DESIGN CONFIDENCE

RSL Lifecare

BCA Design Assessment Report

Mark Donaldson VC House
301-305 Galston Road, Galston, NSW, 2159

ACCESSIBILITY | BUILDING REGULATIONS | FIRE ENGINEERING | MANAGEMENT SERVICES

CONTENTS

Project: RSL Lifecare – Galston
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The following report register documents the development and issue of this and each subsequent report(s) undertaken by Design Confidence.

Revision History:

OUR REFERENCE	REMARKS	ISSUE DATE
P221_357-1 (BCA) LB	Report issued as draft for design team review and comment	28 January 2022
P221_357-1 (BCA) LB	Report issued as FINAL following design team feedback	8 March 2022

EXECUTIVE SUMMARY

This BCA Design Assessment report has been prepared by Design Confidence at the request of APG on behalf of RSL Lifecare. With respect to the assessment undertaken the design is considered to be capable of complying with the performance provisions of the BCA. Compliance would be achieved via the relevant deemed-to-satisfy requirements as outlined within the BCA.

With respect to the assessment undertaken the following areas need further review as the project develops –

NO.	ITEMS FOR FURTHER CONSIDERATION	RESPONSIBILTY
1.	A test report from the architect or Registered Testing Authority must be provided to certify that the façade / external walls (lift overrun) achieves compliance with BCA FP1.4 and FV1.	Architect/ Façade Engineer

1.0 INTRODUCTION

1.1 General

This BCA Design Assessment report has been prepared at the request of APG on behalf of RSL Lifecare to accompany the Development Application documentation for the proposed lift within the Mark Donaldson VC House aged care facility, Galston.

This report is based upon, and limited to, the information depicted in the documentation provided for assessment, and does not make any assumptions regarding 'design intention' or the like.

1.2 Purpose of report

The purpose of this report is to identify the extent to which the architectural design documentation complies with the prescriptive provisions of the Building Code of Australia (BCA) Volume 1, edition 2019 Amendment 1.

1.3 Documentation Provided for Assessment

This assessment is based upon the Architectural documentation prepared by McNally Architects and listed within Appendix 1.

1.4 Report Exclusions

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

(i) Work Health & Safety Act and Regulations;

(ii) WorkCover Authority requirements;

(iii) Structural and Services Design Documentation;

(iv) The individual requirements of service authorities (i.e. Telecommunication Carriers, Sydney Water, Endeavour Energy);

(v) The Disability Discrimination Act (DDA) 1992;

(vi) The Accessibility Requirements of the BCA, as contained within D3 and F2.4 of the BCA;

(vii) The Energy Efficiency Provisions of the BCA, as contained with Section J of the BCA;

(viii) An assessment of any existing building located on the allotment;

2.0 DEVELOPMENT DESCRIPTION

2.1 General

In accordance with the Building Code of Australia, the assessment undertaken relates to the proposed lift and minor internal alterations within the Mark Donaldson VC House aged care facility, Galston.

For the purpose of the Building Code of Australia (BCA) the subject development may be described as contained below.

2.2 Building Description

Table 2 – Building Characteristics

DESCRIPTION OR REQUIREMENT		
Building Classification	Residential Aged Care Facility	9c
Rise in Storeys		Four (4)
Construction Type		Type A
Effective Height		<12m
Floor Area & Volume	Basement Ground Floor First Floor Second Floor	No change 6m^2(new works) No change 6m^2(new works)
Climate Zone:	Climate Zone 5	

2.3 BCA Interpretation Notes

To provide the reader with additional context, the following information regarding the assessment methodology used in this assessment is provided below –

(i) This BCA report is based off a desktop assessment, no site inspection has been undertaken; and

(ii) BCA Classification 9C has been provided by the client as being the applicable Class, this corresponds with previous Annual Fire Safety Statements received for the subject building;

(iii) Exits have been taken as either corresponding with fire-isolated exits, or where on the ground floor external doors are utilised to open sky;

4.0 BCA ASSESSMENT SUMMARY

4.1 General

The following table summarises the compliance status of the architectural design in terms of each *applicable* prescriptive provision of the BCA and indicates a capability for compliance with the BCA.

Although, it should be recognised that instances exist where 'Prescriptive non-compliance' occurs, or 'design detail' is required.

Such instances should not necessarily be considered BCA deficiencies; but matters, which need to be considered by the design team and any assessment authority at relevant stages of design and/or assessment.

For those instances of either 'prescriptive non-compliance' or 'design detail', a detailed analysis and commentary is provided within Part 4.0 of this report.

4.2 Section B: Structure

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
B1.1	resistance to actions			✓
B1.2	determination of individual actions			✓
B1.4	materials and form of construction			✓

4.3 Section C: Fire Resistance

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
C1.1	fire resisting construction			✓
C1.8	lightweight construction			✓
C1.9	Non-combustible building elements			✓
C1.10	fire hazard properties			✓
C2.2	general floor area & volume limitations	✓		
C2.5	class 9a and 9c buildings	✓		
C2.7	separation by fire walls	✓		
C2.10	separation of lift shafts			✓
C2.11	stairways and lifts in one shaft	✓		
C3.2	protection of openings			✓
C3.4	methods of protection			✓

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
C3.12	openings in floors and ceilings			✓
C3.13	openings in shafts			✓
C3.15	openings for service installation			✓
C3.16	construction joints			✓
C3.17	columns protected in lightweight			✓

4.4 Section D: Access & Egress

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
D1.2	number exits required	✓		
D1.3	fire-isolated exits	✓		
D1.4	exit travel distances	✓		
D1.5	distance between alternative exits	✓		
D1.6	dimensions of exits and paths of travel to exits	✓		
D1.10	discharge from exits			✓
D1.13	number of persons accommodated			✓
D1.17	access to lift pits			✓
D2.7	installations in exits and paths of travel			✓
D2.19	doorways and doors	✓		
D2.20	swinging doors	✓		
D2.21	operation of latch			✓

4.5 Section E: Services & Equipment

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
E1.3	fire hydrants			✓
E1.5	sprinklers			✓
E1.6	portable fire extinguishers			✓
E2.2	general provisions			✓
E3.1	lift installations			✓
E3.2	Stretcher lift			✓
E3.3	warning against use of lifts			✓
E3.5	lift landings	✓		
E4.2	emergency lighting			✓
E4.5	exit signs			✓
E4.6	design and operation of exit signs			✓

4.6 Section F: Health & Amenity

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
F1.1	storm water design			✓
F1.5	roof coverings			✓
F1.6	sarking			✓
F3.1	height of rooms and other spaces			✓
F4.4	artificial lighting			✓
F4.5	ventilation of rooms			✓

4.7 Section G - Ancillary Provisions

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
G1.101	provision for cleaning windows			✓
G5.1	bushfire prone areas			✓

5.0 BCA DETAILED ASSESSMENT

5.1 General

With reference to the 'BCA Assessment Summary' contained within Part 3 of this report, the following detailed 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.

5.2 Section B – Structure

B1.1	The resistance of a building or structure must be greater than the most critical action effect determined by B1.2 & B1.4 of the BCA and AS/NZS 1170.0-2002.
B1.2	The structural design of the building must be determined in accordance with the varying "actions" considerations contained within this clause (i.e. permanent actions, imposed actions, wind / snow / earthquake actions).
B1.4	The structural resistance of materials and forms of construction must be determined in accordance with the following: ❑ Masonry: AS3700-2018; and ❑ Concrete construction: AS3600-2018; and ❑ Steel construction: AS4100-1998 or AS/NZS4600-2005; and ❑ Glazed assemblies: AS1288-2006 & AS2047-1999; and ❑ Metal roofing: AS1562.1-1992.

5.3 Section C – Fire Resistance

C1.1	The building elements are required to achieve the nominated FRLs as nominated within BCA Spec C1.1 as applicable, these FRLs have been summarised within Table A2.1 as contained within Appendix 2. In addition to the FRLs contained within the Appendix A2 the following information details the construction methodology and concessions available to the subject building. ❑ *General notes* (i) Internal walls required to have an FRL must extend: ▪ To the underside the floor next above; ▪ To the underside of a roof covering if it is non-combustible and must not be crossed by timber or other combustible building elements, expect for roof battens with dimensions of 75mm x 50mm or less or sarking-type material; or ▪ 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;

C1.1 *Cont'd*

(ii) Any loadbearing internal wall and a loadbearing fire wall (including shafts) is required to be of concrete or masonry or fire-protected timber;

(iii) A non-loadbearing internal wall required to achieve an FRL is required to be of non-combustible construction;

(iv) A shaft which is not for the discharge of hot products of combustion and not load-bearing is required to be of non-combustible construction;

(v) Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than 120/120/120, exempt the provisions need not apply to the top of the shaft extending beyond the roof covering, other than one enclosing a fire-isolated stairway or ramp, or the bottom of a shaft it is non-combustible and laid directly on the floor;

(vi) Building elements are required to achieve an FRL from both sides.

❑ *Concessions*

(i) In the storey immediately below the roof, the FRL of need not have an FRL;

(ii) A floor need not have an FRL if it is laid directly on the ground; and

❑ *Method of attachment not to reduce the fire-resistance of building elements*

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.

As the lift shaft extends beyond the roof covering of the building, the top of the shaft need not achieve an FRL.

C1.8

Lightweight construction used in a wall system required to have an FRL or a lift, stairway or service shaft (refer to Spec. C1.1 above) must comply with this clause.

If lightweight construction is used for the fire-resisting covering of any steel column/s (refer to BCA Spec C1.1 above), then any void must be filled solid, to a height of not less than 1.2m above the floor.

C1.9

The following building elements and their components must be non-combustible –

(i) External walls, including all components incorporated in them including the façade covering, framing and insulation – this applies to the external walls of the lift overun;

(ii) The flooring and floor framing of lift pits;

C1.10	The fire hazard properties for materials proposed to be provided have been summarised within Table A3.1 as contained within Appendix 3.
C1.14	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 permitted under this clause.
C2.2	The works do not propose to add any additional floor area or volume and there will be no internal change to any existing fire/ smoke walls.
C2.5	A Class 9c building must comply with the following: (i) A building must be divided into areas no not more than 500m^2 by smoke-proof walls complying with Specification C2.5. (ii) A fire compartment must be separated from the remainder of the building by fire walls, and not withstanding C2.7 and Specification C1.1, floors with an FRL of not less than 60/60/60. (iii) Internal walls (other than those bounding lift and stair shafts) supported by floors provided in accordance with C2.5(b)(ii) need not comply with Specification C1.1 if they have an FRL not less than 60/-/-. (iv) Ancillary use areas containing equipment or materials that are a high potential fire hazard, must be separated from the sole-occupancy units by smoke proof walls complying with Specification C2.5 For the purpose of determining ancillary use areas referred to above, these include, but are not limited to; (a) A kitchen or food preparation area with a combined floor area of more than 30m^2. (b) A laundry where gas fire dryers are utlised. (c) Storage rooms greater than 10m^2. Openings in fire walls must be protected as follows: (A) Doorways – self-closing or automatic closing -/60/30 fire doors. (B) Windows – automatic or permanently fixed closed -/60/- fire windows or -/60/-automatic fire shutters. (C) Other openings – construction having an FRL not less than -/60/- The works propose an additional 6m^2 on the ground and second floors. Based off existing floor plans the additional floor area will not increase existing smoke compartments to exceed the above parameters and is considered compliant for the purposes of this clause.

C2.10	As the lift is located within a resident use area the lift must be separated from the building by a shaft with an FRL not less than 120/120/120.
C2.11	A stairway and lift shaft is not permitted to be located within the same shaft. No stairway is proposed, so compliance with this clause is achieved.
C2.12	If the lift motors or control panels are provided within a separate room, then the room is required to be separated from the remainder of the building by construction having an FRL of not less than 120/120/120 and have any doorway in that construction protected with a self-closing fire door having an FRL of not less than --/120/30. Pumpset/s for fire services shall comply with AS2419.1-2005.
C3.3	No alteration to existing fire walls is proposed, hence no requirements under the provisions of this clause.
C3.10	(i) The doorways providing access to the lift shaft(s) shall be protected by --/60/-- fire doors complying with AS1735.11-1986 and remain closed except when discharging or receiving passengers or goods; and (ii) Any lift call button, indicator panel or other panel located within the wall of the fire-isolated lift shaft must be backed by construction having an FRL of --/60/60 if it exceeds 35,000mm^2 in area. This will only apply if the lift is confirmed to be located within a resident use area.
C3.12	Where a service passes through a floor required to achieve an FRL, that service is required to be protected by either a shaft which has been construction in accordance with BCA Spec C1.1 (listed above) or in accordance with C3.15 (see below).
C3.13	Any opening in a wall providing access to a ventilating, pipe, garbage or other service shaft must be protected by one of the following methods - (i) 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 (ii) A self-closing --/60/30 fire door or hopper; or (iii) An access panel having an FRL of not less than --/60/30; or (iv) If the shaft is a garbage shaft the door or hopper is to be of non-combustible construction.

C3.15	Any opening(s) for service(s) (electrical, mechanical, plumbing, etc) that penetrate a building element which is required to be of fire- resisting construction is required to be protected (i.e. fire seal).
C3.16	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS1530.4-2005 to achieve the required FRL.
C3.17	Where a column protected by lightweight construction to achieve the required FRL defined by BCA Spec C1.1 (listed above) passes through a building element that is also required to have an FRL it must be installed using a method and materials identical with the prototype assembly of the construction which has achieved the required FRL.

4.4 Section D – Access & Egress

D1.2	Under the provisions for a Class 9c each storey containing sleeping quarters is required to be provided with two exits. The architectural documentation indicates two exits are provided from each residential storey and the proposed will not be altering existing conditions.
D1.3	Every stairway in a 9c building must be fire-isolated. No alteration to existing stairways is proposed.
D1.4	Travel distances are required to comply with the following DtS provisions: • 20m to an exit, or a point in which two exits is available, in which case the maximum distance to one of those exits is 40m. An assessment has revealed travel distances in the altered areas will comply with the above provisions. It is noted on the first floor dining room travel distances is 29m to a point of choice. This has previously been addressed under a fire engineered solution prepared by Innova. We would consider that the new works are consistent with this report, however a Clause 130 will be required to be obtained as part of the Construction Certificate documentation.
D1.5	Distance between alternative exits are to be no more than 60m between alternative exits. An assessment shows the proposed floor plan is capable of complying with the above provision.
D1.6	The path of travel to an exit and any required exit is to have an unobstructed height throughout of not less than 2m (except a doorway, which can be 1980mm) and an unobstructed width not less than 1m (except a doorway, which can be 750mm in an area not required to be accessible and 850mm in an area required to accessible).

D1.10	Existing discharge paths are to be utilised to afford egress. Based off the architectural drawings pathways achieve a minimum 1m width and are capable of complying with the provisions of D1.10.
D1.13	The proposed works will not be adding any additional occupation loads within the building.
D1.17	Access into the lift pit must be through the lift landing doors provided on the lowest level.
D2.7	Gas or other fuel services must not be installed within the required exit. Any services or equipment (being electrical meters, distribution boards or the like) installed within the path of travel are to be enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.
D2.15	❑ *Internal Doorways* (i) The threshold of any doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf. ❑ *External Doorways* (ii) The threshold of the external doorways leading from the foyer on ground floor & lower ground floor must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf great than 50mm; and (iii) All other doorways can incorporate a step or ramp 190mm above the finished surface of the ground, this includes the balconies.
D2.17	Handrails must be fixed at a height of not more than 865mm measured above the nosing's of the stair treads, ramp or landing and shall be continuous such that no obstruction on or above them will tend to break a hand hold. Handrails must also be provided along both sides of every passageway or corridor used by residents and must be- (a) Fixed not less than 50mm clear of the wall; and (b) Where practicable, continues for their full length (c) Handrails must be provided in accordance with D3.3.

D2.19	The doorway in resident use area of a Class 9c building must not be fitted with – (a) A sliding fire door; or (b) A sliding smoke door; or (c) A revolving door; or (d) A tilt-up door
D2.20	All exit doors must swing in the direction of egress. This applies to the doors leading external doors on the ground floor utilised as exits. No change is proposed to these doors which are swinging outwards and would comply with this clause.
D2.21	Door hardware requirements are applicable below – (i) Any door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily operable without a key from the side that faces a person seeking egress; and (ii) By a single hand pushing or downward action on a single device located between 900mm and 1100mm from the floor and ▪ Be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and ▪ 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 35mm nor more than 45mm; or (iii) A single hand pushing action on a single device which is located between 900mm and 1.2m above the floor; or (iv) Alternatively, any door in a required exit, forming part of a required exit or in the path of travel to a required exit must be fitted with a fail-safe device which automatically unlocks the door upon the activation of any detector system deemed suitable in accordance with AS1670.1-2004 installed throughout the building. The above is to be applied to the new doors on the second floor.

4.5 Section E – Services & Equipment

E1.3	A fire hydrant system complying with AS2419.1-2005 is required to serve the building. As no additional floor area is proposed, it is assumed existing coverage will be capable of serving the alterations and no alterations will be required to the hydrant system. We have received the existing Annual Fire Safety Statement which has confirmed existing hydrants.
E1.5	As the building contains a 9c classification, the whole building is to be sprinklered. This system is to be compliant with AS2118.4-2012 and Specification E1.5 of the BCA. The system must be provided with a monitored main stop valve in accordance with AS2118.1 and be permanently connected to a direct data link or other approved monitoring system to a fire station or dispatch centre. As the works will require alteration to the existing sprinkler system (compliant to AS2118.1-1999) services engineer to confirm compliance. If compliance with the current standard cannot be achieved a 164B exemption may be sought.
E1.6	Portable fire extinguishers complying with AS2444 are required to be provided throughout the building. Public corridors serving the units must be provided with powder (ABE) type fire extinguishers, with a minimum size of 2.5kg and distributed to only serve the storey where they are located and so that there is 10m maximum distance from the unit doorway to the nearest extinguisher.
E2.2	The following smoke hazard management systems are required throughout the building – (i) An automatic smoke detection system complying with Specification E2.2a; and (ii) The air-handling system must automatically shut down on the activation of the sprinkler system complying with Specification E1.5 of the BCA. As the works will require alteration to the existing detection system (compliant to AS1670.1-2004) services engineer to confirm compliance. If compliance with the current standard cannot be achieved a 164B exemption may be sought.
E3.1	The electric passenger lift installation or an electrohydraulic passenger lift installation shall comply with this clause and Specification E3.1.
E3.2	As the subject lift is not required to be an emergency lift, or serve a storey with an effective height above 12m, stretcher facilities are not required to be provided within the lift.

E3.3	Warning signage "DO NOT USE LIFTS IF THERE IS A FIRE" will be required adjacent every lift call button with dimensions as detailed in this clause.
E3.5	Access and egress to and from the liftwell landings must comply with the Deemed to Satisfy Provisions of Section D. Circulation spaces must comply with AS1428.1.
E4.2	Emergency lighting is required in accordance with AS2293.1-2005.
E4.5	Exit signage designed in accordance with AS2293.1-2005 must be provided above or adjacent to any external doorways and doorways leading to & from fire-isolated exits serving as required exits from the building.
E4.6	If an exit is not readily apparent to persons occupying or visiting the building, then exit signs complying with AS2293.1-2005 must be installed in appropriate positions in corridors, hallways, lobbies and the like, indicating the direction to a required exit.

4.6 Section F – Health & Amenity

F1.0	A test report from a Registered Testing Authority must be provided to certify that the façade / external walls achieve compliance with BCA FP1.4 and FV1.
F1.1	Stormwater drainage must comply with AS/NZS3500.3-2003.
F1.4	Waterproofing membranes for external above ground use (i.e. balconies and roof) must comply with AS4654-2012.
F1.5	Metal roof sheeting must comply with AS1562.1-1992.
F1.6	Any Sarking-type materials used for weatherproofing of roofs and walls must comply with AS/NZS4200-1994.
F1.9	Damp-proof courses must consist of a material complying with AS/NZ2904-1995 or an impervious termite shield complying with AS3660.1-2000.
F1.10	A floor laid directly onto ground or fill must be provided with a vapour barrier complying with AS2870-2011.
F1.13	Refer to B1.4 (above) for glazing requirements.
F2.1	For facilities in 9c buildings, the following applies: (i) For residents in each building or group of buildings, provide- (A) a closet pan and wash basin for each 6 residents or part thereof where private facilities are not provided; and (B) a shower for each 7 residents where private facilities are not provided; and (C) a suitable bath, fixed or mobile.

F2.1 *Cont'd*	The proposed facility provides for private facilities for each resident satisfying the above provisions. In addition to the above provide- (A) one kitchen orother adequate facility for the preparation and cooking or reheating of foro including a sink an washbasin; and (B) laundry facilities; and (C) one clinical hand washing basin for each 16 residents or part thereof. No changes to existing facilities are proposed, hence the proposed works are not exacerbating any issues and compliance is achieved for the purpose of this clause.
F3.1	Unobstructed ceiling heights throughout the building must not be less than the following - (i) Public corridors and the like – 2.4m; and (ii) Habitable rooms – 2.4m; and (iii) Offices and the like – 2.4m; and (i) Sanitary facilities and the like – 2.1m; and (ii) Stairways, ramps and landings – 2.0m.
F4.4	Where compliant natural lighting is not provided, artificial lighting is to be installed in accordance with AS/NZS1680.0-2009.

Section G – Ancillary Provisions

G1.101	The windows located three (3) or more storeys above the street level shall be able to be cleaned from wholly within the building or by a method complying with Work Health and Safety Act 2011 and Regulations made under the Act.
G5.1	If the building is located in a designated bushfire prone area, the building must comply with AS3959-2018. A bushfire report addressing this has been provided as part of the Development Application.

5.0 CONCLUSION

Based upon our detailed review of the proposed architectural drawings, it is the opinion of this office that the subject development is capable of complying with the performance provisions of the BCA. Compliance would be achieved by complying with the relevant deemed-to-satisfy requirements as outlined within the BCA.

Report By

Lindsay Beard
Associate | Building Regulations
For Design Confidence (Sydney) Pty Ltd

Verified By

Luke Sheehy
Principal
For Design Confidence (Sydney) Pty Ltd

APPENDIX 1 – DOCUMENTATION PROVIDED FOR ASSESSMENT

1. The BCA Design Assessment was based upon the Architectural documentation prepared by McNally Architects, namely –

DESCRIPTION	DRAWING NUMBER	REVISION	DATE
Site Plan	A005	01	30.09.2021
Basement Floor Plan	A100	01	30.09.2021
Ground Floor Plan	A101	01	30.09.2021
First Floor Plan	A102	01	30.09.2021
Second Floor Plan	A103	01	30.09.2021
Roof Plan	A104	01	30.09.2021

APPENDIX 2 – REQUIRED FIRE RESISTANCE LEVELS (FRLS)

The Table below represents the Fire Resistance Levels (FRLs) required in accordance with BCA 2019 Amendment 1:

Table AA 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*, where the distance from any *fire-source feature* to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

APPENDIX 3 – FIRE HAZARD PROPERTIES

The table below represents the fire hazard properties for building materials applicable to this development.

FLOOR LININGS AND FLOOR COVERINGS CRITICAL RADIANT FLUX (CRF IN KW/M2	
Non-Sprinkler Protected Areas	2.2
Sprinkler Protected Areas	1.2
Fire-Isolated Exits & Fire Control Rooms	1.2
Lift Cars	2.2
WALL LININGS AND CEILING LININGS TESTED TO AS5637.1	
Fire-Isolated Exits & Fire Control Rooms	Group 1
Public Corridors – Walls	Group 1 or 2
Public Corridors – Ceilings	Group 1 or 2
Specific Areas – Walls	Group 1, 2 or 3
Specific Areas – Ceilings	Group 1, 2 or 3
Other Areas – Walls	Group 1, 2 or 3
Other Areas – Ceilings	Group 1, 2 or 3
Lift Cars	Group 1 or 2
NOTE	In addition to achieving the group number above they too must comply with the following – ▪ a smoke growth rate index not more than 100; or ▪ an average specific extinction area less than 250m^2/kg
OTHER MATERIALS OR ASSEMBLIES	
Fire-Isolated Exits & Fire Control Rooms	Spread-of Flame Index 0 Smoke-Developed Index 2
Non-fire-isolated stairs & escalators and auditorium fixed seating	Spread-of Flame Index 0 Smoke-Developed Index 5
Sarking-type material	Flammability Index 0 (fire control rooms) Flammability Index 5 (other areas)
Other materials	Spread-of Flame Index 9 Smoke-Developed Index 8 (if the Spread-of Flame Index is more than 5)

APPENDIX 4 – PROPOSED FIRE SAFETY SCHEDULE

FIRE SAFETY MEASURE	PROPOSED STANDARD OF PERFORMANCE
Access Hatches Doors & Hoppers	BCA C3.13
Automatic Fail Safe Devices	BCA D2.19, D2.21
Automatic Fire Detection & Alarm Systems	BCA E2.2A/ AS1670.1-2004
Automatic Fire Suppression Systems – Sprinkler	BCA E1/ AS2118.1
Building Occupant Warning System	BCA E2.2a/ AS1670.4-2004
Emergency Evacuation Plan	Smoke Reservoirs & Fire Separation by Fire Engineering Design Pty Ltd dated 5 May 2011
Emergency Lighting	BCA E4.2, E4.4/ AS 2293.1– 1998
Exit Signs	BCA E4.5- E4.8/ AS 2293.1 – 1998
Fire Doors	BCA Spec C3.4/ AS1905.1
Fire Hydrant Systems	BCA E1.3/ AS 2419.1 – 2005
Fire Seals	BCA C3.15
Lightweight Construction	BCA C1.8 and Spec C1.8
Paths of travel	EPA Reg. 2000 Part 9 Div. 7
Portable Fire Extinguishers	BCA E1.6/ AS 2444 – 2001
Required exit doors (automatic)	BCA D2.19, D2.21 & D2.22
Smoke Doors	BCA Spec. C3.4
Warning and Operational Signs	BCA Part D EP&A Reg. 2000 Part 9 Div 7
Window/ Wall drenchers	AS2118.2
Fire Engineering Alternative Solution relating to extended travel of up to 29m to a point f choice worst case in lieu of 20m from the lounge room/ courtyard.	BCA Performance Requirements DP4 & EP2.2 Fire Engineering Report prepared by Innova Services, Report No 16114-R01, Revision 1 dated 1 May 2017

The above schedule is based on alterations to existing services being undertaken under 164b of the Environmental Planning & Assessment Regulation.

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