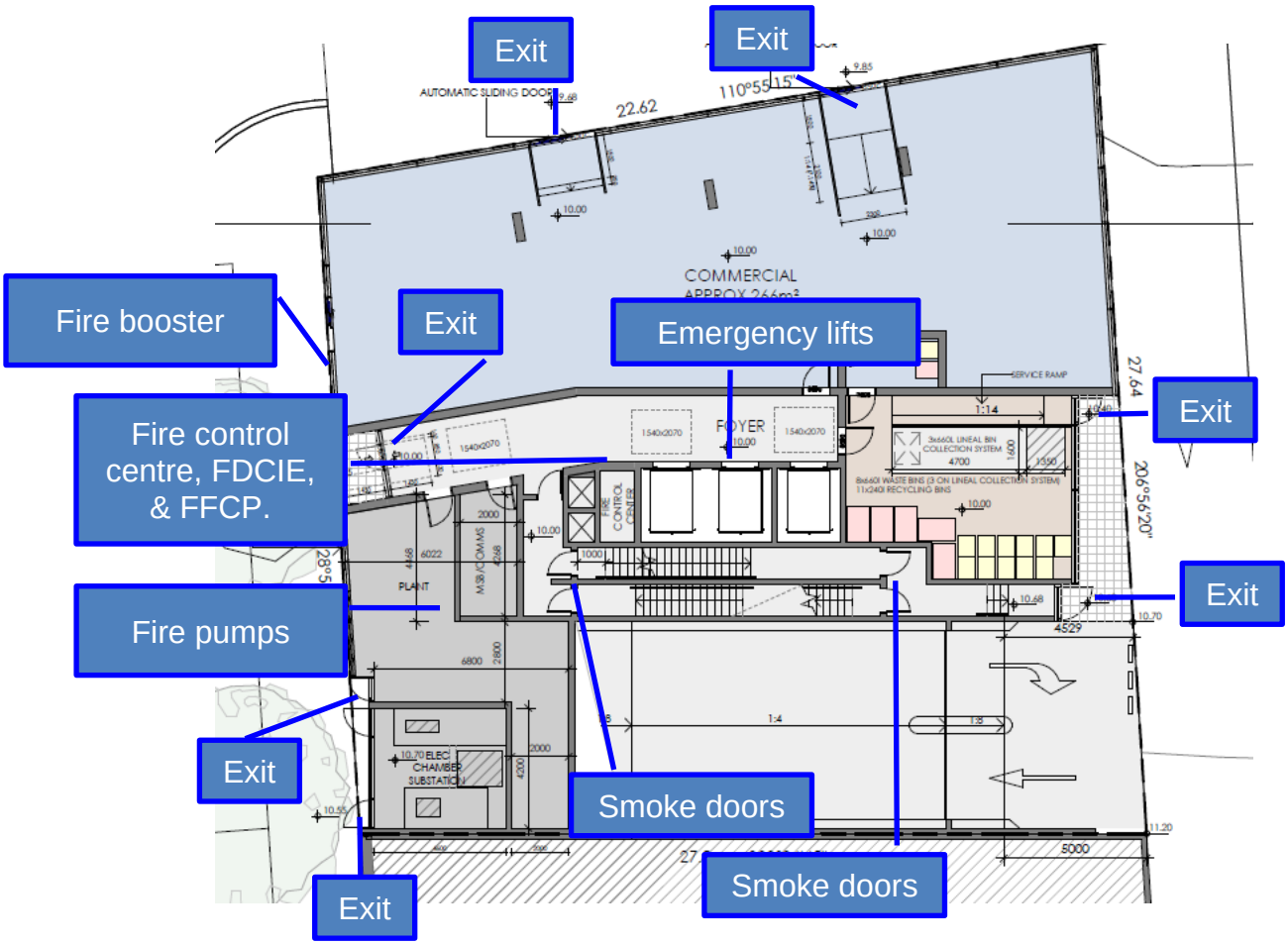
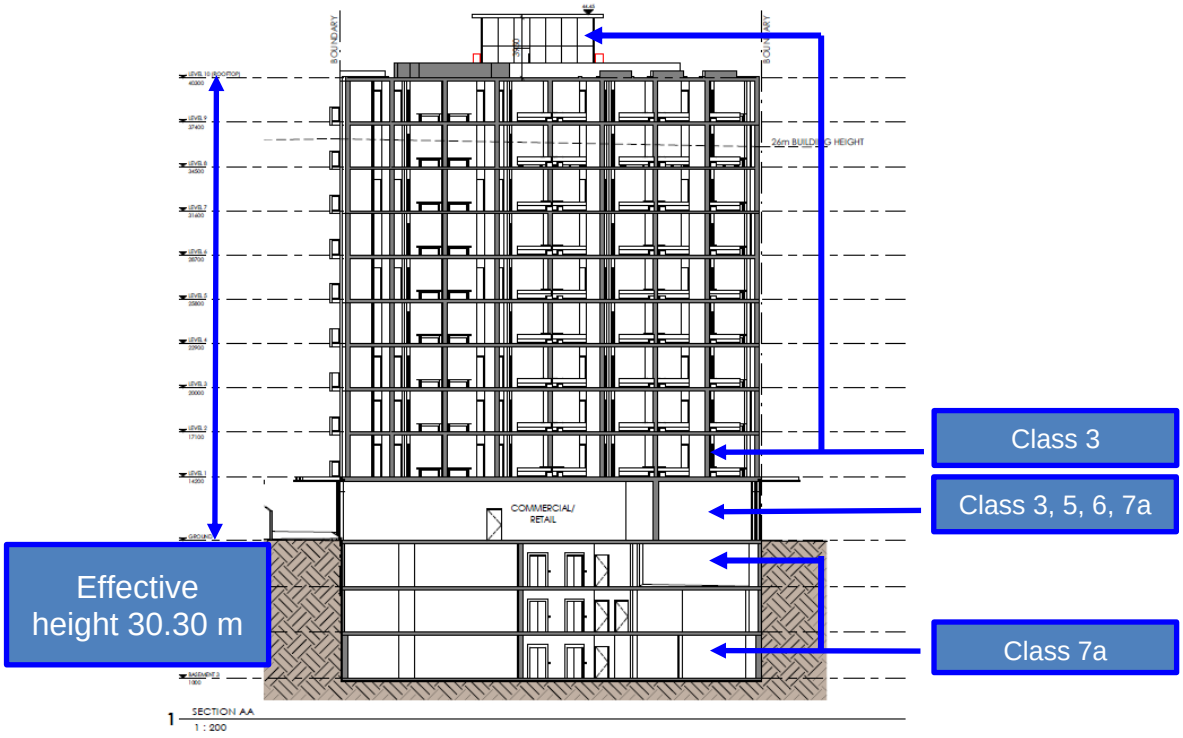
ABN: 24 606 570 825, ACN: 606 570 825

2.7 – Ground floor exits and main fire services





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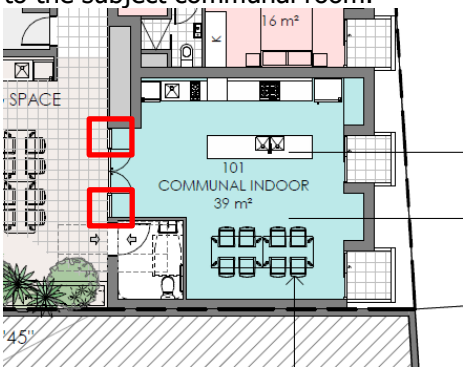
ABN: 24 606 570 825, ACN: 606 570 825

3.0 – BCA 2019 Assessment

3.1 – Structural & Fire Resistance (Section B & C of BCA 2019)

Part B	***Structural Provisions***	***Clause Requirements/Comments***	***Compliance***
B1.0	Deemed-to-satisfy provisions	Part applicable.	Note only.
B1.1	Resistance to actions.	Subject to geotechnical and structural engineering.	Yes
B1.2	Determination of individual actions.	Subject to geotechnical and structural engineering.	Yes
B1.3	*****	Blank clause.	N/A
B1.4	Determination of structural resistance of materials and forms of construction.	Subject to geotechnical and structural engineering.	Yes
B1.5	Structural software.	Note only.	Note only.
B1.6	Construction of buildings in flood hazard areas.	Property not identified as flood prone.	N/A
Part C1	***Fire Resistance and Stability***	***Clause Requirements/Comments***	***Compliance***
C1.0	DtS Provisions.	Applicable *performance requirements* for *building solutions.*	Note only
C1.1	Type of construction required. **Cladding:** Clause 2.4 of Spec. C1.1 states: The method of attaching or installing a finish, lining, *ancillary element* or service installation to a building element must not reduce the fire-resistance of that element to below that *required*.	Type 'A' construction required to comply with Clause 2 and 3 of Specification C1.1. Primary building elements must be non-combustible, including external walls, lifts and fire resisting internal walls. Internal load bearing walls must be of concrete, masonry. The roof does not require an FRL but must be non-combustible. The required FRL's prior to the application of concessions for sprinklers or non-load bearing elements: - Class 3 – 90 minutes; - Class 5 – 120 minutes; - Class 7a – 120 minutes; - Class 6 – 180 minutes. - Emergency lifts – 120 minutes; - Substation – 120 minutes; - Fire pump room – 120 minutes. The proponent has indicated that they intend to seek a performance solution to reduce the Class 6 FRL's to 120 minutes so the basements, ground floor have an FRL of 120 minutes. The sidelight panels to the communal room 101 on level 1, form part of the bounding construction to the public corridor and therefore must either: - comply with Table 3 of	Subject to fire engineering

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		Specification C1.1, which requires solid walls with an FRL of 90/90/90 or - comply with C3.11(g)(v), which requires internal drenchers, to the sidelight panels and self-closing, 35mm thick, solid core doors. The proponent has indicated that this will be subject to a fire engineered performance solution to maintain light to the subject communal room.  	
C1.2	Calculation of rise in storeys.	The proposed building has a *rise in storeys* of eleven as per Clause C1.2 of BCA 2019. The building contains thirteen storeys.	Yes
C1.3	Buildings of multiple classifications.	The building contains Class 3, 5, 6 and 7a parts. For this clause only, the building is identified as a eleven storey Class 3 building which requires Type 'A', construction.	Note only
C1.4	Mixed type of construction.	The building is not subject to mixed types of construction.	N/A
C1.5	Two storey Class 2, 3 or 9c buildings.	Not applicable as the Class 3 part has a rise in storeys of more than 2.	N/A
C1.6	Class 4 parts of buildings.	No Class 4 parts.	N/A
C1.7	Open spectator stands and indoor sports stadiums.	Not applicable.	N/A
C1.8	Lightweight fire rated construction.	If proposed to use lightweight fire rated construction in a wall or to cover a steel column or the like, the system must comply with this clause and the manufactures specifications.	Yes
C1.9	Non-combustible building elements	All following parts must be non-combustible. - external walls; - lift pits; - fire resisting non lead bearing walls; - Shafts. Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5 do not have to comply with this clause.	Design consideration

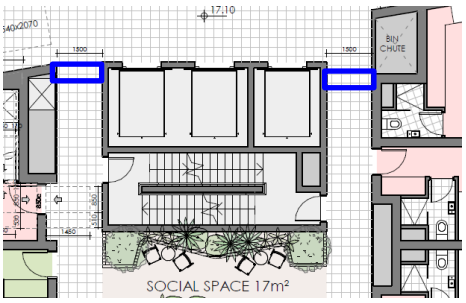
360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		Preformed UPVC concrete walls do not comply with this clause as the UPVC is combustible. The use of such walling systems must be subject to a fire engineered performance solution.	
C1.10	Fire hazard properties NSW Variations NSW C1.10(a)(v) NSW C1.10(b) NSW C1.10(c)(xiii).	The fire hazard properties of floor linings, floor coverings, wall linings, ceiling linings and air-handling ductwork, must comply with this clause. As the building will be sprinklered, the floor linings can achieve a critical radiant flux *not less than* 1.2. Plasterboard wall and ceiling linings comply with this clause.	Yes
C1.11	Performance of external walls in fire.	Not applicable as the building not proposed to be constructed with concrete panels.	N/A
C1.12	****	Deleted clause.	N/A
C1.13	Fire-protected timber: Concession	Not proposed to comply with requirements for fire protective timber.	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 one of the elements detailed in this clause. It is note that the external walls will have ancillary elements that look like timber attached to the external walls, which must be non-combustible. Actual timber would require a fire engineered performance solution.	Design consdieration
Part C2	***Compartmentation and Separation***	***Clause Requirements/Comments***	***Compliance***
C2.0	DtS Provisions.	Applicable *performance requirements* for *building solutions.*	Note only
C2.1	Application of Part.	Applicable Yes or No	Applicable
C2.2	General floor area and volume limitations.	The maximum floor areas and volumes do not apply to Class 3 parts and sprinkler protected carparks. The Class 5, 6 and 7a fire compartment is less than maximum permitted for Type 'A' construction.	N/A
C2.3	Large isolated buildings.	Not a large isolated building.	N/A
C2.4	Requirements for open space and vehicular access.	Not a large isolated building.	N/A
C2.5	Class 9a and 9c buildings. NSW Variations NSW C2.5(b).	Not a Class 9a or 9c building.	N/A
C2.6	Vertical separation of openings in external walls	Spandrel separation not required as the building is proposed to be sprinkler protected.	N/A
C2.7	Separation by fire walls.	Due to the fire engineered performance solution reducing the FRL's of the Class 6 part on the	N/A

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		ground floor to 120 minutes, no *fire walls* separating *fire compartments*. Note that the walls around the fire isolated stairs, passageways, fire services, and potential the garbage room remain fire rated but not *fire walls* by definition.	
C2.8	Separation of classifications in the same storey.	The ground floor contains Class 3, 5, 6 and 7a parts, which require different FRL's ranging from 90 to 180 minutes. The DTS provisions require the ground floor to achieve the higher FRL of 180 minutes or have the different classifications separated by *fire walls*. To prevent the need for fire walls, the proponent has indicated that they intend to seek a performance solution to reduce the Class 6 FRL's 120 minutes so the basements, ground floor, have an FRL of 120 minutes.	Subject to fire engineering
C2.9	Separation of classifications in the different storey.	The ground floor contains Class 3, 5, 6 and 7a parts, which require different FRL's ranging from 90 to 180 minutes. As such, the ground floor slab and first floor slab must achieve the higher FRL of 180 minutes. To prevent the need for the ground and first floor slab to achieve an FRL of 180 minutes, the proponent has indicated that they intend to seek a performance solution to reduce the Class 6 FRL's to 120 minutes.	Subject to fire engineering
C2.10	Separation of lift shafts.	The lift shafts must be fire rated and achieve an FRL of: - 120/120/120 on the basements; - 180/120/120 on the ground floor; - 120/120/120 on the levels 1 to 10, assuming they are emergency lifts in accordance with E3.4, Doorways to the lift are to have an FRL of --/60/--. The proponent has indicated that they intend to seek a performance solution to reduce the Class 6 FRL's to 120 minutes so the basements, ground floor, have an FRL of 120 minutes.	Subject to fire engineering
C2.11	Stairways and lifts in one shaft.	The stairway and lift are contained within their own fire separated shafts as required by this clause.	Yes
C2.12	Separation of equipment.	The following equipment must be fire separated from the building: - *(i) lift motors and lift control panels; or*	Yes

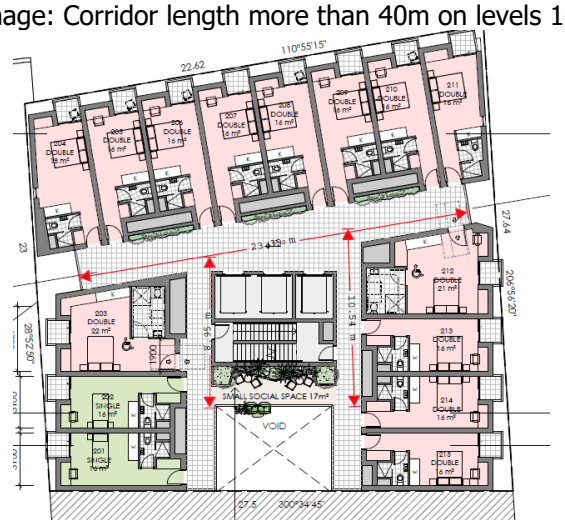
360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		(ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or *(iii) central smoke control plant; or* *(iv) boilers; or* *(v) a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more.* *(vi) on-site fire pumps must comply with the requirements of AS 2419.1* The fire pump room on the ground floor is capable of being fire separated as per the above with construction that achieves an FRL of 120/120/120, and doors --/120/30.	
C2.13	Electricity supply system.	The main electrical distribution board room on the basement level serving the fire pumps must be fire separated with fire rated construction achieving an FRL of 120/120/120 with doorways achieving an FRL of --/120/30 AND the emergency switchgear must be separated from non-emergency switchgear as per Clause C2.13(d).	Yes
C2.14	Public corridors in Class 2 and Class 3 buildings.	The public corridors on level 1 – 9 appear to be more than 40m in length, excluding the external parts around the void. As such, they must be divided at intervals of not more than 40 m with smoke-proof walls and doors complying with Clause 2 of Specification C2.5, which would be installed perpendicular to the eastern and western side of the lift shafts.  It is noted that a less conservative calculation would result in a public corridor less than 40m. The proponent has indicated that if the public corridors are determined to be more than 40m at construction certificate stage, that they intend to seek a fire engineered performance solution to delete the smoke doors. Any performance solution must also	Subject to fire engineering

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

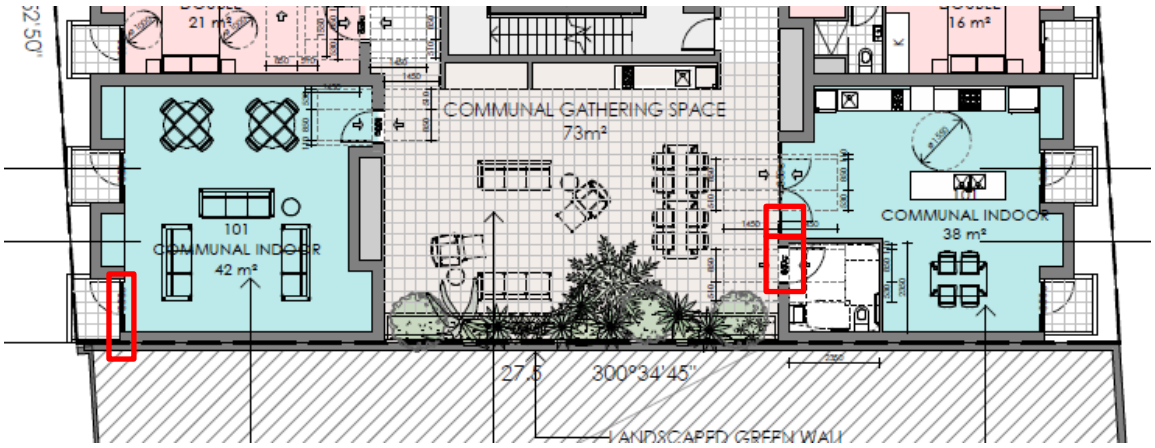
		take into consideration the potential impact to the ventilation of the public corridors and the stair pressurisation.	

Image: Corridor length more than 40m on levels 1-9.



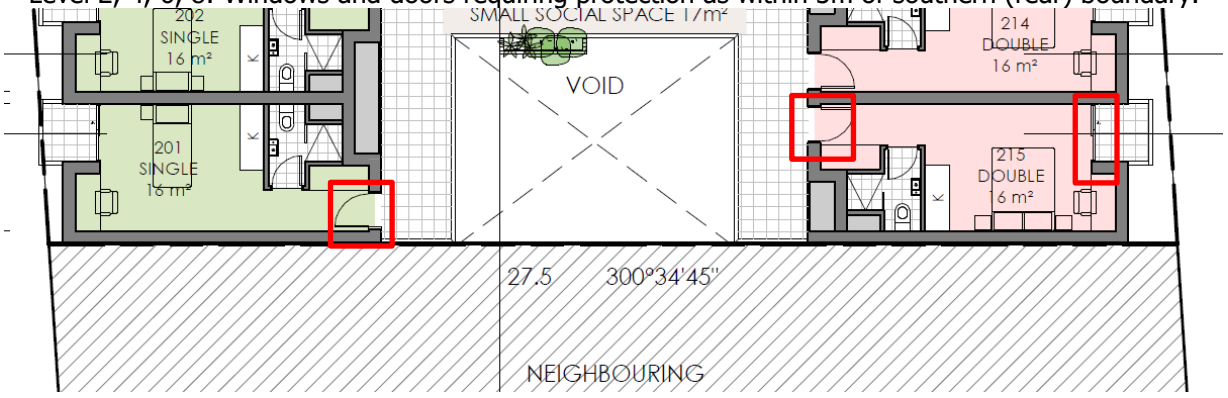
Part C3	***Protection of Openings***	***Clause Requirements/Comments***	***Compliance***
C3.0	DtS Provisions.	Applicable *performance requirements* for *building solutions.*	Note only
C3.1	Application of part.	Applicable Yes or No.	Applicable
C3.2	Protection of openings in external walls.	The following openings require protection as per this clause. The proponent has indicated that they intend to seek a fire engineered performance solution based on the use of internal drenchers, blade walls and radiant heal calculations.	Subject to fire engineering

Level 1: Windows and doors requiring protection as within 3m of southern (rear) boundary.

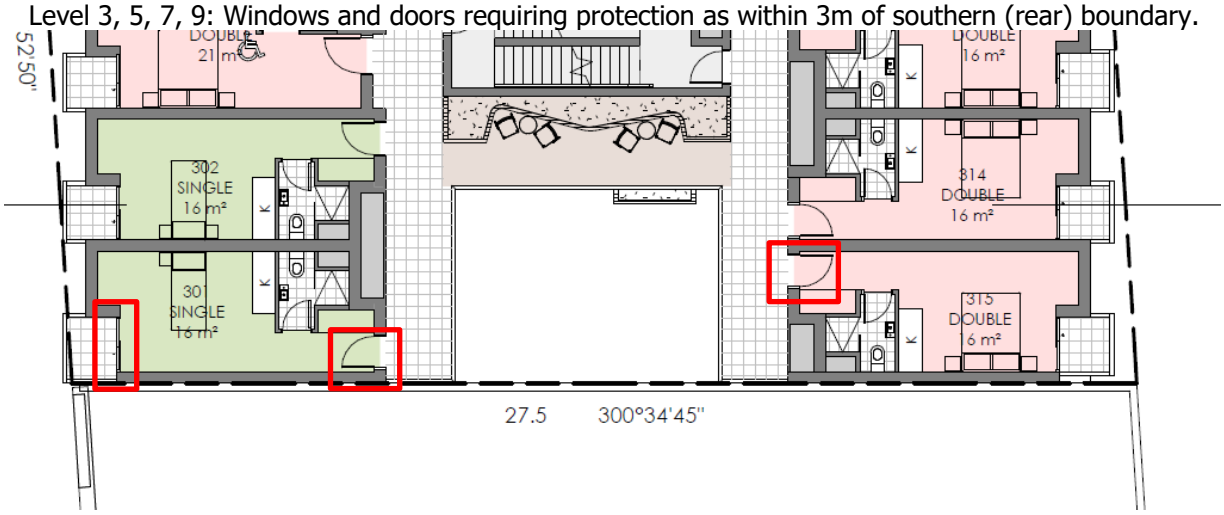


360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

Level 2, 4, 6, 8: Windows and doors requiring protection as within 3m of southern (rear) boundary.



Level 3, 5, 7, 9: Windows and doors requiring protection as within 3m of southern (rear) boundary.



C3.3	Separation of external walls and associated openings in different fire compartments.	No external walls in different fire compartments exposed to each other. As such, clause not applicable.	N/A
C3.4	Acceptable methods of protection.	The proponent has indicated that they intend to seek a fire engineered performance solution based on the use of internal drenchers, blade walls and radiant heal calculations.	Subject to fire engineering
C3.5	Doorways in fire walls.	No *fire walls*.	N/A
C3.6	Sliding fire doors.	No sliding fire doors.	N/A
C3.7	Protection of doorways in horizontal exits.	No horizontal exits.	N/A
C3.8	Openings in fire isolated exits.	The doorways to the fire isolated exit must be self-closing fire door sets that have an FRL of --/60/30.	Yes
C3.9	Service penetrations in fire isolated exits.	Services must not be installed in the fire isolated exit unless normal lighting and emergency services.	Yes
C3.10	Openings in fire isolated lift shafts.	The doorways to the lift *shaft* must be protected by –/60/– fire doors that— (i)comply with AS 1735.11; and (ii) are set to remain closed except when discharging or receiving passengers, goods or vehicles.	Yes
C3.11	Bounding construction: Class 2, 3, 4 & 9b buildings NSW Variation NSW C3.11(d).	The entry doorway to the boarding house rooms that open to internal public corridors must be self-closing	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		fire door sets that have an FRL of --/60/30. The entry doorways to the boarding house rooms and common rooms that open to external public corridors adjoining the void must comply with C3.11(g), which permits 35mm, tight fitting, self-closing, solid core doors. The point where the building is internal or external must be determined by the accredited certifier assessing the construction certificate. For building and maintenance simplicity, it is recommended that all the doors are self-closing fire doors that achieve an FRL of --/60/30. The sidelight panels to the communal room 101 on level 1, form part of the bounding construction to the public corridor and therefore must either: - comply with Table 3 of Specification C1.1, which requires solid walls with an FRL of 90/90/90 or - comply with C3.11(g)(v), which requires internal drenchers, to the sidelight panels and self-closing, 35mm thick, solid core doors. The proponent has indicated that this will be subject to a fire engineered performance solution to maintain light to the subject communal room.	Subject to fire engineering
C3.12	Openings in floors and ceilings for services.	Openings in floors that require an FRL with respect to integrity and insulation must be fire stopped as per this clause.	Yes
C3.13	Openings in shafts.	In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage or other service *shaft* must be protected by— (a) if it is in 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 (b) a *self-closing* –/60/30 fire door or hopper; or (c) an access panel having an FRL of not less than –/60/30; or (d) if the *shaft* is a garbage *shaft* — a door or hopper of *non-combustible* construction.	Yes
C3.14	*****	Blank clause.	N/A
C3.15	Openings for service installations	Where an electrical, electronic, plumbing, mechanical ventilation, air-	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		conditioning or other service penetrates a building element (other than an *external wall* or roof) that is *required* to have an FRL with respect to *integrity* or *insulation* or a *resistance to the incipient spread of fire*, that installation must be fire stopped as per this clause.	
C3.16	Construction joints.	Construction joints to be fire stopped as per this clause.	Yes
C3.17	Columns protected with lightweight construction to achieve an FRL.	A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire.	Yes

3.2 – Access & Egress (Section D, BCA 2019)

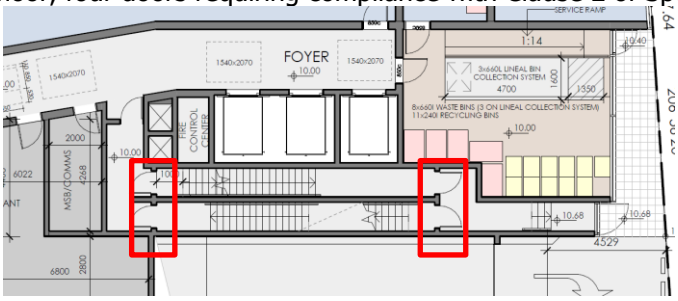
Part D1	***Provisions for Escape***	***Clause Requirements/Comments***	***Compliance***
D1.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only.
D1.1	Application of Part	Part applicable	Note only.
D1.2	Number of exits required NSW Variation NSW D1.2(d)(vii).	Each storey requires two exits. As per Clause D1.2(g), without passing through another sole-occupancy unit every occupant of a storey or part of a storey must have access to— (i) an exit; or (ii) at least 2 exits if 2 or more exits are required. Occupants of the residential foyer and garbage room must be able to access one exit from the garbage room and one exit from the foyer. Occupants of the commercial space on the ground floor require, and are provided with, two exits. Further confirmation required at construction certificate stage.	Yes
D1.3	When fire-isolated stairways and ramps are required.	The two stairs serving basement levels 1, 2 and 3, are fire isolated as required. The two stairs serving levels 1 to roof level are fire isolated as required.	Yes
D1.4	Exit travel distances	Occupants within the basement levels 1, 2 and 3, are within 20m to a point of choice of two exits, with one of those exits within 40m.	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		Occupants on the ground floor are within 20m of one of three exits that discharge to the eastern, northern, and western facades. Occupants in the communal rooms on level 1 are within 20m of one of the two fire isolated exits. Occupants in the boarding rooms on levels 1-9 are within 6m of a point of choice to the two fire isolated exits. In consideration of the above, the exit travel distances comply with this clause. Additional measurements should be undertaken to the north-eastern rooms on levels 1-9 at construction certificate stage to ensure they remain within 6m to a point of choice.	
D1.5	Distance between alternative exits	The distance between alterative exits in the Class 7a basement storeys is more than 9m and less than 60m as required by this clause. The distance between alterative exits on levels 1-9 is more than 9m and less than 45m as required by this clause.	Yes
D1.6	Dimensions of exits and paths of travel NSW Variations NSW D1.6(f)(vii) NSW D1.6(i)	The dimensions of exits and paths of travel to exits generally complies with this clause and is subject to detailed design at construction certificate stage. The aggregate egress width complies with this clause based on normal residential occupancy levels and the commercial space not having more than 200 occupants.	Yes
D1.7	Travel via fire-isolated exits.	The fire isolated stairs serving building discharge via two fire isolated passageways. Assuming there are only two shafts, in a scissor arrangement from B3 to level 10, this complies in part with D1.7(b). The discharge of the eastern fire isolated passageway complies with Clause D1.7(b)(i). The discharge of the western fire isolated passageway does not comply with Clause D1.7(b) as it discharges to the enclosed residential foyer. The proponent has indicated that they intend to seek a fire engineered performance solution.	Fire engineering

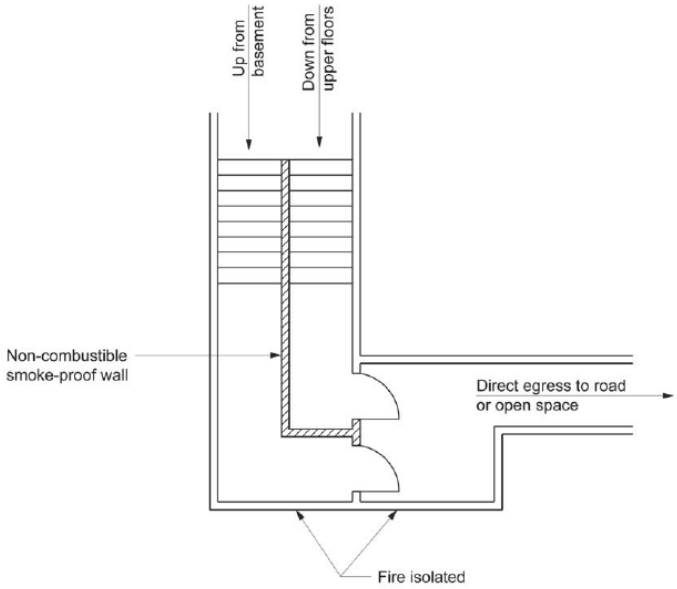
D1.8	External stairways or ramps in lieu of fire-isolated exits	No external stair in lieu of a fire isolated stair.	Yes
D1.9	Travel by non-fire-isolated stairways or ramps.	No non-fire isolated stairways or ramps used as exits.	N/A
D1.10	Discharge from exits NSW Variation NSW D1.10(f).	The discharge of the exits appears to comply with this clause and D3.3/AS 1428.1-2009. Further review required at construction certificate stage.	Yes
D1.11	Horizontal exits.	No horizontal exits are provided / required.	N/A
D1.12	Non-required stairways, ramps or escalators.	No non-required stairways, ramps or escalators.	N/A
D1.13	Number of persons accommodated. NSW Variation NSW Table D1.13.	The aggregate egress width complies with this clause based on normal residential occupancy levels and the commercial space not having more than 200 occupants.	Note only
D1.14	Measurement of distances	Note only.	Note only.
D1.15	Method of measurement	Note only.	Note only.
D1.16	Plant rooms and lift machine rooms: Concession.	No plant concession required.	N/A
D1.17	Access to lift pits	The lift pits will be less than 3m in depth and therefore access to the lift pit will be via the lowest landing doors.	Yes
D1.18	Egress from child care centres	No child care centres proposed.	N/A
Part D2	***Construction of Exits***	***Clause Requirements/Comments***	***Compliance***
D2.0	DtS Provisions.	Applicable *performance requirements* for *building solutions.*	Note only.
D2.1	Application of part NSW Variation NSW D1.(c).	Part applies.	Note only.
D2.2	Fire-isolated stairways and ramps.	It is assumed that the fire isolated stairs and passageways will be constructed from masonry and concrete, which complies with this clause.	Yes
D2.3	Non-fire-isolated stairways and ramps.	No non fire isolated stairway.	N/A
D2.4	Separation of rising and descending stair flights.	As the fire isolated stairs serving the upper levels and the basement levels are assumed to share one of two shafts, there configuration results in a rising and descending scenario. As such, the discharge doors to the fire isolated passageways at ground level must be non-combustible and smoke proof in accordance with Clause 2 of Specification C2.5.	Design considerations

Image: Ground floor, four doors requiring compliance with Clause 2 of Specification C2.5.



360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

Figure D2.4 Plan showing one method of compliance with D2.4



D2.5	Open access ramps and balconies.	No open access ramps or balconies used to comply with the requirements of Table E2.2a.	N/A
D2.6	Smoke lobbies.	No smoke lobbies utilised.	N/A
D2.7	Installations in exits and paths of travel.	Electrical distribution boards that are located within a path of travel to an exit must be contained within non-combustible construction (metal cabinet) and smoke sealed.	Yes
D2.8	Enclosure of space under stairs and ramps.	No cupboards beneath the fire isolated stairs identified.	Yes
D2.9	Width of stairways.	Stairways greater than 2m in width only count for 2m of exit width.	Note only.
D2.10	Pedestrian ramps.	No internal pedestrian ramps serving as exits.	N/A
D2.11	Fire-isolated passageways.	The fire isolated passageways must be fire rated to achieve 120/120/120 due to the basement stairs discharging to them. It is assumed they will be constructed from masonry, which will comply with this clause.	Yes
D2.12	Roof as open space.	No roof used as open space, like a podium slab.	N/A
D2.13	Goings and risers. NSW Variation NSW 2.13(a)(ix), (x), xi	The goings and the risers are capable of complying with this clause and are subject to detailed design at construction certificate stage	Yes
D2.14	Landings.	The proposed landings are capable of complying with this clause and are subject to detailed design at construction certificate stage.	Yes
D2.15	Thresholds. NSW Variation NSW D2.15(d)(c).	The proposed thresholds are capable of complying with this clause and are subject to detailed design at construction certificate stage.	Yes
D2.16	Balustrades or other barriers. NSW Variation D2.16(g)(iv) & (v).	The proposed balustrades capable of complying with this clause and are subject to detailed design at	Yes

		construction certificate stage.	
D2.17	Handrails.	One hand rail is required to all stairs as per this clause. Stairs that form part of the accessible path of travel must have two hand rails to AS 1428.1-2009.	Yes
D2.18	Fixed platforms, walkways' stairways and ladders.	No fixed platforms, walkways and ladders proposed or required.	N/A
D2.19	Doorways and doors. NSW Variation NSW D2.19(b)(v).	The sliding glass exit doors serving the Commercial tenancy on the ground floor: (A) must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and (B)if it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.	Yes
D2.20	Swinging doors.	The exit doors opening to the fire isolated passageways and final discharge doors swing in the direction of egress. The exits doors from the residential foyer on the ground floor and the garbage room swing in the direction of egress as required.	Yes
D2.21	Operation of latch. NSW Variation NSWD2.2(c) & (d).	Door hardware must be a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3— (A)be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and (B)have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm.	Yes
D2.22	Re-entry from fire-isolated exits.	Doors from the fire isolated stair must be unlocked unless a fail-safe device that automatically unlocks the door upon the activation of a fire alarm and— (i) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (ii) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		purpose and method of operation.	
D2.23	Signs on doors.	The doors to the fire isolated stairs must have signage that states: "**FIRE SAFETY DOOR** **DO NOT OBSTRUCT** **DO NOT KEEP OPEN**" The doors discharging from the fire isolated passageways must have signage that states: "**FIRE SAFETY DOOR** **DO NOT OBSTRUCT"**	Yes
D2.24	Protection of openable windows. Class 2, 3, 4 or 9b building.	The small bedroom windows to the north-eastern and north-western facades must have child-resistant barrier if the open more than 125mm and have a sill height of less than 1.7 metres above the finished floor level.	Yes
D2.25	Timber stairways: Concession	Not applicable as no timber stairs proposed within the fire isolated stairway.	N/A
NSW D2.101	Doors in path of travel in an entertainment venue.	Not an *'entertainment venue',* as defined by the EP & A Regs. 2000.	N/A
Part D3	***Access for People with Disabilities***	***Clause Requirements/Comments***	***Compliance***
D3.0	DtS Provisions.	Applicable *performance requirements* for *building solutions.*	Note only.
D3.1	General building access requirements.	Disabled access is a requirement of BCA 2019 and Federal legislation. *Class 3:* *From a pedestrian entrance required to be accessible to at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level.* *To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, swimming pool, common laundry, games room, TV room, individual shop, dining room, public viewing area, ticket purchasing service, lunch room, lounge room, or the like.* *Where a ramp complying with AS 1428.1 or a passenger lift is installed—* *(a) to the entrance doorway of each sole-occupancy unit; and* *(b) to and within rooms or spaces for use in common by the residents,* *located on the levels served by the lift or ramp.* *To and within 7 accessible sole-occupancy units.* *Class 5:* *To and within all areas normally used by the occupants* Class 6: *To and within all areas normally used by the occupants* *Class 7a:* *To and within any level containing accessible carparking spaces.*	Yes
D3.2	Access to buildings.	An accessway must be provided from the main points of a pedestrian entry	Design consideration

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		at the allotment boundary to the building. The northern entries to the commercial space will require amendment to comply with AS 1428.1-2009.	
D3.3	Parts of buildings to be accessible.	Disabled access must be provided from the principal pedestrian entries at the property boundary to: - the commercial area on the ground floor; - the accessible car parking places on the basement levels; - the common boarding house aeras and rooms; - entry doors of all the boarding house rooms; - and within seven boarding rooms; - common roof top area. The building appears to be generally compliant with this clause, subject to detailed design at construction certificate stage.	Yes
D3.4	Exemptions.	Disabled access need not be provided to service areas / metres rooms etc. - Plant room; - Services room; - Fire service / pump room; - Garbage room.	Yes
D3.5	Accessible car parking.	The building has 131 Class 3 sole occupancy units, (including the managers residence, with 14 proposed to be accessible. Therefore approximately 10.70% of the units are accessible. Multiply 46 parking spots by 10.7%, which equals 5 accessible parking spots required. 13 proposed, which complies with this clause. The spaces must comply with AS/NZS 2890.6. Vertical clearance of not less than 2500mm must be provided above each dedicated space and adjacent shared area, when measured in accordance with AS 2890.1: 1993 Clause 5.3. (AS 2890.6: 2009 Clause 2.4) (Figure 4).	Yes
D3.6	Signage.	Braille and tactile signage complying with Specification D3.6 must: - *(ii) identify each door required by E4.5 to be provided with an exit sign and state—* *(A) "Exit"; and* *(B) "Level" ; and either* *(aa) the floor level number; or* *(bb) a floor level descriptor; or* *(cc) a combination of (aa) and (bb).*	Yes
D3.7	Hearing augmentation.	Hearing augmentation not required.	N/A

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

D3.8	Tactile indicators.	Tactiles will be required to any 1:14 ramps and non-fire isolated stairs.	Yes
D3.9	Wheelchair seating in Class 9b assembly buildings.	No Class 9b part.	N/A
D3.10	Swimming Pools.	No pools proposed.	N/A
D3.11	Ramps.	The accessible ramps must comply with AS 1428.1-2009.	Yes
D3.12	Glazing on an accessway.	On an accessway, 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 1428.1-2009.	Yes

3.3 – Services and Equipment (Section E, BCA 2019)

Part E1	***Fire Fighting Equipment***	***Clause Requirements/Comments***	***Compliance***
E1.0	DtS Provisions	Applicable *performance requirements* for *building solutions*	Note only
E1.1	*****	Blank clause.	N/A
E1.2	*****	Blank clause.	N/A
E1.3	Fire hydrants.	Fire hydrant coverage is required as the building is greater than 500m^2. The hydrant must comply with E1.5 and AS 2419.1-2005, except as per Clause E1.3(b)(i)(B) the booster does not require protection. Fire hydrants must be connected to a ring-main as the building has an effective height greater than 25m. The hydrant must be served by on-site storage not less than 25,000 litres as the building is sprinklered protected. The booster must be within sight of the main entrance, which is likely to be designated as the residential (western entry). Furthermore the booster which must NOT be less than 10 m from any high voltage main electrical distribution equipment such as transformers and distribution boards, and from liquefied petroleum gas and other combustible storage, as per Clause 7.3(f) of AS 2419.1-2005. This would likely result in the booster being located on the northern side of the western entry, within the commercial space.	Yes
E1.4	Fire hose reels.	Fire hose reels are not required for the Class 3 parts.	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		Fire hose reels are required for the Class 5, 6 and 7a parts on the basement levels and the ground floor. Hose reels must be located within 4m of the most exits, but not all, to provide coverage via a 36m hose and 4m spray.	
E1.5	Sprinklers NSW Variation NSW Table E1.5	As the building is over 25m in effective height, the building must be sprinklered in accordance with BCA Clause E1.5, Clause 2 of Spec. E1.5, AS 2118.1-2017. A required sprinkler system in a building greater than 25 m in effective height must be provided with dual water supply except that a secondary water supply storage capacity of 25,000 litres may be used if— (i)the storage tank is located at the topmost storey of the building; and (ii)the building occupancy is classified as no more hazardous than Ordinary Hazard 2 (OH2) under AS 2118.1; and (iii)an operational fire brigade service is available to attend a building fire. The system shall have fault monitoring as per AS 2118.1. The building appears to be a mixture of light hazard (boarding house and cafes) and ordinary hazard 2 (carpark).	Yes
E1.6	Portable fire extinguisher.	Portable fire extinguishers must be installed throughout the Class 2 parts, where internal hydrants are installed, which would result in ABE a minimum size 2.5kg, on each storey, 10m from each SOU. Portable fire extinguishers must be installed to cover Class AE or E fire risks associated with emergency services switchboards.	Yes
E1.7	*****	Blank clause.	N/A
E1.8	Fire control centres.	As the building is over 25m in effective height, the building must have a fire control centre. (not a fire control room). The fire control centre must comply with Specification C1.8. It is assumed the fire control centre will be located adjoining the main entry of the residential lobby.	Yes
E1.9	Fire precautions during construction.	Not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each	Yes

		required exit or temporary stairway or exit. After the building has reached an effective height of 12.0m, fire hydrants and hose reels must be operational by every storey that is covered by a roof or floor structure above, except the two most upper storeys and the booster must be installed.	
E1.10	Provision for special hazards.	Not required or proposed.	N/A
Part E2	***Smoke Hazard Management***	***Clause Requirements/Comments***	***Compliance***
E2.0	DtS Provisions	Applicable *performance requirements* for *building solutions*	Note only
E2.1	Application of Part.	Part applies.	Applicable
E2.2	General requirements.	<u>E2.2(a)(i), Table E2.2a:</u> The fire isolated stairs and connected fire isolated passageways must be pressurised in accordance with AS/NZS AS 1668.1-2015. The Class 3 part must have a smoke detection and alarm system in accordance with Clause 4 and of Specification E2.2a, AS 1670.1-2018, Clause E4.9, 1670.4-2018. Detectors are not required by this specific sub-clause, to public corridors and other public spaces as the building is sprinkler protected. (Cl. 4.(b)(ii)) Notwithstanding the above, the whole building must have an extended spacing smoke detection system to activate the stair pressurisation system, as per Clause E2.2(d), Clause 6(a)(i)&(ii), which requires compliance with AS 1670.1-2018 and additional smoke detectors installed adjacent to each bank of lift landing doors set back horizontally from the door openings by a distance of not more than 3 m. Instead of having a number of systems, which makes it complex to design and maintain, it is recommended that the clause 4 system be extended throughout the ground floor and basements, which will also assist in the proposed fire engineering. <u>E2.2(a)(ii), NSW Table E2.2b:</u> Not applicable as the building does not have a Class 9b part and the Class 6 part is less than 2,000m^2. <u>E2.2(b)(ii),</u>	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must— (i)be designed and installed to operate as a smoke control system in accordance with AS 1668.1; or (ii) (A)incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B)be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1; and for the purposes of this provision, each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment. <u>E2.2(c),</u> Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. <u>E2.2(d),</u> the whole building must have an extended spacing smoke detection system to activate the stair pressurisation system, as per Clause E2.2(d), Clause 6(a)(i)&(ii), which requires compliance with AS 1670.1-2018 and additional smoke detectors installed adjacent to each bank of lift landing doors set back horizontally from the door openings by a distance of not more than 3 m.	
E2.3	Provision of special hazards. NSW variations NSW Table E2.2a NSW Table E2.2b	The building is not considered to be subject to the provision of special hazards.	N/A
Part E3	***Lift Installations***	***Clause Requirements/Comments***	***Compliance***
E3.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
E3.1	Lift installations.	The electric passenger lift must comply with Specification E3.1.	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

E3.2	Stretcher facility in lifts.	A stretcher facility must be provided within at least one emergency lift. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level.	Design consideration
E3.3	Warnings against the use of lifts in fire.	Signage will be provided to comply with this clause. 	Yes
E3.4	Emergency lifts.	As two of the proposed three lifts serve the same storeys (all of the storeys), two of the three lifts must be emergency lifts. The other lift can be a passenger lift. The two emergency lifts must be in a fire resisting shaft that achieves a minimum of 120/120/120.	Design consideration
E3.5	Landings.	Landings to the lift must comply with Part D and AS 1428.1-2009. The lift landings appear capable of complying with this clause.	Yes
E3.6	Passenger lifts.	The two emergency lifts are assumed to also be passenger lifts, which must comply with: a) Hand rail to AS 1735.12; b) Lift floor of 1400 (w) x 1600 (d) unless it is the lift containing the stretcher facility, which requires a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level; c) Minimum clear door opening complying with AS 1735.12; d) Passenger protection system complying with AS 1735.12; e) Lift landing doors at the upper landing; f) Lift car control buttons to AS 1735.12; g) Lighting to AS 1735.12; h) Automatic audible information, visual indicators to identify the level and when the lift stops. i) Emergency button to call centre	Yes
E3.7	Fire service controls.	Where lifts serve any storey above an effective height of 12 m, the following must be provided: (a) A fire service recall control switch complying with E3.9 for— (i) a group of lifts; or (ii) a single lift not in a group that serves the storey.	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		(b) A lift car fire service drive control switch complying with E3.10 for every lift.	
E3.8	Aged care buildings.	The building is not a Class 9c building.	N/A
E3.9	Fire service recall operation switch.	Each group of lifts must be provided with one fire service recall control switch as per this clause.	Yes
E3.10	Lift car service drive control switch.	The lift car fire service drive control switch *required* by E3.7 must be activated from within the lift car in accordance with this clause.	N/A
Part E4	***Emergency Lighting, Exit Signs and Warning Systems***	***Clause Requirements/Comments***	***Compliance***
E4.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only.
E4.1	*****	Blank clause.	N/A
E4.2	Emergency lighting requirements.	Emergency lighting is required to be installed to the building in accordance with this clause.	Yes
E4.3	Measurement of distance.	Noted.	Note only.
E4.4	Design and operation of emergency lighting.	Emergency lighting must be installed in accordance with AS 2293.1-2005.	Yes
E4.5	Exit signs.	Exit signs to be installed on all levels above or adjacent to the exit.	Yes
E4.6	Direction signs. NSW Variation NSW E4.6	If the exit is not readily apparent, additional directional exit signs must be installed to guide occupants to the exit.	Yes
E4.7	Class 2 buildings parts: Exemption.	Not a Class 2 building.	N/A
E4.8	Design and operation of exit signs.	Every required exit sign must comply with— AS 2293.1; or for a photoluminescent exit sign, Specification E4.8; and be clearly visible at all times when the building is occupied by any person having the right of legal entry to the building.	Yes
E4.9	Sound systems and intercom systems for emergencies	The building must have an emergency warning and information system in accordance with AS 1670.4-2018.	Yes

3.4 – Health & Amenity (Part F, BCA 2019)

Part F1	***Damp and Waterproofing***	***Clause Requirements/Comments***	***Compliance***
F1.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
F1.1	Stormwater drainage.	The stormwater must comply with AS/NZS 3500.3-2015.	Yes
F1.2	*****	Blank clause	N/A
F1.3	*****	Blank clause	N/A
F1.4	External above ground membranes.	Where external membranes are proposed, they must comply with AS 4654.1 & 2.	Yes
F1.5	Roof coverings.	The roof coverings must comply with this clause. If metal deck roofing is proposed it must comply with AS 1562.1.	Yes
F1.6	Sarking	New sarking will comply with this clause and AS/NZS 4200.1 & 2. Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5 can be used wherever a non-combustible material is required.	Yes
F1.7	Waterproofing of wet areas in buildings.	Waterproofing of all internal wet areas must be in accordance with this clause and AS 3740-2010.	Yes
F1.8	*****	Blank clause.	N/A
F1.9	Damp-proofing	New damp-proofing will comply with this clause.	Yes
F1.10	Damp-proofing of floors on the ground.	New damp-proofing on the ground will comply with this clause.	Yes
F1.11	Provision of floor wastes.	New floor wastes must be provided to the Class 3 parts within the bathrooms and laundries.	Yes
F1.12	Sub-floor ventilation.	No sub floor ventilation.	N/A
F1.13	Glazed assemblies.	New glazed members must comply with AS 1288-2006 and AS 2047-2014.	Yes
Part F2	***Sanitary and Other Facilities***	***Clause Requirements/Comments***	***Compliance***
F2.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
F2.1	Facilities in residential buildings.	Each class 3 sole occupancy unit is provided with a kitchen, bathroom, toilet, and shower. The managers room is provided with same facilities. Laundry facilities are not required. However, it is assumed that the managers residence will have a	Yes
F2.2	Calculation of number of occupants and facilities.	The aggregate egress width complies with this clause based on normal residential occupancy levels and the	Noted

		commercial space not having more than 200 occupants.	
F2.3	Facilities in Class 3-9 buildings.	The class 7a part does not require facilities as per this clause. The Class 5 and 6 parts must have facilities as per this clause, which can be determined upon confirming the specific commercial uses.	Yes
F2.4	Accessible sanitary facilities.	The Class 5 and 6 parts must have facilities as per this clause, which can be determined upon confirming the specific commercial uses.	Yes
F2.5	Construction of sanitary compartments.	The door to a fully enclosed *sanitary compartment* must— (i)open outwards; or (ii) slide; or (iii)be readily removable from the outside of the *sanitary compartment*, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the *sanitary compartment* and the doorway. Detailed review at construction certificate stage required.	Yes
F2.6	Interpretation: Urinals and washbasins.	Noted only.	Yes
F2.7	Microbial. NSW Variation NSW F2.7	Not applicable in NSW.	N/A
F2.8	Waste management.	Not Class 9a	N/A
F2.9	Accessible adult change facilities	Not a large Class 6 building or a 9b, or public building.	N/A
Part F3	***Room Heights***	***Clause Requirements/Comments***	***Compliance***
F3.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Applies
F3.1	Height of rooms and other spaces.	The height of rooms is required to be 2.4 meters in height in habitable rooms and 2.1m in non-habitable rooms. It is noted that that normal internal heights are generally 2.4 metres or more. Additional heights are required in the carpark for the disabled access parking spots.	Yes
Part F4	***Light and Ventilation***	***Clause Requirements/Comments***	***Compliance***
F4.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Applicable
F4.1	Provision of natural light.	Natural lighting must be provided to all Class 3 Bedrooms and dormitories.	Yes
F4.2	Methods and extent of natural lighting. Average Daylight Factor $= \frac{W}{A}\frac{T\theta}{(1-R^2)}$	Compliant natural lighting is provided from windows that have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room, and are open to the sky or face a court or other space open to the sky	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

	W = the net area of the light transmitting area of the window (m^2); and **A =** the total area of the internal wall, floor and ceiling surfaces (m^2); and **T =** the diffuse light transmittance of the *window*; and **θ =** visible sky angle in degrees, measured in a vertical plane normal to and from the centre of the *window*, and **R =** the area-weighted average reflectance of area A.	or an open verandah, carport or the like.	
F4.3	Natural light borrowed from adjoining room.	Borrowed light not required as direct natural lighting provided.	N/A
F4.4	Artificial lighting.	In non-habitable rooms, artificial lighting will comply with this clause, the BASIX certificate and Part J6 and AS 1680.0-2009.	Yes
F4.5	Ventilation of rooms. NSW Variation F4.5(b).	Excluding the car park, unit bathrooms & laundries and common area hallways, the building is provided with natural ventilation. Parts that are mechanical ventilated must comply with the BASIX certificate, Part J5 and AS 1668.2-2012.	Yes
F4.6	Natural ventilation.	The Class 3 parts of the building that are naturally ventilated, comply with the natural ventilation requirements of this this clause.	Yes
F4.7	Ventilation borrowed from adjoining room.	Borrowed ventilation not relied upon.	N/A
F4.8	Restriction of position of water closets and urinals.	The sanitary compartments must not open directly to the kitchen unless they comply with Clause E4.9. The bathrooms will be mechanically ventilated as they have no window to the external walls.	Yes
F4.9	Airlocks.	The bathrooms will be mechanically ventilated as they have no window to the external walls.	Yes
F4.10	*****	Blank clause.	N/A
F4.11	Carparks	The basement carpark part must be mechanically ventilated as per AS 1668.2-2012 and have stair pressurisation to AS/NZS 16681.-2015. Further details required at construction certificate stage to confirm exhaust locations. If they open to the podium slab, they must have 3m separation from the path of travel of persons using an exit discharging to this area that connects to a road or open space. [Refer D2.12].	Yes
F4.12	Kitchen and local exhaust ventilation.	No commercial kitchens detailed at this stage.	N/A
Part F5	***Sound Transmission and Insulation***	***Clause Requirements/Comments***	***Compliance***
F5.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Noted.
F5.1	Application of Part.	Applies to Class 3 parts.	Applies

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

F5.2	Determination of airborne sound insulation ratings.	Airborne sound insulation requirement.	Noted
F5.3	Determination of impact sound insulation ratings.	Airborne sound insulation ratings must be determined in accordance with Clause F5.2(a) or comply with Specification F5.2.	Note only
F5.4	Sound insulation of floors.	The floors and ceilings separating level 1 to 10 must have an $R_w + C_{tr}$ (airborne) not less than 50 and an $L_{n,w}$ (impact) not more than 62.	Yes
F5.5	Sound insulation of walls. *For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and (i)for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (ii)for other than masonry, there is no mechanical linkage between leaves except at the periphery.*	The walls separating boarding house rooms must have an $R_w + C_{tr}$ (airborne) not less than 50. Discontinuous construction will be required, where a wall separate: - a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or - a sole-occupancy unit from a plant room or lift shaft. For example, discontinues construction is required between UG09 and UG10.	Yes
F5.6	Sound insulation of internal services.	Pipework, including stormwater pipes, must have an Rw + Ctr (airborne) not less than— (i) 40 if the adjacent room is a *habitable room* (other than a kitchen); or (ii) 25 if the adjacent room is a kitchen or non-*habitable room.*	Yes
F5.7	Sound insulation of 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.	Yes
Part F6	***Condensation Management***		
F6.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
F6.1	Application of Part	This Part only applies to a sole-occupancy unit of a Class 2 or 4 part.	N/A
F6.2	Pliable building membrane.	Where a pliable building membrane is used in an external wall, it must: - comply with AS/NZS 4200.1, and; - be installed with AS/NZS 4200.2, and; - be a vapour permeable membrane for Climate zones 6, 7, and 8; - be located on the exterior side of the primary insulation layer; Except for single skin masonry and single skin concrete, where a pliable building membrane is not installed in an external wall, the primary water control layer must be separated from water sensitive materials by a drained cavity.	N/A

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

F6.3	Flow rate and discharge of exhaust systems	a) An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of— (i) 25 L/s for a bathroom or *sanitary compartment*; and (ii) 40 L/s for a kitchen or laundry. (b) Exhaust from a kitchen must be discharged directly or via a shaft or duct to *outdoor air*. (c) Exhaust from a bathroom, *sanitary compartment*, or laundry must be discharged— (i) directly or via a shaft or duct to *outdoor air*; or (ii) to a roof space that is ventilated in accordance with F6.	N/A
F6.4		(a)Where an exhaust system covered by F6.3 discharges directly or via a shaft or duct into a roof space, the roof space must be ventilated to outdoor air through evenly distributed openings. (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is greater than 22°, or 1/150 of the respective ceiling area if the roof pitch is less than or equal to 22°. © 30% of the total unobstructed area required by (b) must be located not more than 900 mm below the ridge or highest point of the roof space, measured vertically, with the remaining required area provided by eave vents.	N/A

3.5 – Ancillary Provisions (Part G, BCA 2019)

Part G1	***Damp and Waterproofing***	***Clause Requirements/Comments***	***Compliance***
G1.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
G1.1	Swimming Pools NSW G1.1(a)and (b)	No swimming pool proposed.	N/A
G1.2	Refrigerated chambers, strong rooms and vaults.	No refrigerated or cooling chamber, strongroom or vault proposed at this stage.	N/A
G1.3	Outdoor play spaces	Not a Class 9b building.	N/A
NSW G1.101	Provision of cleaning windows	(a) A building must provide for a safe manner of cleaning any windows located 3 or more storeys above	Yes

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		ground level. (b) A building satisfies (a) where— (i) the windows can be cleaned wholly from within the building; or (ii) provision is made for the cleaning of the windows by a method complying with the *Work Health and Safety Act 2011* and regulations made under that Act.	
Part G2	***Boilers, pressure vessels, heating appliances, fireplaces, chimneys and flues.***	***Clause Requirements/Comments***	***Compliance***
G2.0	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
G2.1	****	Deleted clause.	N/A
G2.2	Installation of appliances	G2.2 Installation of appliances The installation of a stove, heater or similar appliance in a building must comply with: (a) * * * * * (b) Domestic solid-fuel burning appliances — Installation: AS/NZS 2918. (c) For boilers and pressure vessels: Specification G2.2.	Yes
G2.3	Open fireplaces	No open fire place proposed.	N/A
G2.4	Incinerator rooms	No incinerator rooms proposed.	N/A
Part G3	***Atrium construction***	***Clause Requirements/Comments***	***Compliance***
G3.1	DtS Provisions	Applicable *performance requirements* for *building solutions.*	Note only
G3.2	Dimension of atrium well	No atrium proposed.	N/A
G3.3	Separation of atrium by bounding walls.	No atrium proposed.	N/A
G3.4	Construction of bounding walls	No atrium proposed.	N/A
G3.5	Construction of balconies	No atrium proposed.	N/A
G3.6	Separation of roof	No atrium proposed.	N/A
G3.7	Means of egress	No atrium proposed.	N/A
G3.8	Fire and smoke control systems	No atrium proposed.	N/A
Part G4	***Construction in Alpine Areas***	***Clause Requirements/Comments***	***Compliance***
G4.0	DtS Provisions	Not an alpine area	N/A
Part G5	***Construction in Bush Fire Prone Area.***	***Clause Requirements/Comments***	***Compliance***
G5.0	DtS Provisions	Not a Bush Fire Prone Area	N/A
Part G6	***Occupiable outdoor areas***	***Clause Requirements/Comments***	***Compliance***
G6.1	DtS Provisions	Applicable *performance requirements* for *building solutions.* This clause does not apply to the private occupiable outdoor area of boarding house rooms or common occupiable outdoor areas that are less than $10m^2$.	Clause applies to common area occupiable outdoor areas > than $10m^2$.
G6.2	Fire hazard properties	A lining, material or assembly in an occupiable outdoor area must comply with C1.10 as for an internal element. However, the following fire hazard properties of a lining, material or	Design consideration

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

		assembly in an occupiable outdoor area are not required to comply with C1.10: *Average specific extinction area*. *Smoke-Developed Index*. Smoke development rate. Smoke growth rate index ($SMOGRA_{RC}$). As such, the following is required: <u>Floor linings:</u> a critical radiant flux not less than 1.2 and a group number 1, 2 or 3 for any portion of the floor covering that is continued more than 150 mm up a wall. <u>Wall and ceiling linings:</u> a group number 1, 2 or 3. Note: The provisions of Clause C1.9, C1.14, C2.4 of Spec. C1.1 still apply.	

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

3.6 – Energy Efficiency. (Section J, BCA 2019)

The Class 3 part of the building is to be designed to comply with the requirements of NSW Subsection J(B) Energy Efficiency – Class 3 and Class 5 to 9 buildings. It is noted that the building will be subject to a JV2, JV3, JV4 assessment at construction certificate stage.

Item	Comment
Part J1 – Building Fabric	It is assumed the Class 7a parts will not be conditioned, as such the provisions of this part will not apply. The Class 3, 5 and 6 are to be designed in accordance with this clause.
Part J3 – Building Sealing	It is assumed the Class 7a parts will not be conditioned, as such the provisions of this part will not apply to that part. The glass doors to the commercial space must be sealed as per this clause. Exhaust fans must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space or habitable rooms.
Part J5 – Air-Conditioning and Ventilation System	The mechanical ventilation system must comply with this part and must be confirmed by the mechanical engineer at construction certificate stage.
Part J6 – Artificial Lighting and Power	The building must maintain maximum lighting power levels and control systems as applicable by this clause and must be confirmed by the electrical engineer at construction certificate stage.
Part J7 – Hot Water Supply	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.
Part J8 – Facilities for energy monitoring	The building must have an energy meter configured to record the time-of-use consumption of gas and electricity. The building must have energy meters configured to enable individual time-of-use energy consumption data recording, in accordance with (c), of the energy consumption of— (i) *air-conditioning* plant including, where appropriate, heating plant, cooling plant and air handling fans; and (ii) artificial lighting; and (iii) appliance power; and (iv) central hot water supply; and (v) internal transport devices including lifts, escalators and moving walkways where there is more than one serving the building; and (vi) other ancillary plant. Energy meters required by (b) must be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring system where it can be stored, analysed, and reviewed.

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

4.0 – Proposed Fire Safety Schedule

Measure	Standard of Performance
Access panels to fire-resisting shafts	BCA Clause C3.13.
Automatic fire suppression system	BCA Clause E1.5, Specification E1.5, AS 2118.1-2017.
Automatic fire detection system	Clause E2.2a, Clause 4 and 6 of Spec. E2.2a, AS 1670.1-2018.
Emergency warning and intercom systems	Clause E4.9, AS 1670.4-2018.
Emergency lighting	BCA Clause E4.2 & E4.4, AS 2293.1-2018.
Emergency lifts	BCA Clause E3.2, E3.4, E3.5, E3.6, E3.7, E3.9, E3.10, Specification E3.1, AS 1735.11-1986, AS 1735.12-1999.
Exit signs and directional exit signs	BCA Clause E4.5, NSW E4.6, E4.7 & E4.8, AS 2293.1-2018.
Fire alarm monitoring system - sprinklers; and, - smoke detection.	BCA Clause E1.5, Spec E1.5, AS 2118.1-2017, AS 1670.3-2018. BCA Clause E2.2a, Clause 8(a) of Spec. E2.2a, AS 1670.3-2018.
Fire control centres	BCA Clause C1.8, Spec E1.8.
Fire dampers	BCA Clause C3.15(b), E2.2(b), AS 1668.1-2018, AS 1682.2-2012.
Fire doors - Apartment entry doors; - Common rooms; - Doorways to the fire isolated stairs; - Internal doorways to other fire separated rooms.	BCA Spec C3.8, AS 1905.1-2015.
Fire engineering - Reduced FRL of Class 6 to 120 minutes instead of 180 minutes; - No protection to sidelight panels and glazed door of communal room; - Deletion of smoke doors to corridors on level 1-9; - Modified protection of openings in external wall exposed to the southern boundary; - Discharge of the western fire isolated stair at the ground floor.	Fire engineering report.
Fire hose reels	BCA Clause E1.4, AS 2441-2005.
Fire hydrant systems	BCA Clause E1.3, AS 2419.1-2005 / 2017 and fire engineering
Fire seals (protecting openings in fire resisting components of the building)	BCA Clause C3.15, Spec C3.15, Manufacturer's specifications.
Lightweight fire rated construction	BCA Clause C1.8, C3.17, Spec C1.8, and manufacturer's specifications.
Mechanical air handling systems - Carpark	BCA Clause E2.2a, Clause 5.5 of AS 1668.1-2015 & AS 1668.2-2012.
Portable fire extinguishers	BCA Clause E1.6, AS 2444-2001
Smoke doors and walls - separation of rising and descending stairs.	BCA Clause D2.4, Clause 2 of Specification C2.5.
Stair pressurisation system	BCA Clause E2.2(a), Table E2.2a, Spec E2.2a, AS/NZS 1668.1-2015.
Warning and operational signage - Stairway notices; - Disabled egress signage; - Hydrant, hose reel, sprinkler, signs; - Portable fire extinguisher signs; - Lift notices.	BCA Clause D2.23, EP & A Regs 2000, D3.6, E1.3, E1.4, E1.5, E1.6, E3.3.

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

5.0 – Conclusion

This BCA 2019 Report has been prepared to assess the proposed plans appurtenant to the Development Application that is to be submitted to Council for a *Boarding House* containing 130 rooms and 46 car parking spaces over 11 storeys and 3 basement levels at 2-18 Station Street Marrickville NSW.

The assessment of the documentation has revealed that the building is primarily capable of complying with the DTS provisions of BCA 2019, and where necessary the Performance Requirements, without modification that would require the development consent to be modified.

Prepared by:

Greg Evans
Director
Accredited Certifier BPB 1870
360 Certification

Date: **12 June 2020**

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825

6.0 – References Documents & Plans

See attached plans.

360 Certification [Mosman Certifiers Pty Ltd], PO Box 94 Spit Junction NSW 2088
ABN: 24 606 570 825, ACN: 606 570 825