

*Para-ere Holdings*

# BCA ASSESSMENT REPORT

*24 Raglan Street, Manly NSW 2095*

Project Number: 116845-BCA-1

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## Document Control

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## Executive Summary

This document provides an assessment of the architectural design drawings for the proposed residential development at 24 Raglan Street, Manly against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 4 'BCA Assessment' of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions.

Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

<i>Item</i>	<i>Description</i>	<i>BCA Provisions</i>
<i>Performance Solutions Required</i>		
1.	The openings around the driveway, formed at the construction edge by the first floor overhang will not be protected as required by the DTS provisions. Protection will be formed by the wall bounding driveway on the western side.	C3.2
2.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only

## 1.0 Adoption of BCA 2022

### 1.1 PROPOSED INTRODUCTION

As of 26 August 2022, the ABCB have advised to introduce the National Construction Code (NCC), Volume One, Building Code of Australia (BCA) 2022 on 1 May 2023. BCA2022 is proposing some major changes to Condensation Management, Energy Efficiency, and the introduction of Livable Housing Design.

Building Ministers agreed to publish NCC 2022 on 1 October 2022. The full and final version of NCC 2022, in its entirety, is live on [NCC online](#). The pdf files will be released close to the new NCC adoption date.

The States and Territories will bring the majority of NCC 2022 into full effect from 1 May 2023, to allow industry time to learn and adapt to the new requirements.

There will also be transition periods for specific requirements. These include:

- > New livable housing requirements, new energy efficiency and condensation mitigation requirements – 1 October 2023
- > New low lead in plumbing product requirements – 1 September 2025.

These provisions of NCC 2019.1 will be considered mandatory until 1 May 2023.

### 1.2 MAJOR CHANGES KNOWN TO DATE

Below is a summary of the proposed changes which were released in the May draft preview. We have also provided a table below for quick reference. Your project has been assessed against the proposed changes where applicable.

#### *Consistent volume structure*

BCA2022 uses a new structure and clause referencing system to create better consistency across all volumes. While the new Section-Part-Type-Clause system makes the NCC look different at first, it's intended to improve user experience and make it more web accessible.

The new structure results in a reorganisation of specifications and parts, some of which are contained in the table below.

#### *Fire safety of external walls*

Volume One contains a number of amendments to the fire safety of external walls. This clarifies interpretation of concessions from non-combustibility requirements. Also included is a new provision that prevents fixing of certain bonded laminated cladding panels by adhesive only.

#### *Waterproofing*

There are new DTS Provisions in Volume Two for waterproofing of wet areas, not previously covered by an acceptable construction practice or manual.

Waterproofing in Volume One is restructured into three parts to enhance readability and accommodate future changes.

### Weatherproofing

Volume One contains additional DTS Provisions, providing new solutions for weatherproofing of external walls. These include references to weatherproofing provisions in Australian Standards for masonry, autoclaved aerated concrete and metal wall sheeting.

### Falls for floor wastes

Volumes One and Two are amended to require bathrooms and laundries where a floor waste is installed, to have a fall of the floor in order to help drain the surface. This also applies to floor wastes included voluntarily.

### Number of exits

Some minor amendments to the required number of exits are in Volume One. This includes a new concession allowing a single exit for a part of a storey in some circumstances, where previously at least two exits were required.

## 1.3 SUMMARY OF MAJOR CHANGES

<i>Summary of Major Changes</i>		
<i>Clause Reference</i>		<i>Description of proposed changes</i>
<i>BCA 2019</i>	<i>BCA2022</i>	
C1.9	C2D10	<p><b>Non-combustible building elements</b></p> <p>Further exemptions to the non-combustible requirements of external walls added. Larger list of materials that can be used where non-combustible materials are required.</p>
-	C2D15	<p><b>Fixing of Bonded Laminated Cladding panels</b></p>
D1.2	D2D3	<p><b>Number of Exits</b></p> <ul style="list-style-type: none"> <li>• Ground floor can be provided with a single exit in lieu of 2</li> <li>• 2 exits required from each storey and each fire compartment of an <b>early childhood centre</b></li> </ul>
D1.6	D2D7 – D2D11	<p><b>Dimensions of Exits</b></p> <p>Clause split into multiple clauses</p>
D2.16	D3D17 - D3D21	<p><b>Barrier</b> clause split into multiple clauses</p>
E1.5	E1D4 - E1D13	<p><b>Sprinkler</b> requirements split into separate clauses for each building class.</p>
E2.2	E2D3 – E2D21	<p>General Requirements – <b>Smoke Hazard Management</b></p> <p>Tables removed and replaced with clauses for each building class</p>

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F1.7	Part F2	<b>Wet Area and Overflow Prevention</b>
F1.11	F2D4	<b>Floor wastes</b> – floor must be graded with a minimum fall of 1:80
FP1.4	Part F3	<b>Roof and Wall Cladding</b> Introduces DTS provisions for walls and roofs in lieu of the previous BCA requiring performance solutions for all weatherproofing



## 2.0 Basis of Assessment

### 2.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 24 Raglan Street, Manly where it is proposed to construct a new residential development. The building will comprise of five levels being basement level car parking with residential levels above, with the ground floor also incorporating a retail/commercial unit.



Photograph courtesy of Six Maps

### 2.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, Amendment 1, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

### 2.3 BUILDING CODE OF AUSTRALIA

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019, Amendment 1 (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

### 2.4 LIMITATIONS

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

- a. the structural adequacy or design of the building;

- b. the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
- c. the design basis and/or

This report does not include, or imply compliance with:

- a. the National Construction Code – Plumbing Code of Australia Volume 3
- b. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D3 and F2.4 of BCA2019 only);
- c. Demolition Standards not referred to by the BCA;
- d. Work Health and Safety Act 2011;
- e. Requirements of Australian Standards unless specifically referred to;
- f. Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
- g. Conditions of Development Consent issued by the Local Consent Authority.

## 2.5 DESIGN DOCUMENTATION

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

### 3.0 Building Description

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

#### 3.1 RISE IN STOREYS (CLAUSE C1.2)

The building has a rise in storeys of four (4).

#### 3.2 CLASSIFICATION (CLAUSE A6.0)

The building has been classified as follows.

Table 1: Building Classification(s)

Class	Level	Description
2	Ground to third	Residential sole occupancy units and associated areas.
5/6	Ground	Retail/Commercial sole occupancy unit
7a	Basement	Car parking

#### 3.3 EFFECTIVE HEIGHT (CLAUSE A1.0)

The building has an effective height of 9.8 metres.

#### 3.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C1.1)

The building is required to be of Type A Fire Resisting Construction.

#### 3.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C2.2)

Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.	
Class 5	Maximum Floor Area	8 000m <sup>2</sup>
	Maximum Volume	48 000m <sup>3</sup>
Class 6, 7	Maximum Floor Area	5 000m <sup>2</sup>
	Maximum Volume	30 000m <sup>3</sup>

#### 3.6 FIRE COMPARTMENTS

The overall building is effectively a single fire compartment.

### 3.7 EXITS

The following points in the building have been considered as the exits:

- a. Basement stairs 1 & 2.
- b. Stair 1.
- c. Doors on ground floor providing direct egress to Raglan St.

### 3.8 CLIMATE ZONE (CLAUSE A1.0)

The building is located within Climate Zone 5.

### 3.9 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far boundary of

South: The far side boundary of Raglan Street.

East: The boundary with the adjoining allotment.

West: The boundary with the adjoining allotment.

In accordance with Clause 2.1 of Specification C1.1, a part of a building element is exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

- a. has an FRL of not less than 30/–/–; and
- b. is neither transparent nor translucent.

## 4.0 BCA Assessment

### 4.1 INTRODUCTION

The assessment undertaken is in relation to the plans prepared for the development consent application. The technical details required for a development consent are far less than that required for a construction certificate (CC) and as such, this assessment is designed to address a higher level assessment of the building against the provisions of the BCA.

The main purpose of this report is to address any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), or for the detailed design of services (Section E).

The summary below is to be read in conjunction with the BCA specification contained in Annexure F of the report.

### 4.2 RELATIONSHIP TO THE DESIGN AND BUILDING PRACTITIONERS ACT

The Design and Building Practitioners Act requires certain specified design to be certified by a Registered Practitioner and the issuing of a Design Compliance Declaration (DCD). The declared designs include:

- + Structure
- + Building Enclosure (e.g. Façade);
- + Fire Safety Systems (e.g. services, egress and FRL's)
- + Waterproofing
- + Fire Safety performance solutions

This report contains an assessment of the plans and specifications available, which are not sufficient in detail to allow any DCD to be issued by others. This report is not to be construed as, or used to support to a DCD at CC stage as it is based on development application drawings only.

### 4.3 FIRE RESISTANCE – SECTION C

The building is proposed to be constructed of reinforced concrete framework, masonry and lightweight materials. Subject to the required FRL's being provided, the proposed building can comply with the requirements of the BCA with respect to fire resistance. The required fire resisting elements are outlined in Annexure C of this report. The overall fire compartment of the building is within the limitations for Type A fire resisting construction.

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible. The external finishes schedule proposes various non-combustible materials as required. The various linings, materials and assemblies within the building are expected to readily achieve the required fire hazard indices.

Clause C2.6 of the BCA requires suitable vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. The plans indicate suitable spandrels are provided by a combination of horizontal balcony slabs and vertical walls beneath windows.

There are external walls of the building that are less than 3m from the boundaries and those openings less than 3m from the boundary will and can be fire protected as required by C3.4. The openings formed around the driveway, by the construction edge of the building, will be subject to fire engineering assessment at a later stage.

Appropriate wall location and provision has been made to ensure required fire separation is achieved so that residential units and egress arrangements are protected. Where necessary services penetrations, through fire resistant elements, can be suitably protected to maintain required ratings.

#### 4.4 OCCUPANT ACCESS AND EGRESS – SECTION D

Each storey of the building proposes a sufficient number of exits, including two separate exits from the basement level. Together with the required sprinkler system, the separate stairways have been arranged so that they can be non-fire isolated in terms of their arrangement. The exits are suitably distributed such that required travel distances are complied with.

The exits and paths of travel to them make suitable dimensional allowance to accommodate the intended occupants. Appropriate provision is made for the stairways and walkways to meet the construction requirements of this section. The exits suitable allow for discharge at ground level with connection to the street.

##### 4.4.1 Access for people with disabilities

The building is required to be accessible by persons with a disability, this has been assessed by others and forms part of a separate report.

#### 4.5 SERVICES AND EQUIPMENT – PART E1, E2 AND E4

The building is required to be provided with the services and equipment set out in Annexure B of this report. The annexure also outlines the standard of performance to be achieved by the services and equipment.

#### 4.6 LIFT INSTALLATIONS – PART E3

The lift does not require stretcher dimensions or fire service controls as it does not serve storeys above an effective height of 12m.

#### 4.7 HEALTH AND AMENITY – PART F

Clause F2.1 of the BCA requires the following facilities within a class 2 building:

- > Kitchen sink;
- > Bath or shower;
- > Closet pan;
- > Washbasin
- > Laundry facilities

The plans indicate that each of these facilities are provided within each sole occupancy unit and therefore compliance is achieved with Clause F2.1 of the BCA.

Appropriate provision for employees has been made by the installation of an accessible facility within the retail/commercial sole occupancy unit.

The ceiling heights have been assessed in accordance with Part F3 of the BCA which has indicated that compliance is readily achievable within all habitable spaces, corridors and the like.

Natural light and ventilation are required to all habitable rooms within a class 2 building. The plans have been assessed which reveals all habitable spaces are services by windows or glazed doors. For class 5/6 building artificial lighting and mechanical ventilation are required and these systems can be readily installed in the building.

The carpark is required to be provided with a system of mechanical ventilation where required by clause F4.11 of the BCA.

The construction of the building will need to meet the relevant sound insulation and condensation management requirements of this part. It is considered that this can be readily achieved.

#### 4.8 SECTION J – ENERGY EFFICIENCY

The building is subject the energy efficiency requirements of this section and the BASIX commitments. It is understood to be assessed by others and will be readily achievable.

## 5.0 Statement of Compliance

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia (BCA) and it is considered that such documentation complies or is capable of complying with that Code.

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance may not be achieved by the proposed design and site constraints. These matters may need to be addressed in a detailed Performance Solution and/or Fire Engineering Report, to be prepared for this development under separate cover:

*Table 2: Performance Solutions*

<i>Item</i>	<i>Description of Performance Solution</i>	<i>DTS Provision</i>
1.	The openings around the driveway, formed at the construction edge by the first floor overhang will not be protected as required by the DTS provisions. Protection will be formed by the wall bounding driveway on the western side.	C3.2
2.	To demonstrate that the construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	F1.0 (No DtS Provisions)



# *Annexures*

## Annexure A: Design Documentation

This report has been based on the following design documentation.

*Table 2: Architectural Plans*

<i>Architectural Plans Prepared by Carlisle Architects</i>		
<i>Drawing Number</i>	<i>Revision</i>	<i>Title</i>
DA-01	A	Site Plan Site Analysis
DA-02	A	Basement Plan
DA-03	A	Ground Floor Plan
DA-04	A	First Floor Plan
DA-05	A	Second Floor Plan
DA-06	A	Third Floor Plan
DA-07	A	Roof Plan
DA-08	A	Elevations & Materials Board
DA-09	A	Sections AA, BB
DA-10	A	Section CC Driveway Section
DA-20	A	Demolition Plan – GR Existing GR Level
DA-21	A	Demolition Plan L1 – Existing Level 1
DA-22	A	Demolition Plan L1 – Existing Level 2
DA-23	A	GFA Plans

### Annexure B - Essential Services

The following fire safety measures are required to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed.

Item	Essential Fire and Other Safety Measures	Standard of Performance
<b>Fire Resistance (Floors – Walls – Doors – Shafts)</b>		
1.	Access Panels & doors/hoppers (fire rated)	<p><b>BCA2019 C3.13</b> (Openings in Shafts)</p> <p><b>BCA2019 Spec C3.4</b></p> <p>AS 1905.1:2015 (Fire Resistant Doorsets)</p>
2.	Fire doors	<p><b>BCA2019 C2.12</b> (Separation of Equipment)</p> <p><b>BCA2019 C2.13</b> (Electricity Supply Systems)</p> <p><b>BCA2019 C3.4</b> (Acceptable methods of Protection)</p> <p><b>BCA2019 C3.10</b> (Opening in Fire Isolated Lift Shafts)</p> <p>AS1735.11- 1986</p> <p><b>BCA2019 C3.11</b> (Bounding Construction)</p> <p>Spec C3.4</p> <p>AS1905.1: 2015</p>
3.	Fire seals protecting openings in fire resisting components of the building	<p><b>BCA2019 C3.15</b> (Openings for service installations)</p> <p><b>BCA2019 C3.16</b> (Construction joints)</p> <p><b>BCA2019 Spec C3.15</b></p> <p>AS1530.4:2014 &amp; AS4072.1-2005</p>
4.	Fire shutters (Subject to design)	<p><b>BCA2019 C3.4</b> (Acceptable methods of protection)</p> <p><b>BCA2019 Spec. C3.4</b></p>

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS1905.2-2005
5.	Fire windows (Subject to design)	<b>BCA2019 C3.4</b> (Acceptable Methods of Protection) <b>BCA2019 Spec. C3.4</b>
6.	Lightweight construction	<b>BCA2019 C1.1, Spec. C1.1</b> <b>BCA2019 C1.8, Spec C1.8</b> AS1530.4:2014
<b>General</b>		
7.	Portable fire extinguishers	<b>BCA2019 E1.6</b> AS 2444–2001
8.	Warning & operational signs	<b>BCA2019 D3.6</b> (Braille Exit Signs) (Note: E4.5 (Exit Signs)) <b>BCA2019 E3.3</b> (Lift Signs)
<b>Electrical Services</b>		
9.	Automatic fire detection & alarm	<b>BCA2019 E2.2</b> , NSW Table E2.2a <b>Spec E2.2a</b> Spec E2.2a - Clause 3 (Smoke alarm system) Spec E2.2a - Clause 4 (Smoke detection system) Spec E2.2a - Clause 5 (Combined smoke alarm and smoke detection system) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018 (Fire)
10.	Emergency lighting	<b>BCA2019 E4.2, E4.4</b> AS/NZS 2293.1:2018
11.	Exit signs	<b>BCA2019 E4.5</b> (Exit Signs)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		<p><b>BCA2019 E4.6</b> (Direction Signs)</p> <p><b>BCA2019 E4.8</b> (Design and Operation - Exits)</p> <p>AS/NZS 2293.1:2018</p>
<b>Hydraulic Services</b>		
12.	Automatic fire suppression systems	<p><b>BCA2019 E1.5</b></p> <p><b>BCA2019 E1.5a</b></p> <p>AS 2118.1:2017 (Sprinklers)</p> <p>AS 2118.6:2012 (Combined Sprinklers/Hydrant)</p> <p>FPAA101H</p>
13.	Fire hydrant systems	<p><b>BCA2019 E1.3</b></p> <p><b>BCA2019 C2.12</b> (Separation of Equipment)</p> <p>AS 2419.1:2005</p>
14.	Fire hose reel systems (Carpark and Retail)	<p><b>BCA2019 E1.4</b></p> <p>AS 2441:2005</p>
15.	Wall-wetting sprinkler systems (Subject to design)	<p><b>BCA2019 C3.4</b></p>
<b>Mechanical Services</b>		
16.	Fire dampers	<p><b>BCA2019 E2.2, Spec E2.2a, Spec E2.2b</b></p> <p><b>BCA2019 C3.15</b></p> <p>AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 &amp; AS 1682.2:2015</p>
17.	Mechanical ventilation to carpark.	<p><b>BCA2019 E2.2, Table E2.2a</b></p> <p><b>Spec E2.2a</b></p> <p>AS 1668.1:2015 (Amdt 1)</p>

Item	Essential Fire and Other Safety Measures	Standard of Performance
		<p>Note: 5.5.3 Override control</p> <p>To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point.</p> <p>Note: Signage should be located at the car park entry indicating the location of the control switches.</p>
18.	<p><b>Performance Solutions</b></p> <p>Additional measures may be necessary as a result of fire safety engineering carried out at a later stage.</p>	

### Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

#### Type A Construction

Table 10. Type A Construction

Item	Class 2	Class 5, 7a	Class 6
Loadbearing External Walls (including columns and other building elements incorporated therein)			
Less than 1.5m to a fire-source feature	90/90/90	120/120/120	180/180/180
1.5 – less than 3m from a fire-source feature	90/60/60	120/90/90	180/180/120
3m or more from a fire-source feature	90/60/30	120/60/30	180/120/90
Non-Loadbearing External Walls			
Less than 1.5m to a fire-source feature	-/90/90	-/120/120	-/180/180
1.5 – less than 3m from a fire-source feature	-/60/60	-/90/90	-/180/120
3m or more from a fire-source feature	-/-/-	-/-/-	-/-/-
External Columns			
Loadbearing	90/-/-	120/-/-	180/-/-
Non-loadbearing	-/-/-	-/-/-	-/-/-
Common Walls & Fire Walls	90/90/90	120/120/120	180/180/180
Stair and Lift Shafts required to be fire-resisting			
Loadbearing	90/90/90	120/120/120	180/120/120
Non-loadbearing	-/90/90	-/120/120	-/120/120

<i>Item</i>	<i>Class 2</i>	<i>Class 5, 7a</i>	<i>Class 6</i>
Internal walls bounding sole occupancy units			
Loadbearing	90/90/90	120/-/-	180/-/-
Non-loadbearing	-/60/60	-/-/-	-/-/-
Internal walls bounding public corridors, public lobbies and the like:			
Loadbearing	90/90/90	120/-/-	180/-/-
Non-loadbearing	-/60/60	-/-/-	-/-/-
Ventilating, pipe, garbage and like shafts:			
Loadbearing	90/90/90	120/90/90	180/120/120
Non-loadbearing	-/90/90	-/90/90	-/120/120
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-	180/-/-
Floors	90/90/90	120/120/120	180/180/180
Roofs <sup>1</sup>	-	-	-

<sup>1</sup> The roof need not comply with any FRL's as it is non-combustible and serves only a Class 2 part.



## Annexure E – Definitions

### Effective height

Effective height means the vertical distance between the floor of the lowest storey included in a determination of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).

### Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

- a. the exterior of the building; or
- b. a non-conditioned space including—
  - i. the floor of a rooftop plant room, lift-machine room or the like; and
  - ii. the floor above a carpark or warehouse; and
  - iii. the common wall with a carpark, warehouse or the like.

### Exit

Exit means –

- a. Any, or any combination of the following if they provide egress to a road or open space—
  - i. An internal or external stairway.
  - ii. A ramp.
  - iii. A fire-isolated passageway.
  - iv. A doorway opening to a road or open space.
  - v. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

### Fire compartment

Fire compartment means –

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

### Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

- a. structural adequacy; and
- b. integrity; and
- c. insulation,

and expressed in that order.

Note: A dash means that there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for integrity and insulation, and –/–/– means there is no requirement for an FRL.

*Fire-source feature*

- a. the far boundary of a road, river, lake or the like adjoining the allotment; or
- b. a side or rear boundary of the allotment; or
- c. an external wall of another building on the allotment which is not a Class 10 building

*Performance Requirement*

Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

*Performance Solution*

Performance Solution means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

*Sole-occupancy unit*

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

- a. a dwelling; or
- b. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
- c. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
- d. a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

## Annexure F – BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

### Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements, including external walls and their components, must be non-combustible in accordance with C1.9 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
6. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C2.6 of BCA2019. It is noted that no spandrel separation is required in the stairway or to a void.
7. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.
8. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
9. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
10. Any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.
11. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 and C3.3 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
12. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.
13. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.
14. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C3.10 of BCA2019.
15. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.
16. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.
17. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry

which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.

18. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause 2.7 of Specification C1.1 of BCA2019.
19. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
20. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
21. The fire-isolated exits will be in accordance with Clause D1.7 of BCA2019.
22. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
23. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
24. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
25. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
26. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
27. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
28. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
29. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
30. The openable portion of a window in a bedroom of a Class 2 building will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of BCA2019. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.
31. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
32. Non-illuminated exit signage will be installed in accordance with Clause E4.7, and of BCA2019.
33. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
34. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
35. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.

36. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
37. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
38. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
39. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
40. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2019.
41. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
42. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
43. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
44. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
45. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
46. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
47. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2019.
48. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2019.
49. The construction of the residential portions of the development will be undertaken in accordance with the relevant BASIX commitments that form part of the Development Consent approval.
50. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
51. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
52. Glazing will be in accordance with Part J1 of BCA2019.
53. Building sealing will be in accordance with Part J3 of BCA2019.
54. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

#### **Electrical Services Design Certification:**

55. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
56. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
57. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.

58. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
59. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.
60. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.

#### **Hydraulic Services Design Certification:**

61. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
62. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
63. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
64. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5/E1.5a and appropriate part(s) of AS 2118.
65. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
66. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

#### **Mechanical Services Design Certification:**

67. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
68. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
69. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
70. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 or 4 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.
71. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 sole-occupancy unit, ventilation of the roof space will comply with Clause F6.4 of BCA2019.
72. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
73. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

#### **Structural Engineers Design Certification:**

74. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 as follows:
  - a. Dead and Live Loads – AS/NZS 1170.1:2002
  - b. Wind Loads – AS/NZS 1170.2:2011

- c. Earthquake actions – AS 1170.4:2007
  - d. Masonry – AS 3700:2018
  - e. Concrete Construction – AS 3600:2018
  - f. Steel Construction AS 4100:1998
  - g. Aluminium Construction – AS/NZS 1664.1 or 2:1997
  - h. Timber Construction – AS 1720.1:2010
  - i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
75. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 3 for a building of Type A Construction.
76. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.
77. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
78. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.
79. The concrete panel external walls will be in accordance with Specification C1.11 of BCA2019.

**Lift Services Design Certification:**

80. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.
81. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.

**Acoustic Services Design Certification:**

82. The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2019.