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17 March 2020

Our Ref: C002-0320

May Road Group
C/- JV Urban Group Pty Ltd
52-62 May Road
NARRAWEENA NSW 2099
Attention: Mr. Joe Vescio

Dear Joe,

**Re: BCA STANDARD REVIEW OF DESIGN PLANS
52-62 May Road, Narraweena, NSW**

Please find enclosed our BCA Compliance Report prepared in respect of the proposed design contained within the architectural documentation provided 5th March 2020.

In reviewing the content of this Report, particular attention is drawn to the content of Parts 3 and 4, as: –

- ☐ Part 3 is a summary of the compliance status for the proposed design in terms of each prescriptive provision of the BCA and the Premises Standard.

The inclusion of this summary enables an immediate understanding of the compliance status of the proposed design to be obtained.

- ☐ Part 4 contains a detailed analysis of the proposed design and provides informative commentary & recommendation in respect of each instance of prescriptive non-compliance and area of insufficient (design) detail, as applicable.

This commentary enables the project team to readily identify and understand the nature and extent of information required within the Construction Certificate (or other) application to demonstrate the attainment of BCA compliance.

Should you require any further information, please do not hesitate to contact me on the 96388808 or 0413819508.

Yours faithfully

Phoenix Building Approvals Pty Ltd



Joseph Hallal
Managing Director

DESIGN PLANS

BCA and PREMISES STANDARD

COMPLIANCE ASSESSMENT

PREPARED FOR

MR JOE VESCIO

REGARDING

PROPOSED MIXED USED
DEVELOPMENT
52-62 MAY ROAD,
NARRAWEENA NSW

Proposed Mixed Use Building

Phoenix Building Approvals Pty Ltd.

PO Box 396 NSW, 1755

Ph:- 9639 8808

Fax:- 9639 8807



Joseph Hallal

A handwritten signature in black ink, appearing to read "Joseph Hallal".

REPORT REGISTER

The following report register documents the development and issue of this report and project as undertaken by this office, in accordance with the *Quality Assurance* policy of **Phoenix Building Approvals Pty Ltd**.

Issue No.	Remarks	Issue Date
1	Report issued for review by the Client	11/3/2020
2	Revised report for review by the Client	17/3/2020

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1.0 INTRODUCTION

1.1 GENERAL

This BCA Compliance and Premises Standard Assessment Report has been prepared at the request of Mr. Joe Vescio and relates to the premises known as 52-62 May Road, Narraweena, NSW.

This report is based upon, and limited to, the information depicted in the preliminary plans provided for assessment and does not make assumptions regarding “design intention” or the like.

From this documentation, it is understood that this proposed upgrade option shall encompass the existing tenancies being retained.

1.2 REPORT BASIS

The content of this report reflects –

- (a) The principles and provisions of BCA 2019, including the New South Wales variations.
- (b) The Disability (Access to Premises — Buildings) Standards 2011 (the Premises Standard)
- (a) Architectural documentation prepared by Benson McCormack Architecture as tabulated below:

Drawing Number	Issue No.	Remarks	Issue Date
A-0001	03	Location Plans	5.12.2019
A-0002	03	Site Context	5.12.2019
A-0003	03	Site Photographs	5.12.2019
A-0004	03	Site Photographs 2/3	5.12.2019
A-0005	03	Site Photographs 3/3	5.12.2019
A-0006	03	Site Plan	5.12.2019
A-0007	01	Site Analysis	5.12.2019
A-0008	01	Demolition Plan	5.12.2019
A-0009	01	Excavation Fill Plan	5.12.2019
A-0010	01	Site Surrounding	5.12.2019
A-0101	03 WIP	Basement 1	5.12.2019
A-0102	03 WIP	Ground Floor Plan	5.12.2019
A-0103	03	First Floor Plan	5.12.2019
A-0104	04	Second Floor Plan	5.12.2019
A-0105	02	Roof Plan	5.12.2019
A-0201	03	South Elevation	5.12.2019
A-2051	04	Section	4.2.2020
A-1001	01	Door and Window Schedule	5.12.2019
A-1301	03	Finishes	5.12.2019
A-1302	04	Solar Access	4.2.2020
A-1303	01	Shadow Analysis	5.12.2019
A-0202	03	East Elevation	5.12.2019
A-0203	03	North Elevation	5.12.2019

1.3 EXCLUSIONS

It is conveyed that this report should not be construed to infer that an assessment for compliance with the following has been undertaken –

- (a) Structural and services design documentation;
- (b) General building services (i.e. mechanical services, passenger lifts and the like);
- (c) Individual requirements of service providers (i.e. Telstra, Sydney Water, Energy Australia);
- (d) The individual requirements of the Workcover Authority; and
- (e) Disability Discrimination Act (DDA).

1.4 REPORT PURPOSE

The purpose of this report is to identify the extent to which the plan documentation complies with the relevant prescriptive provisions of BCA 2019.

Assessment of the proposed design considers each prescriptive BCA provision, and identifies such as either: –

- (a) Complies
- (b) Does not comply;
- (c) Details Required;
- (d) Certification Required;
- (e) Not relevant to the particular building works proposal;

The status of the design, in terms of these five (5) categories, is summarised within Part 3 of this report.

Where a prescriptive non-compliance has been identified they shall be detailed in Part 4 of this report.

Instances where insufficient details currently exist a summary of the information required from the project team for inclusion within future applications (i.e. Construction Certificate) shall also be outlined in Part 4.

1.5 EXTENT OF WORKS

Within the plans provided this project consists of a residential development comprising of the following:-

- (a) Mixed Use Development consisting of retail on ground floor and residential units above with one basement carparking levels

We note that these plans do not indicate fire service requirements.

2.0 BUILDING DESCRIPTION

2.1 GENERAL

In the context of the Building Code of Australia 2019 (BCA), the subject development is described within items 2.2 – 2.6 below.

2.2 RISE IN STOREYS (CLAUSE C1.2)

In terms of the actual building we shall assess this premises as having a rise of Three (3) storeys Contained:

Storey	Storey	Remarks
Ground to 2nd floor	1-3	Retail on Ground floor and Residential Units from level 1 and 2
Roof Level	3	Roof Area not counted as a storey

2.2 BUILDING CLASSIFICATION (CLAUSE A3.2)

Storey	Storey	Classification
Ground floor	1	Class 6,
Level 1 to 2nd floor	2-3	Class 2
Roof Level	3	Class 2
Basement Levels	N/A	Class 7a

2.3 EFFECTIVE HEIGHT (CLAUSE A1.1)

The Effective height of the building has been determined as Ground level to the 2nd storey as 7 Metres (less than 25 metres).

2.4 TYPE OF CONSTRUCTION (TABLE C1.1)

Required to be of Type “A” Construction

2.5 GENERAL FLOOR AREA LIMITATIONS (TABLE C2.2)

Subject to the following maximum fire compartment floor area and volume limits for Type “A” Construction: –

Class	Maximum Floor area	Maximum Volume
Class 6 & 7a	5000m ²	30,000m ³

3.0 BCA AND PREMISES STANDARD ASSESSMENT – SUMMARY

3.1 GENERAL

The tables contained within items 3.2 – 3.9 below summarise the compliance status of the proposed architectural design in terms of each prescriptive provision of the Building Code of Australia.

For those instances of either “prescriptive non-compliance” or “insufficient detail”, a detailed analysis and commentary is provided within Part 4.

3.2 SECTION A – GENERAL PROVISIONS

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
A3.3 – Multiple Classification				✓	
A3.4 – Parts with more than one classification				✓	

3.3 SECTION B – STRUCTURE

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
B1.1 – resistance to actions			✓	✓	
B1.2 – determination of individual actions			✓	✓	
B1.3 – loads			✓	✓	
B1.4 – materials and form of construction			✓	✓	

3.4 SECTION C – FIRE RESISTANCE

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
C1.1 – type of construction required			✓	✓	
C1.2 – rise in storey	✓				
C1.3 – buildings of multiple classification	✓				
C1.4 – mixed types of construction					✓
C1.5 – two storey Class 2 or 3 buildings					✓
C1.6 – Class 4 parts of a building					✓
C1.7 – open spectator stands & indoor sports stadiums					✓
C1.8 – lightweight construction			✓	✓	
C1.9 – Non-Combustible Elements		✓	✓	✓	
C1.10 – fire hazard properties			✓	✓	
C1.11 – performance of external walls					✓
C1.13 – Fire Protected Timber Concessions			✓	✓	
C2.2 – general floor area & volume limits	✓				
C2.3 – large isolated buildings					✓
C2.4 – requirements for open spaces & vehicular access					✓
C2.5 – Class 9a and 9c buildings					✓
C2.6 – vertical separation of openings in external walls			✓	✓	
C2.7 – separation of firewalls			✓	✓	
C2.8 – separation of classifications in same storey				✓	
C2.9 – separation of classifications in different storeys				✓	
C2.10 – separation of lift shafts			✓	✓	
C2.11 – stairways and lifts in one shaft					✓
C2.12 – separation of equipment			✓	✓	
C2.13 – electricity supply system			✓	✓	
C2.14 – public corridors in Class 2 and 3 buildings				✓	
C3.1 – application of Part					✓
C3.2 – openings in external walls		✓	✓	✓	
C3.3 – separation of external walls & associated openings				✓	
C3.4 – acceptable methods of protection				✓	
C3.5 – doorways in firewalls				✓	
C3.6 – sliding fire doors					✓
C3.7 – doorways in horizontal exits					✓
C3.8 – openings in fire-isolated exits			✓	✓	
C3.9 – service penetrations in fire-isolated exits			✓	✓	
C3.10 – openings in fire-isolated lift shafts			✓	✓	
C3.11 – bounding construction: Class 2, 3, 4 and 9 buildings			✓	✓	
C3.12 – openings in floors & ceilings for services			✓	✓	
C3.13 – openings in shafts			✓	✓	
C3.15 – openings for service installations			✓	✓	
C3.16 – construction joints			✓	✓	
C3.17 – columns protected with f/r lightweight construction					✓
Spec. C1.1 – fire resisting construction			✓	✓	

3.5 SECTION D – ACCESS AND EGRESS

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
D1.2 – number of exits required	✓				
D1.3 – when fire-isolated exits are required				✓	
D1.4 – exit travel distances		✓			
D1.5 – distance between alternative exits	✓				
D1.6 – dimensions of exits and paths of travel to exits				✓	
D1.7 – travel via fire-isolated exits					✓
D1.8 – external stairways or ramps in lieu of fire- isolated exits					✓
D1.9 – travel via non-fire isolated stairways or ramps					✓
D1.10 – discharge from exits				✓	
D1.11 – horizontal exits					✓
D1.12 – non-required stairways or ramps					✓
D1.13 – number of persons accommodated					✓
D1.14 – measurement of distances					✓
D1.15 – method of measurement					✓
D1.16 – plant rooms and lift motor rooms: concession			✓	✓	
D1.17 – access to lift pits			✓	✓	
D2.2 – fire-isolated stairways and ramps			✓		
D2.3 – non-fire isolated stairways and ramps					✓
D2.4 – separation of rising and descending stair flights					✓
D2.5 – open access ramps and balconies					✓
D2.6 – smoke lobbies					✓
D2.7 – installations in exits and paths of travel			✓	✓	
D2.8 – enclosure of space under stairs and ramps				✓	
D2.9 – width of stairways			✓		
D2.10 – pedestrian ramps				✓	
D2.11 – fire-isolated passageways				✓	
D2.12 – roof as open space				✓	
D2.13 – goings and risers			✓	✓	
D2.14 – landings			✓	✓	
D2.15 – thresholds			✓	✓	
D2.16 – balustrades			✓	✓	
D2.17 – handrails			✓	✓	
D2.18 – fixed platforms, walkways, stairways and ladders					✓
D2.19 – doorways and doors Final exit door and the sliding fire door at ground floor level			✓	✓	
D2.20 – swinging doors				✓	
D2.21 – operation of latch Fail Safe Doors, BGU's			✓	✓	
D2.22 – re-entry from fire-isolated exits			✓	✓	
D2.23 – signs on doors			✓	✓	
D2.24 – Protection of Openable Windows			✓	✓	

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
D2.25 – Timber Concession				✓	
D2.101 – doors in path of travel in a POPE					✓
D3.1 General building access requirements REFER ALSO TO PREMISES STANDARD REVIEW.		✓		✓	
D3.2 – general building access requirements			✓	✓	
D3.3 – parts of buildings to be accessible		✓	✓	✓	
D3.4 – Exemptions					✓
D3.5 – Accessible car parking		✓	✓		
D3.6 – Signage			✓		
D3.7 – Hearing augmentation					✓
D3.8 – tactile indicators			✓		
D3.9 Wheelchair seating spaces in Class 9b assembly buildings					✓
D3.10 Swimming pools					✓
D3.11 Ramps			✓		
D3.12 Glazing on an accessway			✓		

3.6 SECTION E – SERVICES AND EQUIPMENT

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
E1.3 – fire hydrants			✓	✓	
E1.4 – fire hose reels			✓	✓	
E1.5 – sprinklers					✓
E1.6 – portable fire extinguishers			✓	✓	
E1.8 – fire control centre					✓
E1.9 – fire precautions during construction				✓	
E1.10 – provision for special hazards Pre-action System				✓	
E2.2a – general provisions			✓	✓	
E2.2b – specific provisions					✓
E3.2 – stretcher facility in lifts					✓
E3.3 – warning against use of lifts in fire			✓	✓	
E3.4 – emergency lifts					✓
E3.5 – landings			✓	✓	
E3.6 – facilities for people with disabilities			✓	✓	
E3.7 – fire service controls				✓	
E3.8 – aged care buildings					✓
E3.9 – Fire Service Operation Switch				✓	
E3.10 – Lift Car Fire Services Control Switch				✓	
E4.2 – emergency lighting			✓	✓	
E4.4 – design and operation of emergency lighting			✓		
E4.5 – exit signs			✓	✓	
E4.6 – direction signs			✓		
E4.7 – Class 2 and 3 buildings and Class 4 parts: exemptions					✓

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
E4.8 – design and operation of exit signs			✓		
E4.9 – emergency warning and intercommunication systems					✓

3.7 SECTION F – HEALTH AND AMENITY

BCA reference	Complies	Does not comply	Detail required	Certification required	Not relevant
F1.1 – stormwater drainage				✓	
F1.5 – roof coverings				✓	
F1.6 – sarking				✓	
F1.7 – water proofing of wet areas				✓	
F1.9 – damp proofing				✓	
F1.10 – damp proofing of floors on ground				✓	
F1.11 – floor wastes			✓	✓	
F1.12 – sub-floor ventilation					✓
F1.13 – glazed assemblies				✓	
F2.1 – facilities in residential buildings				✓	
F2.3 – facilities in Class 3 to 9 buildings				✓	
F2.4 – facilities for people with disabilities					✓
F2.5 – construction of sanitary compartments				✓	
F2.7 – microbial (legionella) control					✓
F2.8 – waste management					✓
F3.1 – height of rooms				✓	
F4.1 – provision of natural light				✓	
F4.2 – methods and extent of natural lighting				✓	
F4.3 – natural lighting borrowed from adjoining room					✓
F4.4 – artificial lighting			✓	✓	
F4.5 – ventilation of rooms			✓	✓	
F4.6 – Natural ventilation				✓	
F4.7 – ventilation borrowed from an adjoining room					✓
F4.8 – restriction on position of water closets and urinals					✓
F4.9 – airlocks					✓
F4.11 – car parks			✓	✓	
F4.12 – kitchen local exhaust ventilation					✓
F5.2 – sound transmission class: interpretation			✓	✓	
F5.3 – sound transmission of floors between units			✓	✓	
F5.4 – sound insulation of walls between units			✓	✓	
F5.5 – sound insulation rating of walls			✓	✓	
F5.6 – sound insulation rating of services			✓	✓	
F5.7 – sound insulation of pumps			✓	✓	
F6.2- Pliable Building Membrane			✓	✓	
F6.3- Flow Rate and discharge of exhaust systems			✓	✓	
F6.4- Ventilation of Roof Spaces			✓	✓	

3.8 SECTION G – ANCILLARY PROVISIONS

Premises Standard Reference	Complies	Does not comply	Detail required	Certification required	Not relevant
G1.2 – Refrigerated chambers, strong rooms and vaults					✓
G1.101 – Cleaning of Windows				✓	
G5.1-5.2- Construction in Bushfire Prone Areas				✓	
G6- Occupiable outdoor areas					✓

3.9 SECTION J – ENERGY EFFICIENCY

BCA Reference	Complies	Does not comply	Detail required	Certification required	Not relevant
J1.2 – Thermal Construction			✓	✓	
J1.3 – Roof and Ceiling Construction			✓	✓	
J1.4 – Roof Lights			✓	✓	
J1.5 – Walls			✓	✓	
J1.6 – Floors			✓	✓	
J2.4 – Glazing			✓	✓	
J2.5 – Shading			✓	✓	
J3.2 – Chimneys and Flues					✓
J3.3 – Roof Lights			✓	✓	
J3.4 – Windows and Doors			✓	✓	
J3.5 – Exhaust Fans			✓	✓	
J3.6 – Construction of roofs, walls and floors			✓	✓	
J3.7 – Evaporative coolers					✓
J5.2 – Air conditioning and ventilation systems			✓	✓	
J5.3 – Time Switch			✓	✓	
J5.4 – Heating and Cooling Systems			✓	✓	
J5.5 – Miscellaneous exhaust systems			✓	✓	
J6.2 – Artificial Lighting			✓	✓	
J6.3 – Interior Artificial lighting and power control			✓	✓	
J6.4 – Interior Decorative and display lighting			✓	✓	
J6.5 – Artificial Lighting around the perimeter of a building			✓	✓	
J6.6 – Boiling Water and water storage units			✓	✓	
J7.2 – Hot Water Supply			✓	✓	
J7.3 – Swimming Pool Heating and Pumping					✓
J7.4 – Spa pool heating and pumping					✓
J8.2 – Access for Maintenance			✓	✓	
J8.3 – Facilities for energy monitoring			✓	✓	

4.0 BCA ASSESSMENT – DETAILED ANALYSIS

4.1 GENERAL

With reference to the “BCA Assessment Summary” contained within Part 3 above, the following preliminary analysis and commentary is provided.

This commentary is formulated to enable the design documentation to be further progressed, for the purpose of evidencing the attainment of compliance with the relevant provisions of the BCA.

4.2 SECTION A – GENERAL PROVISIONS

- | | |
|---------------------|--|
| Cl. A3.3/3.4 | <p>Each part of a building must be classified separately and where parts have different purposes, if not more than 10% of the floor area of a storey, being the minor use is used for a purpose, which is a different classification, the classification applying to the major use may apply to the whole storey.</p> <p>A plant room, machinery room, lift motor room, boiler room or the like must have the same classification as the part of the building in which it is situated.</p> <p>Details/Certification required.</p> |
|---------------------|--|

4.3 SECTION B – STRUCTURAL PROVISIONS

- | | |
|-----------------|--|
| Cl. B1.2 | <p>All structural elements in the building must be designed by the structural engineer to meet the requirements of AS1170.1 & 2.</p> <p>Details/Certification required.</p> |
| Cl. B1.4 | <p>Material used in the construction must comply with AS3700 if Masonry, AS3600 for concrete construction and glazing to AS1288-1006 and AS2047-2001 for external glazing and AS3660.1 for termite resistant construction.</p> <p>Details/Certification required.</p> |

4.4 SECTION C – FIRE RESISTANCE

- | | |
|-----------------|--|
| Cl. C1.1 | <p>The floor separation between the residential floors level 1 and 2 must achieve 90/90/90 FRL.</p> <p>The FRL between the basements and ground floor must achieve an FRL of 180/180/180. The FRL between ground and first floor must also maintain 180/180/180</p> <p>All other FRLs in the building must be in accordance with table 3 of appendix, A which is attached at the back of the report. All loadbearing internal walls also must have an FRL as per Table 3 of the BCA.</p> <p>Details/Certification required.</p> |
|-----------------|--|

Cl. C1.8 | The use of lightweight construction to achieve an FRL used in a wall, lift shaft, service shaft, steel column or fire rated plasterboard must comply with Specification C1.8
Details required.

Cl. C1.9 | In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible: (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.

(ii) The flooring and floor framing of lift pits. (iii) Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in— (i) a building required to be of Type A construction; and (ii) a building required to be of Type B construction, subject to C2.10, in

a Class 2, 3 or 9 building; and (B) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. (c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1. (d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants and dampproof courses. (e) The following materials may be used wherever a non-combustible material is required:

(i) Plasterboard. (ii) Perforated gypsum lath with a normal paper finish. (iii) Fibrous-plaster sheet. (iv) Fibre-reinforced cement sheeting. (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) Bonded laminated materials where— (A) each lamina, including any core, is non-combustible; and (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

Codemark certificate of all external façade material is also required to confirm compliance with C1.9.

Please note rediwall/Dintel/Ritek product is no longer DTS compliant and requires an alternative solution from a fire engineer

Cl.

C.1.10a

The Floor, wall and ceiling linings must have fire hazard properties accordant with BCA Specification C1.10a, which specifies that: –

☐ Floor materials / coverings

The smoke development rate does not exceed 750 percent-minutes

- (i) The critical radiant flux is not less than 2.2 in a building, which is not sprinkled.
- (ii) The critical radiant flux is not less than 1.2 building in a sprinkled building.

☐ Walls & ceilings – public corridors

- (i) A grouping of 1 or 2 or 3 in a sprinkled building
- (ii) A grouping of 1 or 2 in a non-sprinkled building.
- (iii) A smoke growth rate index not more than 100 in a non-sprinkled building.
- (iv) An average specific extinction area less than 250m²/kg in a non-sprinkled building.

☐ Walls & ceilings – specific areas

- (i) A grouping of 1, 2 or 3 for walls in a sprinkled building.
- (ii) A grouping of 1, 2 or 3 for ceilings in a sprinkled building.
- (iii) A grouping of 1, 2 or 3 for walls in a non-sprinkled building.
- (iv) A grouping of 1, 2 for ceilings in a non-sprinkled building.
- (v) A smoke growth rate index not more than 100.
- (vi) An average specific extinction area less than 250m²/kg.

- ☐ All other general materials of construction can also comply with specification C1.10 by having: -

- ☐ A spread of flame index not exceeding 9
A smoke developed index not exceeding 8, if the spread of flame index doesn't exceed 5

Details relating to this item are required to be provided.

C1.13

Fire-protected timber: Concession

Fire-protected timber in a Class 2, 3 or 5 building may be used wherever an element is *required* to be *non-combustible*, provided—

- (a) the building is—
- (i) a separate building; or

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- (ii) a part of a building—
- (A) which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or
- (B) which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and
- (b) the building has an *effective height* of not more than 25 m; and
- (c) the building has a sprinkler system throughout complying with **Specification E1.5**; and
- (d) any insulation installed in the cavity of the timber building element *required* to have an FRL is *non-combustible*; and
- (e) cavity barriers are provided in accordance with **Specification C1.13**.

For information Purposes

Cl. C1.14 | Ancillary Element

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 following:

- (a) An ancillary element that is non-combustible.
- (b) A gutter, downpipe or other plumbing fixture or fitting.
- (c) A flashing.
- (d) A grate or grille not more than 2 m² in area associated with a building service.
- (e) An electrical switch, socket-outlet, cover plate or the like.
- (f) A light fitting.
- (g) A required sign.
- (h) A sign other than one provided under (a) or (g) that—
 - (i) achieves a group number of 1 or 2; and
 - (ii) does not extend beyond one storey; and

does not extend beyond one fire compartment; and

(iv) is separated vertically from other signs permitted under (h) by at least 2 storeys.

(i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that—

(i) meets the requirements of Table 4 of Specification C1.10 as for an internal element; and

(ii) serves a storey—

(A) at ground level; or

(B) immediately above a storey at ground level

Cl. C2.6 | Vertical Separation of Openings in External Walls.

Please provide certification that the balconies used to achieve spandrel separation will achieve a minimum FRL of 60/60/60.

Please certify that the vertical spandrels will be a minimum of 600mm above the floor level and 900mm in total and have a fire resistance level of 60/60/60.

Please certify that where horizontal spandrels are used that they will extend a minimum of 450mm past the openings they are protecting.

Panel walls e.g. if used in balconies, must comply with this requirement. Class panels will not comply

Please certify that where horizontal spandrels are used, they project by not less than 1100 mm and will extend a minimum of 450mm past the openings they are protecting.

Certification required to ensure compliance.

Cl. C2.9 | Separation of classifications in different storeys

Please certify that the separation between basement and ground level 180/180/180 and between Ground floor and first floor 180/180/180 and first to 2nd floor 90/90/90.

Certification required. Possible to Fire Engineer to one FRL

Cl. C2.10 Separation of lift shafts.

Please note the lift shaft separation must achieve the FRL as noted in table 3. I.e. min 120/120/120 FRL.

Details/Certification to be provided.

Cl. C2.12 Equipment comprising lift motors and control plant, emergency generators or central smoke control plant; boilers or batteries are required to be separated from the remainder of the building by construction achieving a FRL of 120/120/120.

Details are required for the required separation.

Cl. C2.13 An electricity substation located within a building must be separated from any other part of the building by having an FRL of 120/120/120 and any doorway in that construction protected with a self-closing door having an FRL of not less than -/120/30.

A main switchboard located within the building which sustains emergency equipment, i.e. fire hydrant booster pumps or pumps for fire hose reels must be separated from the other part of the building by having an FRL of not less than 120/120/120 and any doorway also being self closing and have an FRL of not less than -/120/30

Electrical conductors must comply with AS/NZS3013 and be enclosed or protected by construction having an FRL of not less than 120/120/120

Certification required.

C3.2

Protection of Openings.

Openings within 3m of a side boundary or within 6m of a far boundary of a road must be protected in accordance with C3.4 of the BCA. The openings facing the park if closer than 3m to the boundary would require a caveat alternative solution in case the park was to be developed into a building in the future

POSSIBLE CAVEAT ALTERNATIVE SOLUTION REQUIRED

Cl. C3.4

Where protection is required to the doorways, windows or other openings the protection must be as per the following:-

Doorways require internal or external wall wetting sprinklers as appropriate used with doors that are self-closing or automatic closing or

-
/60/30 fire doors that are self-closing or automatic closing.

Windows require internal or external wall wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position or -/60/- fire windows that are automatic closing or permanently fixed in the closed position or -/60- automatic closing fire shutters.

Other openings excluding voids require internal or external wall wetting sprinklers as appropriate or construction having an FRL not less than -/60-. Fire doors, fire windows and fire shutters must comply with specification C3.4 of the BCA.

For Information Purposes.

Cl. C3.8	Doorways that open to fire-isolated stairways and are not doorways opening to a road or open space must be protected by -/60/30 fire doors that are self closing or automatic closing. Automatic closing doors must be initiated by the activation of a smoke detector in accordance with AS1670.1-2014. Details to be provided.
Cl. C3.9	Fire isolated exits must not be penetrated by any services other than electrical wiring to be installed in the exit or ducting associated with a pressurisation system if it is constructed of material having an FRL of not less than -/120/60 where it passes through any other part of the building and does not open into any other part of the building or water supply pipes for fire services. Details are required of all services located in the required fire isolated stairway.
Cl. C3.10	Separation of lift shafts Doorways — If a lift <u>shaft</u> is <u>required</u> to be fire-isolated that <u>shaft</u> must be protected by -/60/- fire doors that (i) comply with AS 1735.11; and (ii) are set to remain closed except when goods or vehicles. (b) Lift indicator panels — A lift call panel, in a fire-isolated lift <u>shaft</u> must be backed by construction having an FRL of not less than -/60/60 if it exceeds 35 000 mm² in area. Details to be provided.
Cl. C3.11	Doorways on the floors entering into the units will require protection as they are openings in an external wall required to have an FRL. The doors must be a fire door to each sole occupancy unit including basement stairs achieving an FRL of -/60/30. If the door is made automatic closing then it must be initiated by the activation of a smoke detection system in accordance with AS1670.1 and detectors located not more than 1.5m horizontal distance from the approach side of the doorway. Doorway into plant rooms must achieve an FRL of -/120/30. Details to be Provided.

- C3.12** | Openings within a floor required to have an FRL must be fire sealed to ensure that the FRL of that element is not affected.
- Penetrations in floors required to be fire sealed must be identified on the drawings. Openings between the class 2 floors must be 90/90/90.
- Openings between class 6 ground floor and basement floor must achieve 180/180/180.
- Details to be Provided.**
- Cl. C3.13** | Openings in a shaft that are required to have an FRL must be fire sealed to ensure that the FRL of that element is not affected.
- Access penetrations in shafts must be provided with fire panels or doors which must be identified on the drawings.
- Provision for service shafts is to be confirmed.**
- Cl. C3.15** | Openings for service penetrations such as plumbing and mechanical services must have an FRL and be fire sealed to ensure that the FRL of that element is not affected. Again an alternative solution can be applied to this clause. An alternative solution can be applied to this clause also.
- Penetrations for services must be identified on the drawings.**
- Cl. C3.16** | Construction joints
Construction joints formed during construction are required to have protection provided in accordance with the provisions of this part. Detail to be provided.
- Spec C1.1** | The works will need to meet the FRL requirements of Specification C1.1 for Type A Construction.

4.5 SECTION D – ACCESS AND EGRESS

- Cl. D1.2** | Number of exits required: Travel distances on the plans provided indicate that two exits is required to be provided from each above ground floor level (two exits is provided).
COMPLIES.
- Cl. D1.4** | Exit Travel Distance: Travel distances on the first floor and 2nd floor plans provided do not comply greater than 6m to the exit. Travel distance in the basement to be maintained 40m to one exit and 60m between both exits.
DOES NOT COMPLY ALTERNATIVE SOLUTION REQUIRED.
- Cl. D1.6** | Dimensions of exits and paths of travel to exits:
All paths of travel must be minimum 1m clear throughout the building.
Provide confirmation
- Cl. D1.10** | Discharge of exits:
Exits must not be blocked at the point of discharge and where necessary suitable barriers must be provided to prevent vehicles from blocking the exit or access to it.
COMPLIES.
- Cl. D1.17** | Access to Lift Pits
Access to lift pits must—
(a) where the pit depth is not more than 3 m, be through the lowest landing doors; or
(b) where the pit depth is more than 3 m, be provided through and access doorway complying with the following:
Access to Lift Pits:
(i) In lieu of D1.6, the doorway must be level with the pit and or and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii).
(ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer.
(iii) Access to the doorway must be by a stairway complying with AS 1657
(iv) In lieu of D2.21, doors fitted to the doorway must be—
(A) of the horizontal sliding or outwards opening hinged type; and
(B) self-closing and self-locking from the outside; and
(C) marked on the landing side with the letters not less than 35 mm high:
“DANGER LIFTWELL – ENTRY OF UNAUTHORIZED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES”
Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification (and structural details)

- Cl. D2.2** | The stairway is required to be within a fire resisting shaft and constructed of non-combustible materials.

Details to be provided

- Cl. D2.7** | Electrical ducts, meter or distribution boards, and communication boards or equipment, and electrical motors, must be separated from an exit or path of travel by smoke sealed non-combustible construction.

Details are required to be indicated on the drawings.

- Cl. D2.8** | Enclosures under a fire isolated stairs are not allowed to be formed and if enclosures are formed under non fire isolated stairways the enclosing walls and ceilings must have an FRL of not less than 60/60/60 and any access doorway to the enclosed space is fitted with a self-closing -/60/30 fire door.

For Information Purposes.

- Cl. D2.9** | The required width of the stairway is to be maintained in accordance with the provisions of this part. **Details to be provided.**

Cl. D2.10

Pedestrian ramps

- (a) A [fire-isolated ramp](#) may be substituted for a [fire-isolated stairway](#) if the construction enclosing the [ramp](#) and the width and ceiling height comply with the requirements for a [fire-isolated stairway](#).
- (b) A ramp serving as a [required exit](#) must—
 - (i) where the ramp is also serving as an [accessible](#) ramp under [Part D3](#), be in accordance with AS 1428.1; or
 - (ii) in any other case, have a gradient not steeper than 1:8.
- (c) The floor surface of a ramp must have a slip-resistance classification not less than that listed in [Table D2.14](#) when tested in accordance with AS 4586.

Details to be provided.

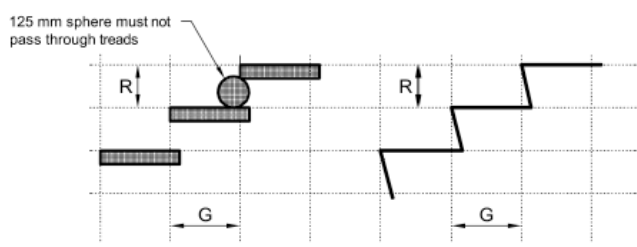
- Cl. D2.13** | The treads and risers dimension of new stairs must be within the following limits:-

- Treads- 250-355mm;
- Risers 115-190mm;
- 2R+ G= 700MM Max **Details to be provided**
-

Deemed-to-Satisfy Provisions

Table D2.13 RISER AND GOING DIMENSIONS (mm)

	Riser (R)		Going (G) ⁽²⁾		Quantity (2R+G)	
	Max	Min	Max	Min	Max	Min
Public stairways	190	115	355	250	700	550
Private stairways ⁽¹⁾	190	115	355	240	700	550



Notes:

- Private stairways are—
 - stairways in a *sole-occupancy unit* in a Class 2 building or Class 4 part of a building; and
 - in any building, stairways which are not part of a *required exit* and to which the public do not normally have access.
- The going in tapered treads (except winders in lieu of a quarter or half landing) in a curved or spiral stairway is measured—
 - 270 mm in from the outer side of the unobstructed width of the stairway if the stairway is less than 1 m wide (applicable to a non-*required* stairway only); and
 - 270 mm from each side of the unobstructed width of the stairway if the stairway is 1 m wide or more.

Cl. D2.14 Landings of stairways are required to be 750mm long, the maximum gradient of 1:50 is allowed and the landings to have a non-slip finish throughout or an adequate non-skid strip near the edge of the landing.
Details to be provided

Cl. D2.15 Thresholds to doorways must not incorporate a step or ramp closer to the doorway and the door sill is not more than 190mm above the finished surface.
Details to be provided

Cl. D2.16 Balustrading is to be 865mm above the stair nosing's and 1m at the top of the landing with no gaps greater than 125mm. Where there is a 4m fall above the surface beneath any horizontal elements between 150mm and 760mm above the floor must not facilitate climbing.

Certification required

Cl. D2.17 Handrails must be located at least one side of the flight. The handrail must be 865mm above the stair nosing and be continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand-hold. Handrails must also be designed to disabled requirements in accordance with D3.3 of the BCA.
Details to be provided

Cl. D2.19 All doors serving as required exits forming part of a required exit must not be fitted with a revolving door.

Further details will be required showing the type of proposed doors that will be used.
Details to be provided

Cl. D2.20 All doors serving as required exits forming part of a required exit must swing in the direction of egress. All the final exit doors on the ground floor must swing in the path of egress. Doors in the retail swing inwards and will require a hold open device this will form part of the alternative solution.
DOES NOT COMPLY ALTERNATIVE SOLUTION REQUIRED

- Cl. D2.21** | All doors must be provided with lever handle type devices located between 900-1100-mm above the floor, and that does not require the use of a key to operate from the side seeking egress. Fail safe device doors must be linked and unlock upon the activation of any sprinkler system complying with Specification E1.5 or smoke detector system deemed suitable in accordance with AS1670.1-2018 **Details to be provided**
- Cl. D2.23** | Signage must be installed on the operation of certain doors in order for it to be seen and alert the occupants on the floor. I.e. smoke and fire doors on the side that faces a person seeking egress or a door leading from a fire isolated exit to a road or open space.
Confirmation is to be provided.
- Cl. D2.24** | Please note protection of openable windows in bedrooms must be restricted to openings of not greater than 125mm. A barrier 865mm above the floor is required to an openable window where the fall is 4m or more beneath the window in addition to the window protection required non-openable greater than 125mm.
Details to be provided.
- Cl. D2.25** | Timber Stairs Concession.

Notwithstanding **D2.2(a)**, timber treads, risers, landings and associated supporting framework which—

(i) has a finished thickness of not less than 44 mm; and
(ii) has an average density of not less than 800 kg/m³ at a moisture content of 12%,

may be used within a *required fire-isolated stairway* or *fire-isolated passageway* constructed from *fire-protected timber* in accordance with **C1.13** subject to—

(iii) the building being protected throughout by a sprinkler system complying with Specification E1.5 which extends to within the fire-isolated enclosure; and
(iv) fire protection being provided to the underside of stair flights and landings located immediately above a landing level which—
(A) is at or near the level of egress; or
(B) provides direct access to a carpark.

(b) Fire protection required by (a) must be not less than one layer of 13 mm fire-protective grade plasterboard fixed in accordance with the system requirements for a fire-protective covering

Details to be provided.

Cl. D3.2 Disabled access must be provided in accordance with Table D3.2 requirements. All parts of the building to be accessible must comply with AS1428.1, including external access. Confirmation is required entry into the units will comply with the premises standard requirements of 850mm clear door widths.

The width on the first and 2nd floor to enter the lift must as minimum 1240mm is required. The grates on the ground floor entry from the courtyards might also be a non-compliance. An access consultant is to access the drawings for compliance.

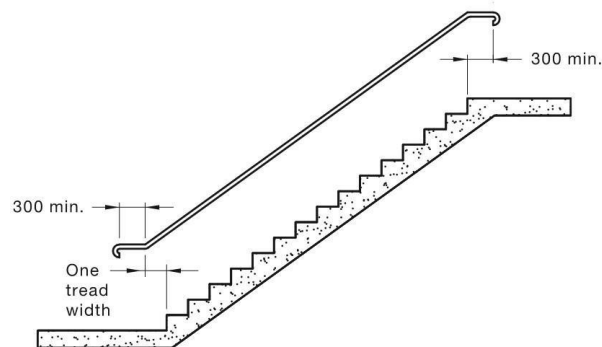
Further details to be provided for assessment to an access consultant.

Cl. D3.3 Part of buildings to be accessible

If a new passenger chair lift is installed in the fire exit it is required to comply with E3.6.

The path of travel through the principal pedestrian entry is required to be accessible and must not include a stairway, turnstile revolving door, escalator or other impediment which would prevent a person in a wheelchair using it.

Access, finishes and fittings, including passageways, ramps, step ramps or kerb ramps, signs, doorways and other parts of the building required by this Part must comply with the provisions of AS1428.1-2009. **Form part of access report.**



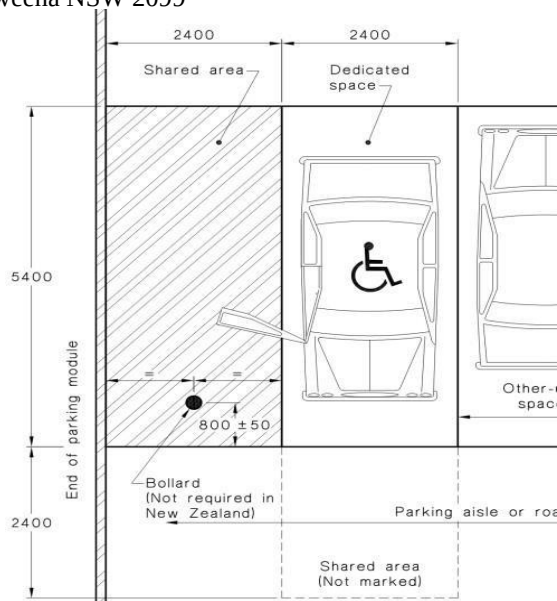
Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification

Cl. D3.5 Access carparking

The proposed accessible carparking space is required to comply with AS/NZS 2890.6.

A bollard is required within the shared zone to comply with Clause 2.2.1(e) of AS/NZS 2890.6-2009, see figure 1 below.

Figure 1 – AS 2890.6 bollard location below



*Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification **does not comply on basement level Egress path is specified to run through the shared zone. An alternative solution is required.***

Also the height of 2.5m ceiling height is required above the disabled carparking spots.

- Cl. D3.6** | The building must have clear and legible Braille and tactile signage complying with specification D3.6. The international symbol of access in accordance with AS1428.1 must be installed to the door and principal entrance points to the building and to the disabled stairs. **Certification required**
- Cl. D3.8** | AS 1428.4 compliant tactile ground surface indicators type B must be provided to the top, bottom and intermediate landings of stairways fire stairs 1 and 2 at ground level and ramp. **Details to be provided.**
- Cl. D3.11** | A series of connected ramps must not have a combined vertical rise of more than 3.6m. **Certification required**
- Cl. D3.12** | On an access way where there is no chair rail, handrail or transom all frameless or fully glazed doors and any glazing capable of being mistaken for a doorway opening must be clearly marked in accordance with AS1428.1. **Details to be provided**

4.6 SECTION E – SERVICES AND EQUIPMENT

- Cl. E1.3** | Please be aware that a fire hydrant system complying with AS 2149.1-2015 is required. The fire hydrant must be located within 3.5 to 10m of the external wall of the building otherwise it would require an alternative solution. **Details to be provided.**
- Cl. E1.4** | Please be aware that a fire hose reel system complying with AS 2441-2005 is required in the Class 7a part (both basement levels and ground floor). Location needs to be shown on plans. **Details to be provided**
- Cl. E1.6** | AS/NZS 2244-2001 compliant portable fire extinguishers should be provided to serve class AE or E fire risks associated with emergency services throughout the building. **Details to be provided**

Cl. E1.9	During construction the building must be adequately protected in accordance with this Part of the BCA
Cl. E1.10	Provision for special hazards suitable additional provision must be made if special problems of fighting fire could arise because of— (a) the nature or quantity of materials stored, displayed or used in a building or on the allotment; or (b) the location of the building in relation to a water supply for fire- fighting purposes
Cl. E2.2a	An AS1670.1-2018 Automatic fire detection and alarm system is to be installed to the building linked to a building occupant warning system in accordance with specification E2.2. Mechanical shutdown to AS1668.1-2015 is also required in the basement. The building must be connected to fire alarm monitoring complying with AS1670.3-2018 Details to be provided.
Cl. E3.3	Warning signs must be displayed where it can be readily seen near every call button for a passenger lift and stuck with letters not less than 10mm, do not use lifts if there is a fire. Certification to be provided.
Cl. E3.5	Landings. Access and egress to and from the liftwell must comply Certification to be provided.
Cl. E3.6	Passenger Lifts installed must comply with the requirements of AS1735.12 and have minimum dimensions of 1100mm wide x 1400mm deep. Certification to be provided.
Cl. E3.7/3.9, 3.10	Please confirm that fire service recall control switch will be installed. Please confirm that lift car drive control switch will be installed Certification to be provided.
Cl. E4.2	AS/NZS 2293.1-2018 compliant emergency lighting must be provided throughout the building. Details to be provided.
Cl. E4.4	Refer Clause E4.2 above for emergency lighting requirements. Details to be provided
Cl. E4.5	AS/NZS 2293.1-2015 compliant exit signage must be provided throughout the building. Details to be provided
CL E4.8	Refer Clauses E4.5 and E4.6 above for exit signage requirements Details to be provided

4.7 SECTION F – HEALTH AND AMENITY

- | | |
|---------------|--|
| Cl. F1.1 | Stormwater drainage must comply with the requirements of AS/NZS 3500.3. Details to be provided. |
| Cl. F1.5 | Roof coverings must comply with AS2049 if concrete tiles or AS1562.1 if metal sheet roofing. Details to be provided. |
| Cl. F1.6 | Sarking type materials used for weatherproofing of roofs and walls must comply with AS4200 part 1 and 2. Details to be provided. |
| Cl. F1.7 | Waterproofing of wet areas must comply with AS3740. Details to be provided. |
| Cl. F1.9/1.10 | Damproofing undertaken as part of the works must comply with AS2904 & AS3660.1 and AS2870 for slab on Ground. Details to be provided. |
| Cl. F1.11 | The floor of each bathroom and laundry located in all levels must be graded to permit drainage to a floor waste. Details to be provided. |
| Cl. F1.13 | External glazing is to comply with AS2047-1999. Details to be provided. |
| Cl. F2.4 | Where accessible sanitary facilities are provided, accessible sanitary facilities must be constructed to comply with AS1428.1- 2009. Details to be provided |
| Cl. F2.5 | The doors to wholly enclosed sanitary compartment should provide a distance between the door and the WC of at least 1.2m or the doors should be readily removable from the outside, or swing outwards. DOES NOT COMPLY. |
| Cl. F3.1 | Ceiling heights must be maintained at 2.4m in all habitable areas and 2.1m in all other areas. Appears to comply on elevation, complies. |
| Cl. F4.1 | Natural lighting must be provided to all habitable rooms in the units. |
| Cl. F4.2 | Natural lighting must be provided by windows that have an aggregate light transmitting area measured exclusive of framing members and be not less than 10% of the floor area. Details and certification required. |
| Cl. F4.4 | Artificial lighting must be AS 1680 compliant. Certification required. |
| Cl. F4.5 | Ventilation to the building must be either natural or mechanical. Mechanical ventilation must be AS 1668.2-2015 compliant. |
| Cl. F4.11 | Every storey of a carpark must have a system of ventilation complying with AS1668.2-2015 or have an adequate system of permanent natural ventilation. Certification required |
| Cl. F5.2 | An acoustic engineer will be required to be engaged to certify all acoustic requirements for the building. Certification required |

- Cl. F5.3** | The floor in the building requires achieving an $L_{nw} + c_1$ of not less than 62 and $R_w + CTR$ of not less than 50. The wall is required to be of discontinuous construction. This means that the wall must have a minimum of 20mm cavity between 2 separate leaves. **Certification required.**
- Cl. F5.4** | The Sound insulation rating of the floor must be not less than 50 and Impact sound of 62. **Certification required.**
- Cl. F5.5** | The Sound insulation rating of the walls must be not less than 50 and the doors that separate the stairway public corridors must have an RW of not less than 30. **Certification required.**
- Cl. F5.6** | The sound installation of services, pipes must be not less than 40 $R_w + CTR$. **Certification required.**
- Cl. F5.7** | A flexible coupling must be used at the point of connection between the service pipes in the building. **Certification required.**
- Cl. F6.2** | Where a pliable building membrane is installed in an external wall it must comply with AS/NZS 4200.1 and be installed with AS4200.2 and be a vapour permeable membrane and be located on the exterior side of the primary insulation layer of wall assemblies that form the external envelope of a building
Certification required.
- Cl. F6.3** | An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of 25L/S for a bathroom or sanitary compartment and 40 L/S for a kitchen or laundry.

Exhaust from a kitchen must be discharged directly or via a shaft or duct to outdoor air. Exhaust from a bathroom, sanitary compartment or laundry must be discharged directly or via a shaft or duct to outdoor air to a roof space that is ventilated in accordance with F6.4.
Certification required.

Cl. F6.4 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.

Openings required by above must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is greater than 22 degrees or 1/150 of the respective ceiling area if the roof pitch is less than or equal to 22 degrees.

30% of the total unobstructed area must be located not more than 900mm below the ridge or highest point of the roof space, measured vertically with the remaining required area provided by eave vents

A flexible coupling must be used at the point of connection between the service pipes in the building. **Certification required.**

4.8 SECTION J – ENERGY EFFICIENCY

Cl. J1.2 J1.2(a)

Please provide certification that insulation will comply with AS/NZS 4859.1 – 2002, and be installed so that it –

1. abuts or overlaps adjoining insulation; and
2. forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and
3. will not affect the safe or effective operation of a service or fitting.

J1.2 (B)

Please provide certification that *reflective insulation* will be installed within –

1. the necessary air space to achieve the required *R-Value* between a reflective side of the *reflective insulation* and a building lining or cladding; and
2. the *reflective insulation* closely fitted against any penetration, door, or window opening; and
3. that the *reflective insulation* will be adequately supported by framing members; and
4. That each adjoining sheet or roll membrane will be overlapped more

than 50mm or taped together

J1.2 ©

Please provide certification that bulk insulation will be installed so that –

it maintains its position and thickness (other than where it crosses roof battens, water pipes, electrical cabling or the like; and

that (in a ceiling where there is no bulk insulation or *reflective insulation* in the wall beneath), that it will overlap the wall by more than 50mm

J1.2 (D) Note: roof, ceiling, wall and floor materials and associated surfaces re deemed to have the thermal properties listed in Specification J1.2. **Confirmation and certification required from energy consultant**

Cl. J1.3 Please provide certification that the roof or ceiling that is part of the *ENVELOPE* of the new works will achieve the *total R-Value* specification in **table J1.3** for the direction of heat flow.

Please note the concessions available within parts (b) and (c) of this clause in respect to buildings in climate zones 1, 2, 3, 7 and 8.

J1.3 (D)

Please certify that a metal roof (with metal purlins or metal battens) to which the ceiling lining is fixed directly underneath will have a thermal break"

- Cl. J1.3**
- Installed between the metal purlins or metal battens and the metal deck roofing; and
 - That the thermal break will consist of a material with an *R-Value* of not less than 0.2

J1.3 (E)

Please note the thermal properties of various roof and ceiling construction for use for calculation of R-Values. Please confirm that a roof or ceiling which is part of the envelope will have the following R-Values. Climate Zone 4 Sydney 3.0 R value for a roof or ceiling and direction of heatflow upwards, please refer to specification J1.3.

Cl. J1.4 Please confirm that the roof lights to be constructed will comply with table J1.4 and achieve the Values specified in table J1.4 of the BCA.
Confirmation and certification required from energy consultant

Cl. J1.5 Please confirm that an external wall that is part of the envelope will have the following R-Values

Surface density of not less than 220kg/m²

Have a minimum R Value of 1.9

Incorporate insulation with an R-Value of not less than 2.8

Please refer to specification J1.5

(A Provide certification that each part of the *external wall* that is part of the *envelope* will comply with one of the options in Table J1.5a or table 1.5b>

Exemptions:

Note that in climate zones 1,2,3 etc that exemption is applicable.

Note that opaque non-glazed openings in external walls such as doors etc are exempt as are glazing and a storey complying with part b of this clause in a climate zone of 4, 6, 7 or 8.

(B) Note re exemptions calculations. These are not available within Sydney as it is within climate zone 5.

C and (D) Note re requirements for Zones 4, 6 and 7

Note Specification J1.5, which contains wall construction thermal properties in the specification. Confirmation and certification required from energy consultant

Cl. J1.6 Please confirm that the floor to be constructed will achieve the R Values specified in table J1.6 of the BCA. **Confirmation and certification required from energy consultant.**

CL. J2.4 | For air-conditioned parts of a building only.

The glazing in each storey of the building and facing each orientation must be assessed to determine the aggregate air-conditioning energy value to ensure that it does not exceed the allowance obtained by multiplying the area of the façade (orientation) by the energy index (see table J2.4(a)).

Please provide the following information for each window within the building:

1. The area of each section of glazing within each storey of the building. This should be in the form of a window schedule that indicates the area of the glazing only as well as the location of each window.
2. Provide the Solar Heat Gain Coefficients (SHGC) for each piece of glazing proposed. This can only be obtained by the supplier of the glazing.
3. The *Total U-Value* for each glazing element proposed. This can only be obtained by the supplier of the glazing.
4. The *Total U-Value* for each glazing element proposed. This can only be obtained by the supplier of the glazing.
5. The energy constants A, B and C. these are calculated using Table J2.4(b). For each window you first work out which way it is facing then note which climate zone it is within. For this project the development is within climate Zone 5.
6. The *Total U-Value* for each glazing element proposed. This can only be obtained by the supplier of the glazing.
7. The energy constants A, B and C. these are calculated using Table J2.4(b). For each window you first work out which way it is facing then note which climate zone it is within. For this project the development is within climate Zone 5.
8. The heating shade multiplier for each glazed element (taken from table J2.4©). This is calculated as follows:
 - First calculate "G" in the table. It is the height that the shading element is located above the top of the window/door head.
 - P is the length the shade part of the building that extends horizontally to protect each opening. H is the height of the specified window. Thus P/H plus the orientation of the window (north south east west etc) allows you to calculate the heating shade multiplier by using table J2.4©.
9. The cooling shading multiplier for each glazed element (taken from table J2.4(d)). This is calculated as follows:

Take figures G and P/H from the above calculations. Then review the orientation within table 2.4(d) to determine the figure for the cooling shading multiplier.

Alternatively, the energy constants, heating shading multiplier and cooling shading multiplier can be calculated by this office to determine if compliance is achieved.

To determine if compliance is achieved the aggregate air-conditioning energy value attributable to the glazing must not exceed the allowance obtained by multiplying the façade area of the orientation by the energy index in table J2.4(a).

**J2.4
(Cont)**

To determine if compliance is achieved the aggregate air-conditioning energy value attributable to the glazing must not exceed the allowance obtained by multiplying the façade area of the orientation by the energy index in table J2.4(a).

Note that where the air-conditioning energy value of a glazed element is less than zero the value must be taken as zero. These calculations should be submitted with the DA application to Council.

Confirmation and certification required from energy consultant

Cl. J2.5

Where shading is required to comply, it must be provided by an external permanent protection such as a verandah, balcony, eaves or shading hood. **Confirmation and certification required from energy consultant**

Cl. J3.3

A roof light must be sealed or capable of being sealed when serving a conditioned space or habitable room. It must be constructed with an imperforate ceiling diffuser or the like installed at the ceiling or internal lining level or a weatherproof seal or a shutter system readily operated manually, mechanically or electronically by the occupant. **Confirmation and certification required from energy consultant**

Cl. J3.4

Please note the following for external windows and doors:
A seal will be required to restrict air infiltration must be fitted to each edge of an external door, openable external window when serving a conditioned space. **Confirmation and certification required from energy consultant**

Cl. J3.5

Please note an exhaust fan be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space or habitable room in the building. **Confirmation and certification required from energy consultant**

Cl. J3.6

Roofs, external walls, external floors and any opening such as a window, door must be constructed to minimise air leakage when forming part of the external fabric of a conditioned space.

Construction must be enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves and the like. **Confirmation and certification required from energy consultant**

Cl. J3.7

An evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space or habitable room in the building. **Confirmation and certification required from energy consultant**

Cl. J5.2

Please provide certification that the air-conditioning system/unit will be capable of:

1. being inactivated when the sole-occupancy unit, building or part of building is not occupied; and
2. Where the air-conditioning unit/system has motorized outside air and return dampers, that the dampers will close when the air-conditioning unit/system is inactivated.

3. Having any supply and return ductwork insulated and sealed as per Specification J5.2.
4. when serving more than one sole-occupancy unit, air-conditioning zone or areas with different heating and cooling needs –
 - thermostatically control the temperature of each sole-occupancy unit, zone or area; and
 - not control the temperature by mixing actively heated air and actively cooled air; and
 - limit reheating to not more than 7.5K rise in temperature at the supply rate for the space served and may be increased or decreased at the same rate that the supply air rate is respectively decreased or increased.
5. having an outdoor air economy cycle in climate zones,7 when the system capacity is over 50kW_r.
6. when the air flow exceeds 1000L/s, be designed so that the total *motor shaft power* of the fans in the system does not exceed –
 - 12 W/m² for a building not more than 500m²; or
 - 15W/m² for a building more than 500m³.
7. Note that the requirements of (6) above are not applicable to –
 - fans in package A/C plant complying with clause J5.4(c); and
 - the input power for an energy reclaiming system that pre-conditions outdoor air; and
 - the input power for process related components such as high efficiency particulate air filters

Confirmation and certification required from energy consultant

Cl. J5.3

Please note the following for the time switch:

Power supply to an air-conditioning system of more than 10kwr or a ventilation system with an air flow rate of more than 1000l/s or a heating system of more than 10kw heating must be controlled by a switch in accordance with Specification J6. **Confirmation and certification required from energy consultant**

Cl. J5.4

Please note the following applies for any heating and cooling systems:

have any piping, vessels, heat exchangers or tanks containing heated or chilled fluid insulated in accordance with Specification J5.4; and

1. where water is circulated by pumping at 2L/s –
 - be designed so that the total of the *motor shaft power* to the *air-conditioning* pump does not exceed:
 - 3W/m² for a building not more than 500m²; and
 - 4W/m² for a building more than 500m².
3. if the system contains more than one boiler, chiller or coil, be capable of stopping the flow of water to those not operating.
4. have any piping, vessels, heat exchangers or tanks containing heated or chilled fluid insulated in accordance with Specification J5.4; and

5. where water is circulated by pumping at 2L/s –
- be designed so that the total of the *motor shaft power* to the *air-conditioning* pump does not exceed:
 - 3W/m² for a building not more than 500m²; and
 - 4W/m² for a building more than 500m².
6. if the system contains more than one boiler, chiller or coil, be capable of stopping the flow of water to those not operating.

J5.4 (B)

Please provide certification that a boiler must achieve a thermal efficiency complying with **table J5.4a**, when tested in accordance with AS 7190.

J5.4 (C)

Please provide certification that package *air-conditioning* equipment, including a split unit and a heat pump, will have an energy efficiency ratio complying with **table J5.4b** when tested in accordance with AS/NZS 3823.1.2 at test condition T1.

J5.4 (D)

Please provide certification that a refrigerant chiller over 125kW_r will have an energy efficiency ratio complying with **table J5.4c** when determined in accordance with ARI 550/590.

J5.4 (E)

Please provide certification that any air-cooled condenser fan motor, (other than one that is part of package air-conditioning equipment listed in part (c) above), will not use more than 15W of *motor shaft power* for each kW of heat rejected from the refrigerant when determined in accordance with ARI 460.

J5.4 (F)

Please provide certification that the fan of a cooling tower will Not more than –

- if a propeller or axial fan, 310 W of *motor shaft power* for each L/s of cooling water circulated; and
- if a centrifugal fan, 590 W of *motor shaft power* for each L/s of cooling water circulated.

J 5.4 (G)

Please provide certification that the fan of a closer circuit cooler will not use more than –

- if a propeller or axial fan, 500 W of *motor shaft power* for each L/s of cooling water circulated; and
- if a centrifugal fan, 670 W of *motor shaft power* for each L/s of cooling water circulated.

J5.4 (H)

Please provide certification that the fan of an evaporative condenser will not use more than –

- if a propeller or axial fan, 18W of *motor shaft power* for each kW of cooling water circulated; and
- if a centrifugal fan, 22 W of *motor shaft power* for each kW of

Cl. J5.4
(Cont)

cooling water circulated.

J5.4 (l)

Please provide certification that the spray water pump of a closed-circuit cooler or evaporative condenser will not use more than 150W of pump *motor shaft power* for each L/s of spray water circulated. **Confirmation and certification required from energy consultant**

Cl. J5.5

Please provide certification that a miscellaneous exhaust system with an air flow rate of more than 10000L/s (that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory), will –

1. Have the means for the operator to –
 - reduce the energy used by the provision of a variable speed fan; and
 - stop the motor when the system is not needed.
2. Be designed to minimize the exhausting of conditioned air
3. **Confirmation and certification required from energy consultant**

Cl. J5.5

Note that the above requirements do not apply to –

1. a sole-occupancy unit of a class 2,3 or 4 building or a class 9c aged care building; or
2. where additional exhaust ventilation is needed to balance the required outside air for ventilation; or
3. Where air flow must be maintained for safe operation.

Cl. J6.2B

In a class 5, 6, 7, 8, 9a or 9b building please provide certification that –

1. for artificial lighting –

the aggregate design illumination load will not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum *illumination power density* in **table J6.2b** and dividing by the *illumination power density* adjustment factor in **table J6.2c (where applicable); or**

- (i) as the shop is more than 100m² in floor area, that lamps will provide an average artificial *light source efficacy* of not less than 40 Lumens/W.
2. In a class 5,6,7,8,9a or 9b building please provide certification that the aggregate design illumination power load in 1(i) above is the sum of the design illumination power loads in each of the spaces served.

Cl. J6.2C

In a class 5, 6, 7, 8, 9a or 9b building please provide certification that when determining the design illumination power load, {see (B) above}, that the following will be used:

1. where there are multiplying lighting, systems serving the same

space –

- (i) the total illumination power load of all systems; or
- (ii) for a control system that permits only one system to operate at a time, the design illumination lower load is –based on the highest illumination power load; or

determined by the formula $\{H \times T/2 + P \times (100-T/2)\}$ as detailed within this clause of the BCA. **Confirmation and certification required from energy consultant**

**Cl. J6.2
Notes**

Note: the requirements of (A) and (B) do not apply to:

- **Emergency lighting in accordance with Part E4.**
- **Signage and display lighting within cabinets and display cases.**
- **Lighting for accommodation within the residential part of a detention centre.**
- **A heater where the heater also emits light**
- **Lighting of a specialist nature such as in an operating theatre, fume cupboard or clean workstation.**
- **Lighting of performances such as theatrical or sporting.**
- **Lighting for the permanent display and preservation of works of art or objects in a museum or gallery other than for retail sale, purchase or auction.**

Cl. J6.3C

please provide certification that an artificial lighting switch will –

1. be located in a visible position –
 - in the room or space being switched; or
 - in an adjacent room or space from where the lighting being switched is
 - have a motion detector installed in accordance with specification J6
2. not operate lighting within an area of more than –
 - 250m² for a space of not more than 2,000m² floor area; or
 - 1,000m² for a space of more than 2,000m² floor area.

Cl. J6.3D

Please provide certification that artificial lighting in a building or storey of a building of more than 250m² will be controlled by –

1. a time switch in accordance with **Specification J6**; or
2. an occupant sensing device such as a

- security card reader; or
- a motion detector in accordance with **Specification J6**.

Cl.J6.3F

Note:

The requirements of (A)(B)(C)(D) and (E) do not apply to the following:

1. Emergency lighting in accordance with **Part E4**.
2. Where artificial lighting is needed for 24-hour occupancy such as for manufacturing, airport control towers or within detention centers.

Cl. J6.4

Please provide certification that artificial lighting for any interior decorative and display lighting (e.g. for a foyer mural or art display) will be controlled –

1. separate controls to that of other artificial lighting; and
2. by a manual switch for each area other than when the operating times of the displays are the same in a number of cases such as in a museum, art gallery or the like in which case they may be combined; and
3. by a time switch in accordance with **Specification J6** (only applicable where the display lighting exceeds 7kW).

J6.4 (b)

Provide certification that window display lighting will be controlled separately from other display lighting.

Cl. J6.5

Provide certification that artificial lighting around the buildings perimeter will –

1. be controlled by either a daylight sensor or a time switch in accordance with **Specification J6**; and
2. when the total perimeter lighting load exceeds 100 W –
 - have an average *light source efficacy* of not less than 60 Lumens/W; or

be controlled by a motion detector in accordance with **Specification J6**

3. When used for decorative purposes (such as façade lighting or signage lighting), have a separate time switch in accordance with **Specification J6**.

Note: the requirements of (2) above do not apply to –

- emergency lighting in accordance with **Part E4**; and
- lighting around detention centers.

Cl. J6.6

Provide certification that power supply to any boiling water or chilled water storage units will be controlled by a time switch in accordance with **Specification J6**. **Confirmation and certification required from energy consultant**

Cl. J7.2 | Please provide certification that any hot water system used for food preparation and sanitary purposes will be designed and installed as per Section 8 of AS/NZS 3500.4.

Note: compliance with the above is not required for a solar hot water supply system in climate zones 1, 2 and 3. **Confirmation and certification required from energy consultant**

Cl. J8.2 | Access for maintenance must be provide to all services and their components, including time switches and motion detectors, room temperature thermostats, plant thermostats, outside air dampers and reflectors, lenses, light fittings and heat transfer equipment. **Confirmation and certification required from energy consultant**

Cl. J8.3 | The building with a floor area greater than 2500m2 must have the facility to record individually the energy consumption of air conditioning plant including heating plant, cooling plant and artificial lighting, appliance power, central hot water supply, and internal transport devices including lifts, and any other plant. **Confirmation and certification required from energy consultant. Part J report to be prepared by Energy Consultant.**

4.9 SECTION G – ANCILLARY PRIVISIONS

Cl. G1.01 | A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level. **Please provide details**

Cl. G5.1-5,2 | Please advise if the building is located in a bushfire prone area. If so compliance with AS3959 is required
Certification required.

Conclusion: The current building has been designed with regard to the requirements of the BCA and the proposed development either complies or is capable of complying with the relevant performance requirements of the BCA.

Author:



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5.0 APPENDIX A

5.1 FIRE-RESISTANCE OF BUILDING ELEMENTS

In a building *required* to be of Type A construction—

Fire-resistance of building elements

In a building *required* to be of Type A construction—

- (a) each building element listed in **Table 3** and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and
- (b) *external walls*, *common walls* and the flooring and floor framing of lift pits must be *non-combustible*; and
- (c) any *internal wall required* to have an FRL with respect to *integrity* and *insulation* must extend to—
 - (i) the underside of the floor next above; or
 - (ii) the underside of a roof complying with **Table 3**; or
 - (iii) if under **Clause 3.5** the roof is not *required* to comply with **Table 3**, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or

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- (iv) a ceiling that is immediately below the roof and has a *resistance to the incipient spread of fire* to the roof space between the ceiling and the roof of not less than 60 minutes; and
- (d) a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be constructed from—
 - (i) concrete; or
 - (ii) masonry; or
 - (iii) *fire-protected timber*, provided that—
 - (A) the building is a Class 2, 3 or 5 building which is—
 - (aa) a separate building; or
 - (bb) a part of a building—
 - (AA) which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or
 - (BB) which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and
 - (B) the building has an *effective height* of not more than 25 m; and
 - (C) the building has a sprinkler system throughout complying with **Specification E1.5**; and
 - (D) any insulation installed in the cavity of the timber building element *required* to have an FRL is *non-combustible*; and
 - (E) cavity barriers are provided in accordance with **Specification C1.13**; or
 - (iv) any combination of (i) to (iii).
- (e) a non-*loadbearing*—
 - (i) *internal wall required* to be *fire-resisting*; and
 - (ii) lift, ventilating, pipe, garbage, or similar *shaft* that is not for the discharge of hot products of combustion,must be of *non-combustible* construction; and

- (f) the FRLs specified in [Table 3](#) for an external column apply also to those parts of an internal column that face and are within 1.5 m of a [window](#) and are exposed through that [window](#) to a [fire-source feature](#).

ATTACHMENT 1

BCA Specification C1.1 Table 3

Table 3 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, 7a or 9	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 1.5 m	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 m 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

Building element	Class of building — FRL: (in minutes)			
	<i>Structural adequacy/ Integrity/ Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

Table 5 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

5.2 CARPARKS

Notwithstanding [Clause 3.1](#), a *carpark* may comply with [Table 3.9](#) if it is an *open-deck carpark* or is protected with a sprinkler system complying with [Specification E1.5](#) and is—

- (i) a separate building; or
- (ii) a part of a building—
 - (A) which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or
 - (B) which is located above or below another classification, and the floor separating the classifications complies with [C2.9](#); or
 - (C) which is located above another Class 7 part of the building not used for carparking, and the floor separating the parts complies with [Table 3](#) for a Class 7 part other than a *carpark*; or
 - (D) which is located below another Class 7 part of the building not used for carparking, and the floor separating the parts complies with [Table](#)

3.9.

- (b) For the purposes of this Clause, a *carpark*—
 - (i) includes—
 - (A) an administration area associated with the functioning of the *carpark*; and
 - (B) where the *carpark* is sprinklered, is associated with a Class 2 or 3 building and provides carparking for separate *sole-occupancy units*, each carparking area with an area not greater than 10% of its *floor area* for purposes ancillary to the *sole-occupancy units*; but
 - (ii) excludes—
 - (A) except for **(b)(i)**, any area of another classification, or other part of a Class 7 building not used for carparking; and
 - (B) a building or part of a building specifically intended for the parking of trucks, buses, vans and the like.