

BCA Compliance Assessment Report

323-327 Warringah Road, Frenchs Forest

Light Industrial / Warehouse Development

Date: 15th December 2022


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Executive Summary

This report provides an assessment of the proposed light industrial / warehouse development at 323-327 Warringah Rd, Frenchs Forest, against the relevant deemed-to-satisfy provisions of the current Building Code of Australia (BCA), excluding the accessibility provisions, which will be addressed by a separate Access Consultant.

The following table outlines the BCA compliance issues identified in the design that will require further information or consideration and/or assessment as Performance Solutions. These issues are further detailed in Part 3 of this report 'BCA Assessment Summary'. The design was found to be readily capable of compliance with the relevant deemed-to-satisfy provisions of the BCA, subject to the following issues being addressed.

Building Code of Australia compliance matters to be addressed		
Item	Description	BCA provision(s)
1.	<u>Exit travel distances</u> A performance solution will be required to address extended travel distances to exits at ground floor, first floor and second floor of the building.	D1.4
2.	<u>Distance between alternative exits</u> A performance solution will be required to permit the distance between exits required as alternative means of egress to be 89 m at first floor and second floor, in lieu of a maximum of 60 m.	D1.5
3.	<u>Travel by non-fire-isolated stairways</u> A performance solution will be required to permit the non-fire-isolated stairways serving as exits to the mezzanine offices to discharge at a level that is not the level of egress to road or <i>open space</i> .	D1.9
4.	<u>Fire hydrant booster assembly location</u> A performance solution will be required for the location of the fire hydrant booster assembly, which is proposed to be located within the landscaping fronting Warringah Road.	E1.3
5.	<u>Sprinkler system</u> A sprinkler system compliant with BCA Spec. E1.5 will be required to fire compartments that exceed a floor area of 2,000 m ² or a volume of 12,000 m ³ at first floor, or alternatively, BCA compliance to be addressed via a performance solution. (Viability of a performance solution to be discussed with the fire engineer.)	E1.5
6.	<u>Sanitary facility numbers</u> Details of the proposed sanitary facilities to satisfy the minimum sanitary facility numbers required under Clause F2.2 & F2.3, to be provided on the plans.	F2.2 & F2.3
7.	<u>Weatherproofing of external walls</u> As there are no Deemed-to-Satisfy Provisions for FP1.4 in relation to the weatherproofing of external walls, compliance must be achieved via a performance solution.	FP1.4

Building Code of Australia compliance matters to be addressed		
Item	Description	BCA provision(s)
8.	<u>BCA Specifications</u> The BCA provisions listed in Annexure A of this report as 'compliance readily achievable' (CRA) will need to be certified by the relevant party or included in the project plans/specifications at the Construction Certificate stage.	Various

1 Introduction

1.1 Location and Description

The development is located at 323-327 Warringah Road, Frenchs Forest, NSW. The works involve the construction of a light industrial / warehouse development, comprising 36 units with ancillary offices and on-site parking. Vehicular access to the site is provided from Rodborough Road via a right of way at the southern end of the allotment.

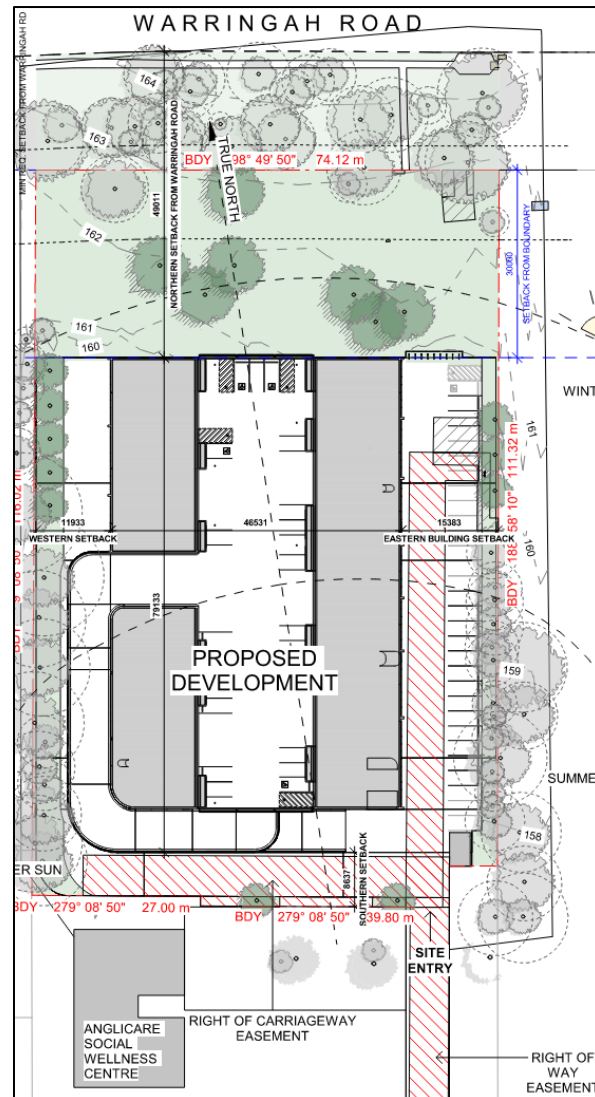


Figure 1: Excerpt from Site Plan

1.2 Purpose of the Report

Purpose of the Report is to provide a detailed assessment of the proposed design, as detailed on the design plans, against the deemed-to-satisfy provisions of the Building Code of Australia (BCA), excluding accessibility related provisions which will be addressed by a separate Access consultant.

1.3 Basis of the Report

This report is based on the design plans provided, as listed in Annexure B and the current version of Volume One of the National Construction Code, being the Building Code of Australia 2019 - Volume One, Amendment 1 (BCA2019).

1.4 Limitations of the Report

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

- a) the structural design of the building;
- b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to);
- c) the design of services, including electrical, mechanical ventilation, hydraulic, passenger lift or fire protection services;
- d) weatherproofing of external walls; or
- e) waterproofing details such as membrane systems, compatibility of materials, control joint designs, movement joint designs, flashing details or the like.

This report does not include, nor imply compliance with:

- a) the National Construction Code – Plumbing Code of Australia Volume 3;
- b) the Disability Discrimination Act 1992;
- c) the accessibility provisions of the BCA (Part D3 and Clauses E3.6 & F2.4)
- 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, Department of Planning and the like; or
- g) conditions of the Development Consent issued by the Local Consent Authority.

2 BCA Assessment Data

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

(Note: the terms identified by italics are defined terms under the BCA and their meanings can be found in Annexure C of this report.)

2.1 Building Classification

The building has been classified according to the proposed use, in accordance with BCA Clause A6.0, as follows:

Class	Level	Description
5	Ground floor mezzanine, first floor mezzanine & second floor mezzanine	Office
7a	Part ground floor, part first floor & part second floor	<i>Carpark</i> (all undercover carparking areas and <i>occupiable outdoor area</i> used for parking at second floor)
7b/8	Part ground floor, part first floor & part second floor	Warehouse (7b) / Industrial (8)

2.2 Building Rise in Storeys

The building has a *rise in storeys* of six (6), determined in accordance with BCA Clause C1.2.

2.3 Type of Construction

The building is required to be of **Type A** *fire-resisting construction*, determined in accordance with BCA Clause C1.1.

2.4 Effective Height

The building has an *effective height* of 17.017 metres.

2.5 Exits

The *exits* of the building are as follows:

Ground Floor

- > The swing doors from the warehouses, end of trip facility and fire pump room, opening to the external.

First Floor and Second Floor Mezzanine levels

- > Each stairway serving an office.

First Floor and Second Floor

- > Fire-isolated stairways FS1 and FS2.

2.6 Fire Compartments

Compliance with the maximum *fire compartment* sizes under BCA Table C2.2 is readily achievable by the floor slabs separating the building at first floor and second floor.

The design of the building's *fire compartments* will also be influenced by the requirements of Clause & Table E1.5 of the BCA, which requires a sprinkler system to be installed to any fire compartments that exceed a floor area of 2,000 m² or a volume of 12,000 m³. This is further discussed in Part 3 of this report.

2.7 Location of Fire-source Features

The *fire-source features* to which the building is exposed and their approximate distances from the building's external walls are as follows:

- North: The far boundary of Warringah Road (> 6 m)
- South: The rear/southern allotment boundary (7 m)
- East: The eastern side allotment boundary (15 m)
- West: The western side allotment boundary (12 m)

2.8 Climate Zone

For the purposes of Section J 'Energy Efficiency', the building is located within Climate Zone 5.

3 BCA Assessment Summary

As identified by the clause-by-clause assessment in Annexure A to this report, the following BCA compliance matters will require further design input and/or require amendment to the architectural design. The relevant BCA clause(s) to which each matter is related is shown in brackets.

3.1 Exit travel distances (Clause D1.4)

BCA Clause D1.4 requires no point on a floor to be more than 20 m from an *exit*, or a point from which travel in different directions to 2 *exits* is available, in which case the maximum distance to one of those *exits* must not exceed 40 m.

The exit travel distances exceed the maximum permitted by Clause D1.4 in the following areas:

Ground floor

- > The travel distance to the single exit from all warehouses is up to 30 m in lieu of the maximum of 20 m, noting that an occupant has not reached the exit until they are in open space (out from under the cover of the building). Refer to Figure 2 below.

First floor

- > The travel distance to a point of choice of exits is up to 22 m from the first-floor warehouses. (Refer to Figure 3 below).
- > The travel distance to an exit (the entry door of a fire-isolated exit stair) from Warehouses 12, 13, 18, 19, 20 & 21 is up to 49 m in lieu of a maximum of 40 m.

Second floor

- > The travel distance to a point of choice of exits is up to 22 m from the second-floor warehouses.
- > The travel distance to an exit (the entry door of a fire-isolated exit stair) from Warehouses 25, 26, 31, 32, 33 & 34 is up to 50 m in lieu of a maximum of 40 m.

The above travel distances do not take into account any future fitout works within the warehouses, which would make these distances even greater.

It is recommended that the excessive travel distances be addressed by a *performance solution*.

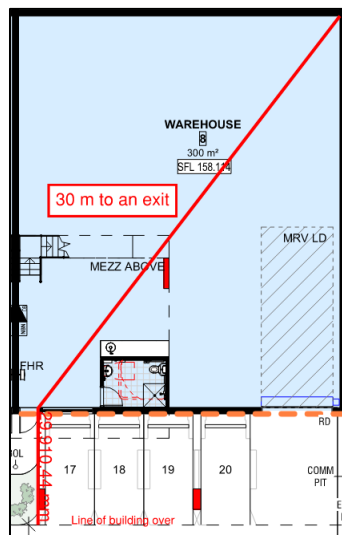


Figure 2: Example of travel distance from ground level warehouses to open space



Exits that are required as alternative exits, are required by Clause D1.5 to be no more than 60 m apart. The distance between alternative exits is up to 89 m on first floor and second floor, noting that the distance is measured through the point at which travel in different directions to alternative exits is available, in accordance with Clause D1.15.

Figure 4: Example of distance (shown in red) between alternative exits > 60 m

3.3 Travel by non-fire-isolated stairways (Clause D1.9)

A non-fire-isolated stairway serving as an exit, is required by Clause D1.9 to provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or *open space* is provided. The non-fire-isolated stairways serving the first-floor mezzanine level and second floor mezzanine level do not provide a continuous means of travel by their own flights and landings to the level of egress to road or *open space*. Instead, the stairs discharge to the first or second floor of the building where egress to road or open space is required via the fire-isolated exit stairways.

It is recommended that the above non-compliance with Clause D1.9 be addressed by a *performance solution*.

3.4 Fire hydrant booster assembly location (Clause E1.3)

The fire hydrant booster assembly is required to comply with Clause 7.3 of AS 2419.1-2005, including, if remote from the building, being:

- > located within sight of the main entrance of the building;
- > adjacent to the principal vehicular access to the site; and
- > located not less than 10 m from the external wall of the building served.

It is understood that the booster assembly will be located within the landscaped area fronting Warringah Road and the location addressed by a *performance solution*.

3.5 Sprinkler system (Clause E1.5)

Table E1.5 of the BCA requires a sprinkler system complying with Specification E1.5 to be installed to 'occupancies of excessive hazard' in *fire compartments* where either of the following apply:

- > A *floor area* of more than 2,000 m².
- > A volume more than 12,000 m³.

An 'occupancy of excessive hazard' includes the storage of combustible goods with an aggregate volume exceeding 1000 m³ and stored to a height greater than 4 m.

As the building, by its proposed use, is likely to constitute an 'occupancy of excessive hazard', a sprinkler system compliant with Specification E1.5 is required to *fire compartments* that exceed a *floor area* of **2,000 m²** or a volume of **12,000 m³**.

At the ground level of the building fire compartmentation less than the above limits is readily achievable by making the wall running north to south between the warehouses a *fire wall*, as shown in the figure below.

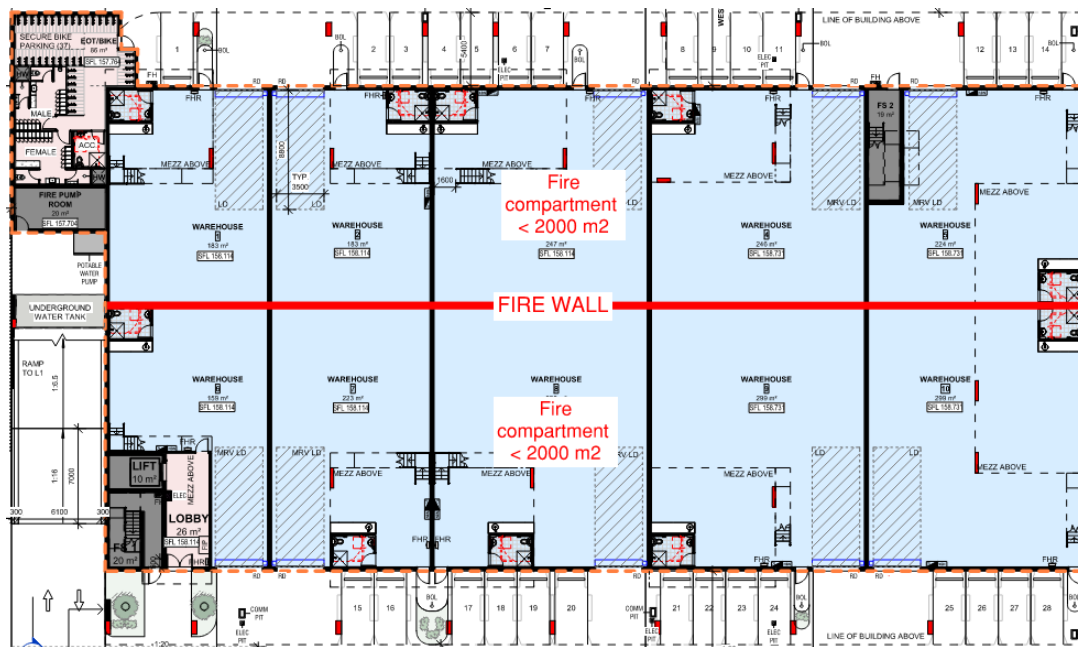


Figure 5: Recommended firewall separation at ground level

At first-floor level, the warehouses, mezzanine offices and undercover carpark form a single *fire compartment* that exceeds 2,000 m², due to the undercover carpark area (*open deck carpark*) not being excluded from the calculation of *fire compartment floor area*.

It is recommended that either sprinkler system be provided to these levels of the building in accordance with Clause E1.5, or that the design be discussed with a fire engineer (registered certifier – fire safety), to determine whether BCA compliance may be addressed via a *performance solution*, without the need for a sprinkler system.

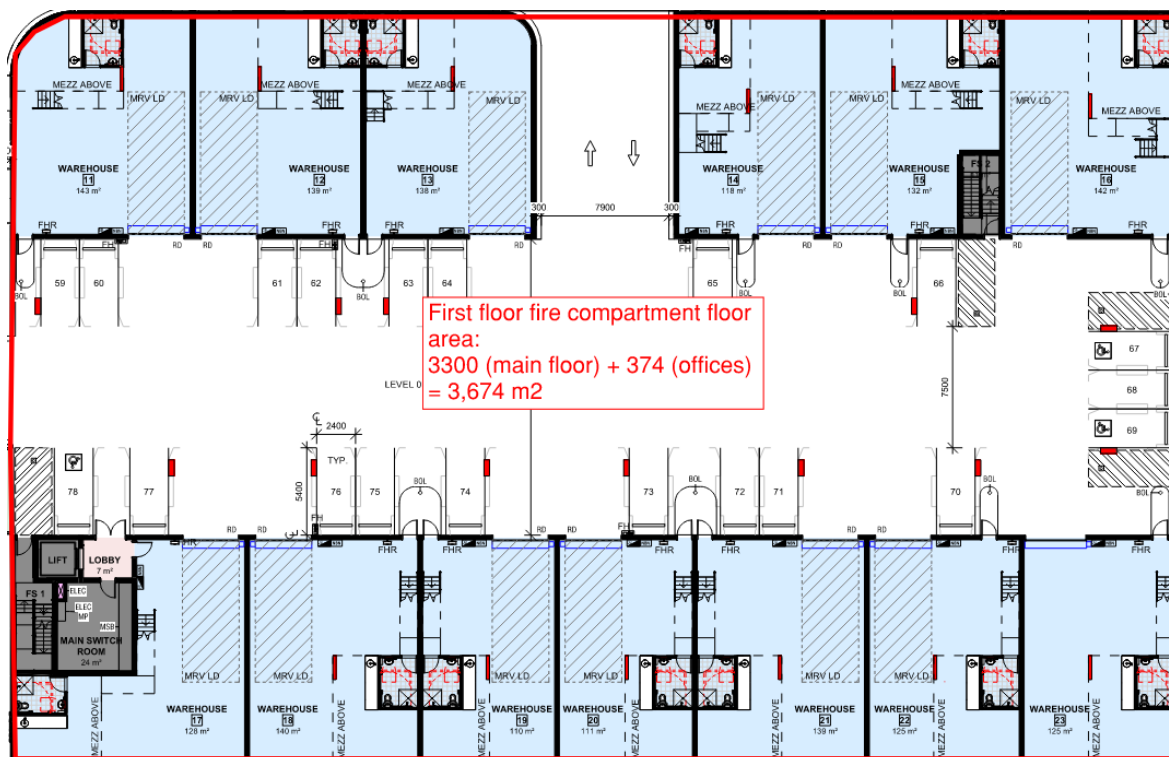


Figure 6: First floor level fire compartment > 2000m²

3.6 Weatherproofing of external walls (BCA FP1.4)

In accordance with Performance Requirement FP1.4, the construction of the external walls (including openings around windows and doors) must 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.

As there are no Deemed-to-Satisfy Provisions for this *Performance Requirement* in respect of external walls, compliance with FP1.4 must be demonstrated via a *performance solution*. The assessment contained within this report does not include an assessment against Performance Provision FP1.4.

3.7 BCA Specifications

In addition to the matters identified above, the BCA provisions listed in Annexure A of this report as 'CRA' (compliance readily achievable) will need to be certified by the relevant party or included in the project plans/specifications at the Construction Certificate stage.

4 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 FRLs

Item	Class 7b or 8
Loadbearing parts of External Walls (including columns and other building elements incorporated therein)	
> Less than 1.5 m to a fire- source feature	240/240/240
> 1.5 – less than 3 m from a fire-source feature	240/240/180
> 3 m or more from a fire source feature	240/180/90
Non-Loadbearing parts of External Walls	
> Less than 1.5 m to a fire-source feature	-/240/240
> 1.5 – less than 3 m from a fire-source feature	-/240/180
> 3 m or more from a fire-source feature	-/-/-
External Column not incorporated in an external wall	
> Loadbearing	240/-/-
> Non-loadbearing	-/-/-
Fire walls	240/240/240
Stair and lift shafts required to be fire-resisting	
> Loadbearing	240/120/120
> Non-loadbearing	-/120/120
Ventilating, pipe, garbage and like shafts	
> Loadbearing	240/120/120
> Non-loadbearing	-/120/120
Other loadbearing internal walls, beams trusses and columns	240/-/-
Floors	240/240/240
Roofs ^{Note 1}	240/90/60

Notes:

1. A roof need not comply with Table 3 if the covering is *non-combustible* and the building:
 - a. has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 installed throughout; or
 - b. the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes.

5 Proposed Fire Safety Schedule

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

Item	Fire Safety Measure	Standard of Performance
1.	Automatic sprinkler system (to fire compartments more than 2,000 m ² in floor area or 12,000 m ³ in volume)	BCA2019 Amdt 1 Clause E1.5, Specification E1.5 & AS 2118.1-2017
2.	Automatic fire detection and alarm system	BCA2019 Amdt 1 Clause 4 of Spec. E2.2a AS 1670.1:2018
3.	Building occupant warning system	BCA2019 Amdt 1 Clause 7 of Spec. E2.2a
4.	Emergency lighting	BCA2019 Amdt 1 Clauses E4.2 & AS/NZS 2293.1-2018
5.	Exit signs	BCA2019 Amdt 1 Clauses E4.5, E4.6, E4.8 & AS/NZS 2293.1-2018
6.	Fire dampers	BCA2019 Amdt 1 Clauses C3.15 & E2.2 AS/NZS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
7.	Fire doors	BCA2019 Amdt 1 Clauses: C3.8 (Openings in fire-isolated exits) C3.10 (Opening in fire isolated lift shafts) AS 1905.1-2015 & AS 1735.11-1986
8.	Fire hydrant system	BCA2019 Amdt 1 Clause E1.3 & AS 2419.1-2005
9.	Fire hose reel system	BCA2019 Amdt 1 Clause E1.4 & AS 2441-2005
10.	Fire seals protecting openings in fire-resisting components of the building	BCA2019 Amdt 1 Clause C3.15 (Openings for service installations) BCA2019 C3.16 (Construction joints) BCA2019 Spec. C3.15 AS1530.4:2014 & AS4072.1-2005
11.	Mechanical air-handling systems <ul style="list-style-type: none"> • Carpark ventilation system 	Clause 5.5 of AS 1668.1:2015 (Amdt 1)
12.	Portable fire extinguishers	BCA2019 Amdt 1 Clause E1.6 & AS 2444-2001
13.	Warning and operational signs	BCA2019 Amdt 1 D2.23 (fire doors)) BCA2019 Amdt 1 D3.6 (Braille Exit Signs) BCA2019 Amdt 1 E3.3 (Lift Signs)
14.	<i>Fire Engineering Report to be provided under separate cover</i>	

Annexure A - BCA Clause-by-Clause Assessment

The table on the following page provides a clause-by-clause assessment of the design against the applicable *deemed-to-satisfy provisions* of the BCA 2019, Amendment 1.

The following abbreviations have been used to indicate the compliance status:

NA	Not applicable – The deemed-to-satisfy clause is not applicable to the design
Complies	The design complies with the relevant parts of the deemed-to-satisfy clause
CRA	Compliance readily achievable – The design is consistent with the relevant deemed-to-satisfy clause, however strict compliance with the clause will need to be demonstrated by either certification by the appropriate party or by inclusion in the plans or specifications for the project at Construction Certificate stage.
DNC	Does Not Comply
PS	Performance Solution – BCA compliance is proposed or recommended to be achieved via a Performance Solution, in lieu of compliance with the subject deemed-to-satisfy clause.
Noted	The clause has been considered in the assessment, however, does not require any further design input.

BCA Clause-by-Clause Assessment Table

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
Part B - Structure			
B1.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
B1.1: Resistance to actions	The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions, where the most critical action has been determined in accordance with Part B1 of the BCA.	Structural Engineer to certify.	CRA
B1.2: Determination of individual actions	The magnitude of actions must be determined in accordance with BCA Clause B1.2.	Structural Engineer to certify.	CRA
B1.4: Determination of structural resistance of materials and forms of construction	<p>The structural resistance of materials and forms of construction must be determined in accordance with BCA Clause B1.4, including the following (as appropriate):</p> <ul style="list-style-type: none"> > Masonry – AS 3700-2018 as varied by BCA Clause B1.4 (a) > Concrete – AS 3600-2018 > Steel structures – AS 4100-1998 > Composite steel and concrete: AS/NZS 2327-2017 > Cold-formed steel structures – AS/NZS 4600-2018 > Piling – AS 2159-2009 > Glazed assemblies – AS 2047-2014 & AS 1288-2006 > Metal roofing – AS 1562.1-2018 	Structural Engineer / suitably qualified person to certify.	CRA
B1.5: Structural software	Not applicable	-	NA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
B1.6 Construction of buildings in flood hazard areas	Not applicable	-	NA
Part C1 – Fire resistance and stability			
C1.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
C1.1: Type of construction required	Each building is required to be of Type A construction in accordance with BCA Specification C1.1.	Refer to Spec. C1.1 below.	-
C1.2: Calculation of rise in storeys	<p>(a) The rise in <i>storeys</i> is the sum of the greatest number of <i>storeys</i> at any part of the external walls of the building and any <i>storeys</i> within the roof space—</p> <p>(i) above the finished ground next to that part; or</p> <p>(ii) if part of the external wall is on the boundary of the allotment, above the natural ground level at the relevant part of the boundary.</p> <p>(b) (not applicable)</p> <p>(c) In a Class 7 or 8 building, a <i>storey</i> that has an average internal height of more than 6 m is counted as—</p> <p>(i) one <i>storey</i> if it is the only <i>storey</i> above the ground; or</p> <p>(ii) 2 <i>storeys</i> in any other case.</p> <p>(d) For the purposes of calculating the rise in <i>storeys</i> of a building—</p> <p>(i) a <i>mezzanine</i> is regarded as a <i>storey</i> in that part of the building in which it is situated if its <i>floor area</i> is more than 200 m² or more than 1/3 of the <i>floor area</i> of the room, whichever is the lesser; and</p>	<p>The building has a rise in storeys of six.</p> <p>The rise in storeys of six is on the basis that the offices meet the definition of a <i>storey</i> and are not <i>mezzanines</i> as defined by the BCA and an internal height of more than 6 m on the upper floor, meaning the storey is counted as 2 storeys.</p>	Noted

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(ii) two or more <i>mezzanines</i> are regarded as a <i>storey</i> in that part of the building in which they are situated if they are at or near the same level and have an aggregate <i>floor area</i> more than 200 m ² or more than 1/3 of the <i>floor area</i> of the room, whichever is the lesser.		
C1.3: Buildings of multiple classification	Informational	-	NA
C1.4: Mixed Types of construction	Not applicable	-	NA
C1.5: Two Storey Class 2, 3 or 9c buildings	Not applicable	-	NA
C1.6: Class 4 Parts of building	Not applicable	-	NA
C1.7: Open spectator stands and indoor sports stadium	Not applicable	-	NA
C1.8: Lightweight construction	Not applicable	-	NA
C1.9: Non-combustible building elements	<p>(a) In a building required to be of Type A or B construction, the following building elements and their components must be <i>non-combustible</i>:</p> <p>(i) External walls, including all components incorporated in them including the facade covering, framing and insulation.</p> <p>(ii) The flooring and floor framing of lift pits.</p>	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<p>(iii) <i>Non-loadbearing</i> internal walls required to be fire-resisting.</p> <p>(b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is <i>non-loadbearing</i>, must be of <i>non-combustible</i> construction.</p> <p>(c) A <i>loadbearing</i> internal wall, including those that are part of a <i>loadbearing</i> shaft, must comply with Specification C1.1.</p> <p>(d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses.</p> <p>(e) The following materials, may be used wherever a <i>non-combustible</i> material is required:</p> <ul style="list-style-type: none"> (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) <i>Sarking-type materials</i> that do not exceed 1 mm in thickness and have a <i>Flammability Index</i> not greater than 5. (vii) Bonded laminated materials where— 		

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<p>(A) each lamina, including any core, is <i>non-combustible</i>; and</p> <p>(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</p> <p>(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.</p>		
C1.10: Fire hazard properties	<i>Fire hazard properties</i> of internal linings, materials and assemblies must comply with BCA Clause C1.10 and Specification C1.10.	-	CRA
C1.11: Performance of external walls in fire	Not applicable	-	NA
C1.12:	This clause has deliberately been left blank in the BCA.	-	NA
C1.13: Fire-protected timber: Concession	Not applicable	-	NA
C1.14: Ancillary elements	<p>An <i>ancillary element</i> must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be <i>non-combustible</i> unless it is one of the following:</p> <p>(a) An ancillary element that is non-combustible.</p> <p>(b) A gutter, downpipe or other plumbing fixture or fitting.</p> <p>(c) A flashing.</p>	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> (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— <ul style="list-style-type: none"> (i) achieves a group number of 1 or 2; and (ii) does not extend beyond one storey; and (iii) 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— <ul style="list-style-type: none"> (i) meets the relevant requirements of Table 4 of Specification C1.10 as for an internal element; and (ii) serves a storey— <ul style="list-style-type: none"> (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an <i>exit</i>, where it would render the <i>exit</i> unusable in a fire. (j) A part of a security, intercom or announcement system. 		

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(k) Wiring. (l) A paint, lacquer or a similar finish. (m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).		
Part C2 – Compartmentation and separation			
C2.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
C2.1: Application of Part	C2.2 does not apply to an <i>open-deck carpark</i> .	-	Noted
C2.2: General floor area and volume limitations	<p>The size of <i>fire compartments</i> in the building must not exceed that specified in Table C2.2.</p> <p>The relevant floor area and volume limits under Table C2.2 are:</p> <ul style="list-style-type: none"> > 5,000, m² in floor area; and > 30,000 m³ in volume. 	<p>Compliance with this clause is readily achieved by the floor slab separation at first floor level and second floor level, which will result in the following fire compartment sizes:</p> <ul style="list-style-type: none"> > Ground Floor and Ground Floor Mezzanine (approx. 3,140 m² in floor area & 15,000 m³ in volume) > First Floor and First Floor Mezzanine (approx. 3,700 m² in floor area & 18,400 m³ in volume) > Second Floor and Second Floor Mezzanine – each warehouse/mezz block is a separate fire compartment, with the largest having a floor area of approx. 1,080 m² and volume of approx. 5,500 m³) <p>Further fire compartmentation may be desirable to address the requirements of Clause E1.5 below regarding sprinkler systems.</p>	Complies

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
C2.3: Large isolated buildings	Not applicable	-	NA
C2.4: Requirements for open spaces and vehicular access	Not applicable	-	NA
C2.5: Class 9a and 9c Buildings	Not applicable	-	NA
C2.6: Vertical separation of openings in external walls	<p>Where the vertical projection of a window or other opening in an external wall falls no further than 450 mm outside an opening in the storey next below, the openings must be provided with vertical separation complying with Clause C2.6, that is:</p> <ul style="list-style-type: none"> > They must be protected with a 900mm high (<i>FRL 60/60/60</i>) spandrel extending at least 600mm above the separating slab, or > They must be provided with a 1.1m horizontal projection (<i>FRL 60/60/60</i>) also extending at least 450mm either side of the openings. <p>The above does not apply to:</p> <ul style="list-style-type: none"> > a building which has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 installed throughout. <p>For the purposes of this clause, window or other opening means that part of the external wall of a building that does not have an <i>FRL</i> of 60/60/60 or greater.</p>	-	CRA
C2.7: Separation by fire walls	Construction - A <i>fire wall</i> must be constructed in accordance with the following:	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> > Any openings in a <i>fire wall</i> must not reduce the <i>FRL</i> required by Specification C1.1 for the <i>fire wall</i>, except where permitted by the Deemed-to-Satisfy Provisions of Part C3. > Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or <i>sarking-type material</i>, must not pass through or cross the <i>fire wall</i> unless the required fire resisting performance of the <i>fire wall</i> is maintained. <p>Separation of <i>fire compartments</i> – A part of a building separated from the remainder of the building by a <i>fire wall</i> may be treated as a separate <i>fire compartment</i> if it is constructed in accordance with this clause and the <i>fire wall</i> extends to the underside of –</p> <ul style="list-style-type: none"> > a floor having an <i>FRL</i> required for a <i>fire wall</i>; or > the roof covering. 		
C2.8: Separation of classifications in the same storey	<p>If a building has parts of different classifications located alongside one another in the same storey—</p> <ul style="list-style-type: none"> > each building element in that storey must have the higher <i>FRL</i> prescribed in Specification C1.1 for that element for the classifications concerned; or > the parts must be separated in that storey by a <i>fire wall</i> having the higher <i>FRL</i> prescribed in Table 3. 	It is recommended that the higher Class 7b/8 <i>FRLs</i> be applied throughout rather than providing <i>fire wall</i> separation between the classifications.	CRA
C2.9: Separation of classifications in different storeys	A floor separating storeys of different classifications must have an <i>FRL</i> of not less than that prescribed in Specification C1.1 for the classification of the lower <i>storey</i> .	Floors must achieve an <i>FRL</i> of not less than 240/240/240.	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
C2.10: Separation of lift shafts	The passenger lift must be separated from the remainder of the building by enclosure in a fire-rated shaft achieving an <i>FRL</i> prescribed by Table 3 of Specification C1.1.	The passenger lift shaft must achieve an FRL of not less than 240/120/120.	CRA
C2.11: Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	-	Complies
C2.12: Separation of equipment	<p>(a) Equipment other than that described in (b) and (c) must be separated from the remainder of the building with construction complying with (d), if that equipment comprises—</p> <ul style="list-style-type: none"> (i) lift motors and lift control panels; or (ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or (iii) central smoke control plant; or (iv) boilers; or (v) a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. <p>(b) Equipment need not be separated in accordance with (a) if the equipment comprises—</p> <ul style="list-style-type: none"> (i) smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or (ii) stair pressurising equipment installed in compliance with the relevant provisions of AS 1668.1; or (iii) a lift installation without a machine-room; or 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> (iv) equipment otherwise adequately separated from the remainder of the building. (c) Separation of on-site fire pumps must comply with the requirements of AS 2419.1. (d) Separating construction must have— <ul style="list-style-type: none"> (i) except as provided by (ii)— <ul style="list-style-type: none"> (A) an FRL as required by Specification C1.1, but not less than 120/120/120; and (B) any doorway protected with a self-closing fire door having an FRL of not less than –/120/30; or (ii) when separating a lift shaft and lift motor room, an FRL not less than 120/–/–. 		
C2.13: Electricity supply system	<ul style="list-style-type: none"> (a) (not applicable) (b) A main switchboard located within the building which sustains emergency equipment operating in the emergency mode must— <ul style="list-style-type: none"> (i) be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and (ii) have any doorway in that construction protected with a self-closing fire door having an FRL of not less than –/120/30. (c) Electrical conductors located within a building that supply— <ul style="list-style-type: none"> (i) a substation located within the building which supplies a main switchboard covered by (b); or 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> (ii) a main switchboard covered by (b), must— (iii) have a classification in accordance with AS/NZS 3013 of not less than— <ul style="list-style-type: none"> (A) if located in a position that could be subject to damage by motor vehicles — WS53W; or (B) otherwise — WS52W; or (iv) be enclosed or otherwise protected by construction having an FRL of not less than 120/120/120. (d) Where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment, must be constructed so that emergency equipment switchgear is separated from non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear. (e) For the purposes of (d), emergency equipment includes but is not limited to the following: <ul style="list-style-type: none"> (i) Fire hydrant booster pumps. (ii) Pumps for automatic sprinkler systems, water spray, chemical fluid suppression systems or the like. (iii) Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building. (iv) Air handling systems designed to exhaust and control the spread of fire and smoke. 		

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(v) Control and indicating equipment. (vi) Emergency warning and intercom systems.		
C2.14: Public corridors in Class 2 and 3 Buildings	Not applicable	-	NA
Part C3 – Protection of openings			
C3.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
C3.1: Application of Part	Informational	-	Noted
C3.2: Protection of openings in external walls	Not applicable	-	NA
C3.3: Separation of external walls and associated openings in different fire compartments	The distance between parts of external walls and any openings within them in different fire compartments separated by a fire wall must not be less than that set out in Table C3.3, unless— (a) those parts of each wall have an FRL not less than 60/60/60; and (b) any openings protected in accordance with C3.4.	-	Complies
C3.4: Acceptable methods of protection	Fire doors must comply with BCA Specification C3.4.	-	CRA
C3.5: Doorways in fire walls	Not applicable	-	NA
C3.6: Sliding fire doors	Not applicable	-	NA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
C3.7: Protection of doorways in horizontal exits	Not applicable	-	NA
C3.8: Openings in fire-isolated exits	Doorways that open to the 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.	-	CRA
C3.9: Service penetrations in fire-isolated exits	<p>Fire isolated <i>exits</i> must not be penetrated by any services other than:</p> <ul style="list-style-type: none"> > electrical wiring associated with: <ul style="list-style-type: none"> ○ a lighting, detection, or pressurization system serving the exit; or ○ a security, surveillance or management system serving the exit; or ○ an intercommunication system or an audible or visual alarm system in accordance with D2.22; or ○ the monitoring of hydrant or sprinkler isolating valves. > water supply pipes for fire services. 	-	CRA
C3.10: Openings in fire-isolated lift shafts	<ul style="list-style-type: none"> > Lift landing doors are required to be fire doors with an FRL of –/60/- that comply with AS 1735.11:1986 and are set to remain closed except when discharging or receiving passengers. > A panel in the wall of the lift shaft must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35 000 mm² in area. 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	Not applicable	-	NA
C3.12: Openings in floors and ceilings for services	Where services pass through a floor which is required to achieve a fire-resistance level, the service must be enclosed within a fire resisting shaft or fire protected in accordance with Clause C3.15.	-	CRA
C3.13: Openings in shafts	Openings in shafts must be protected by: (a) if it is in a sanitary compartment – a door or panel which together with its frame, is non-combustible or has an FRL of not less than –/30/30; or (b) a self-closing –/60/30 fire door or hopper; or (c) an access panel having an FRL of not less than –/60/30.	-	CRA
C3.15: Openings for service installations	Where services pass through an element (other than an external wall or roof), which is required to achieve an <i>FRL</i> , the service must be fire protected in accordance with BCA Clause C3.15.	-	CRA
C3.16: Construction joints	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 AS 1530.4:2014 to achieve the required <i>FRL</i> .	-	CRA
C3.17: Columns protected with lightweight construction to achieve an FRL	Not applicable	-	NA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
Specification C1.1 – Fire-resisting construction			
1: Scope	Informational	-	Noted
2.1: Exposure to fire-source features	Informational	-	Noted
2.2: Fire protection for a support of another part	<p>Where a part of a building required to have an <i>FRL</i> depends upon direct vertical or lateral support from another part to maintain its <i>FRL</i>, that supporting part must have an <i>FRL</i> not less than that required by other provisions of this Specification; and if located within the same <i>fire compartment</i> as the part it supports have an <i>FRL</i> in respect of structural adequacy the greater of that required for the supporting part itself and for the part it supports.</p> <p>The above does not apply to:</p> <ul style="list-style-type: none"> > an element providing lateral support to a <i>fire wall</i> provided the wall is supported on both sides and failure of the element on one side does not affect the fire performance of the wall; or > an element providing lateral support to an external wall complying with Clause C1.11; or > a roof providing lateral support. 	-	Noted
2.3: Lintels	<p>A lintel must have the <i>FRL</i> required for the part of the building in which it is situated unless it does not contribute to the support of a fire door and it spans an opening in masonry which is not more than 150 mm thick and—</p> <ul style="list-style-type: none"> > not more than 3 m wide if the masonry is non-loadbearing; or 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	> not more than 1.8 m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall.		
2.4: Attachments not to impair fire-resistance	The method of attaching or installing a finish, lining, <i>ancillary element</i> or service installation to a fire-rated building element must not reduce the fire-resistance of that element to below that required.	-	CRA
2.5: General concessions	Not applicable	-	NA
2.6: Mezzanine floors: Concession	Not applicable	-	NA
2.7: Enclosure of shafts	Fire rated shafts must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building, except that this provision need not apply to– > the top of a shaft extending beyond the roof covering, other than one enclosing a fire-isolated stairway; or > the bottom of a shaft if it is <i>non-combustible</i> and laid directly on the ground.	-	CRA
2.8: Carparks in Class 2 and 3 Buildings	Not applicable	-	NA
2.9: Residential Aged Care	Not applicable	-	NA
3.0: Type A Fire-Resisting Construction			
3.1: Fire-resistance of building elements	> Building elements must comply with the fire resistance levels (FRLs) set out in Table 3 of Specification C1.1.	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	> <i>Loadbearing</i> internal walls must be of concrete or masonry.		
3.2: Concessions for floors	Floors laid directly on the ground need not comply with Table 3 i.e. need not achieve an FRL.	-	Noted
3.3: Floor Loading of Class 5 and 9b buildings: Concession	Not applicable	-	NA
3.4: Roof superimposed on concrete slab: Concession	Not applicable	-	NA
3.5: Roof: Concession	A roof need not comply with Table 3 if its covering is non-combustible and the building— (a) has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 installed throughout; or (b) has an <i>effective height</i> of not more than 25 m and the ceiling immediately below the roof has a <i>resistance to the incipient spread of fire</i> to the roof space of not less than 60 minutes.	-	Noted
3.6: Roof lights	Not applicable	-	NA
3.7: Internal columns and walls: Concession	For a building with an <i>effective height</i> of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the <i>storey</i> immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and internal walls other than <i>fire walls</i> and <i>shaft</i> walls may have FRL 60/60/60.	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
3.8: Open spectator stands and indoor sports stadiums concession	Not applicable	-	NA
3.9: Carparks	Not applicable	-	NA
3.10: Class 2 and 3 buildings Concession	Not applicable	-	NA
Part D1 – Provision for escape			
D1.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
D1.1: Application of Part	Not applicable	-	NA
D1.2: Number of exits required	Every occupant must have access to at least one exit.	-	Complies
D1.3: When fire-isolated stairways and ramps are required	Every stairway or ramp serving as a required exit must be fire-isolated unless it connects, passes through or passes by not more than 2 consecutive <i>storeys</i> and one extra storey may be included if the building has a sprinkler system (other than an FPAA101D system) complying with Specification E1.5 installed throughout.	The exit stairs that pass my more than 2 consecutive storeys are indicated as fire-isolated, as required by this clause.	Complies
D1.4: Exit travel distances	No point on a floor must be more than 20 m from an <i>exit</i> , or a point from which travel in different directions to 2 <i>exits</i> is available, in which case the maximum distance to one of those <i>exits</i> must not exceed 40 m.	<p>The exit travel distances exceed the maximum permitted by Clause D1.4 in the following areas:</p> <p><u>Ground floor</u></p> <p>> The travel distance to the single exit from all warehouses is up to 30 m in lieu of the maximum of 20 m, noting that an occupant has not reached the</p>	PS

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
		<p>exit until they are in <i>open space</i> (out from under the cover of the building).</p> <p><u>First floor</u></p> <ul style="list-style-type: none"> > The travel distance to a point of choice of exits is up to 22 m from the first floor warehouses. > The travel distance to an exit (the entry door of a fire-isolated exit stair) from Warehouses 12, 13, 18, 19, 20 & 21 is up to 49 m in lieu of a maximum of 40 m. <p><u>Second floor</u></p> <ul style="list-style-type: none"> > The travel distance to a point of choice of exits is up to 22 m from the second floor warehouses. > The travel distance to an exit (the entry door of a fire-isolated exit stair) from Warehouses 25, 26, 31, 32, 33 & 34 is up to 50 m in lieu of a maximum of 40 m. <p>It is recommended that the above exit travel distances be addressed by a <i>performance solution</i>.</p>	
D1.5: Distance between alternative exits	Exits that are required as alternative exits must be no less than 9 m apart and no more than 60 m apart.	<p>The distance between alternative exits is up to 89 m on first floor and second floor.</p> <p>Note: this distance is measured through the point at which travel in different directions to alternative exits is available, in accordance with Clause D1.15.</p> <p>It is recommended that compliance be addressed by a <i>performance solution</i>.</p>	PS

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
D1.6: Dimensions of exits and paths of travel to exits	<p>In a required <i>exit</i> or path of travel to an <i>exit</i>—</p> <ul style="list-style-type: none"> > the unobstructed height throughout exits and paths of travel to exits must not be less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and > the unobstructed width of each exit or path of travel to an exit, except for doorways must be not less than 1m; > the unobstructed width of doorways must be not less than 750 mm. 	-	CRA
D1.7: Travel via fire-isolated exits	<ul style="list-style-type: none"> > D1.7 (a) - A doorway from a room must not open directly into a stairway that is required to be fire-isolated unless it is from — <ul style="list-style-type: none"> ○ a public corridor, public lobby or the like; or ○ a sole-occupancy unit occupying all of a storey; or ○ a sanitary compartment, airlock or the like. > D1.7 (b) - Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— <ul style="list-style-type: none"> ○ to a road or open space; or ○ to a point— <ul style="list-style-type: none"> ▪ in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and 	-	Complies

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> ▪ from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or ○ into a covered area that— <ul style="list-style-type: none"> ▪ adjoins a road or open space; ▪ and is open for at least 1/3 of its perimeter; and ▪ has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and ▪ provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m. 		
D1.8: External stairways or ramps in lieu of fire-isolated exits	Not applicable	-	NA
D1.9: Travel by non-fire-isolated stairways or ramps	<p>(a) A non-fire-isolated stairway must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or <i>open space</i> is provided.</p> <p>(b) (not applicable)</p> <p>(c) In a Class 5, 6, 7, 8 or 9 building, the distance from any point on a floor to a point of egress to a road or <i>open space</i> by way of a required non-fire-isolated stairway must not exceed 80 m.</p> <p>(d) (not applicable)</p>	Contrary to parts (a) and (e) of this clause, the non-fire-isolated stairways serving the first-floor mezzanine level and second floor mezzanine level do not provide a continuous means of travel by their own flights and landings to the level of egress to road or <i>open space</i> . Instead, the stairs discharge to the first or second floor of the building where egress to road or open space is required via the fire-isolated exit stairways.	PS

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<p>(e) In a Class 5 to 8 or 9b building, a required non-fire-isolated stairway must discharge at a point not more than—</p> <p>(i) 20 m from a doorway providing egress to a road or <i>open space</i> or from a fire-isolated passageway leading to a road or <i>open space</i>; or</p> <p>(ii) 40 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway is in opposite or approximately opposite directions.</p>		
D1.10: Discharge from exits	<ul style="list-style-type: none"> > An exit 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. > If a required <i>exit</i> leads to open space, the path of travel to the road must have an unobstructed width of not less than 1m. > If an <i>exit</i> discharges to open space that is at a different level that the public road to which it is connected, the path of travel to the road must be by a ramp or other incline not steeper than 1:8, or a BCA compliant stairway. 	Bollards or the like to be provided outside of the discharge doors of the fire-isolated exits at ground level to prevent vehicles blocking the exit.	CRA
D1.11: Horizontal exits	Not applicable	-	NA
D1.12: Non-required stairways, ramps or escalators	Not applicable	-	NA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
D1.13: Number of persons accommodated	The number of persons accommodated in a storey or room must be determined in accordance with Table D1.13 or any other suitable means of assessing its capacity.	Based on the floor area of the building and Table D1.13, subtracting the area set aside for corridors and stairways, the total population has been calculated to be 300 people.	Noted
D1.14: Measurement of distances	The nearest part of an <i>exit</i> means in the case of— (a) a <i>fire-isolated stairway</i> or <i>fire-isolated passageway</i> , the nearest part of the doorway providing access to them; and (b) a <i>non-fire-isolated stairway</i> , the nearest part of the nearest riser; and (c) a doorway opening to a road or <i>open space</i> , the nearest part of the doorway.	-	Noted
D1.15: Method of Measurement	Informational – clause describes how travel distances are measured.	-	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Not applicable	-	NA
D1.17: Access to lift pits	Access to the lift pit must be via the lowest landing doors.	-	CRA
D1.18: Egress from early childhood centres	Not applicable	-	NA
Part D2 – Construction of exits			
D2.0: Deemed-to-Satisfy Provisions	Informational	-	Noted

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
D2.1: Application of Part	Informational	-	Noted
D2.2: Fire-isolated stairways and ramps	Fire-isolated stairways (including landings) must be constructed— (a) of non-combustible materials; and (b) so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of, the shaft.	-	CRA
D2.3: Non-fire-isolated stairways and ramps	Non-fire-isolated stairways (including landings and any supporting building elements) must be constructed according to D2.2, or only of- (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (d) has a finished thickness of not less than 44 mm; and (e) has an average density of not less than 800 kg/m ³ at a moisture content of 12%; and (f) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue".	-	CRA
D2.4: Separation of rising and descending stair flights	Not applicable	-	NA
D2.5: Open access ramps and balconies	Not applicable	-	NA
D2.6: Smoke lobbies	Not applicable	-	NA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
D2.7: Installations in exits and paths of travel	<ul style="list-style-type: none"> > Access to service shafts and services other than to fire-fighting or detection equipment as permitted in the deemed-to-satisfy provisions of Section E, must not be provided from a fire-isolated stairway. > Gas or other fuel services must not be installed in a required <i>exit</i>. > Any electricity distribution boards, ducts or equipment installed in corridors leading to an exit must be enclosed with <i>non-combustible</i> construction or a <i>fire-protective covering</i> with doorways suitably sealed against smoke spread. > Electrical wiring may be installed in a fire-isolated <i>exit</i> if the wiring is associated with: <ul style="list-style-type: none"> ○ a lighting, detection, or pressurization system serving the <i>exit</i>; or ○ a security, surveillance or management system serving the <i>exit</i>; or ○ an intercommunication system or an audible or visual alarm system in accordance with D2.22; or ○ the monitoring of hydrant or sprinkler isolating valves. 	-	CRA
D2.8: Enclosure of space under stairs and ramps	<ul style="list-style-type: none"> > The space under the fire-isolated stairways within the shaft must not be enclosed to form a cupboard or similar enclosed space. > The space below a required non fire-isolated stairway must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	have an FRL of not less than 60/60/60 and the doorway is fitted with a self-closing –/60/30 fire door.		
D2.9: Width of stairways and ramps	Not applicable	-	NA
D2.10: Pedestrian ramps	Not applicable	-	NA
D2.11: Fire-isolated passageways	Not applicable	-	NA
D2.12: Roof as open space	Not applicable	-	NA
D2.13: Goings and risers	<p>Stairways must comply with the following:</p> <ul style="list-style-type: none"> > Goings must be between 250 mm and 355 mm; > Risers must be between 115 mm high and 190 mm high; > The slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; > The goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between– <ul style="list-style-type: none"> ○ adjacent risers, or between adjacent goings, is no greater than 5 mm; and ○ the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm. > Risers must not contain any openings that would permit a 125 mm sphere to pass through between the treads. 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status												
	<p>> Treads must have a surface or nosing strip with a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with AS 4586-2013 Slip resistance classification of new pedestrian surface materials.</p>														
D2.14: Landings	<p>Stairway landings must have a gradient no steeper than 1:50 and either a surface with a slip-resistance classification complying with Table D2.14 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.</p> <table><tr><th colspan="3">Surface Condition</th></tr><tr><th>Application</th><th>Dry</th><th>Wet</th></tr><tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr></table>	Surface Condition			Application	Dry	Wet	Tread or landing surface	P3 or R10	P4 or R11	Nosing or landing edge strip	P3	P4	-	CRA
Surface Condition															
Application	Dry	Wet													
Tread or landing surface	P3 or R10	P4 or R11													
Nosing or landing edge strip	P3	P4													
D2.15: Thresholds	<p>The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless–</p> <p>(a) in a building required to be accessible, the doorway–</p> <p>(i) opens open space; and</p> <p>(ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1:2009; or</p> <p>(b) in other cases–</p> <p>(i) the doorway opens to a road or open space, external stair landing or external balcony; and</p>	-	CRA												

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(ii) the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.		
D2.16: Barriers to prevent falls	<p>A continuous barrier must be provided along the side of the stairways and balconies where the trafficable surface is 1 m or more above the surface beneath. The barrier must comply with the following:</p> <p><u>Barrier minimum heights</u></p> <ul style="list-style-type: none"> > 865 mm above stair nosings; and > 1 m in all other locations. <p>Note: a transition zone may be incorporated where the barrier height changes from 865 mm on a stair flight to 1m at landings.</p> <p><u>Barrier openings – carpark barriers</u></p> <ul style="list-style-type: none"> > A 125 mm sphere must not be able to pass through any opening and for stairways, the 125 mm is measured above the nosing line of the stair treads. <p><u>Barrier openings – fire-isolated stairways and Class 7 & 8</u></p> <ul style="list-style-type: none"> > A 300 mm sphere must not be able to pass through any opening; or > where rails are used– <ul style="list-style-type: none"> ○ a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the landing, balcony or the like: and 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> ○ the opening between rails must not be more than 460 mm. <p><u>Climbability – carpark barriers</u></p> <ul style="list-style-type: none"> > For floors more than 4 m above the surface beneath, any horizontal or near horizontal elements between 150 mm and 760 mm above the floor must not facilitate climbing. 		
D2.17: Handrails	<p>Handrails to stairways must be–</p> <ul style="list-style-type: none"> > located along at least one side of each stair flight; and > fixed at a height of not less than 865 mm above the nosings of the stair treads; and > continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand-hold; and > comply with clause 12 of AS 1428.1-2009. 	-	CRA
D2.18: Fixed platforms, walkways stairways and ladders	Not applicable	-	NA
D2.19: Doorways and doors	A power-operated door in a path of travel to a required exit, must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source.	-	CRA
D2.20: Swinging doors	Swinging exit doors must swing in the direction of egress.	-	Complies
D2.21: Operation of latch	All exit doors and doors in a path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by–	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> (i) a single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor and – (ii) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and (iii) 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 and not more than 45mm; or (iv) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. 		
D2.22: Re-entry from fire-isolated exits	Not applicable	-	NA
D2.23: Signs on doors	<ul style="list-style-type: none"> > The entry doors to the fire-isolated exits must be provided with signage on the side of the doors that faces a person seeking egress, stating: "FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN" > The discharge door from the fire-isolated exits at ground level must be provided with the following signage on both sides of the door: "FIRE SAFETY DOOR – DO NOT OBSTRUCT" > The above signage must be in capital letters not less than 20mm in height, contrasting with the background. 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	Note: Fire signage in accordance with clause 183 of the Environmental Planning and Assessment Regulation 2000 is also required.		
D2.24: Protection of openable windows	A barrier with a height not less than 865 mm above the floor is required to an openable window, where the floor below the window is 4m or more above the surface beneath. The barrier must not– (i) permit a 125 mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.	-	CRA
D2.25: Timber stairways: Concession	Not applicable	-	NA
Part D3 Access for people with a disability – refer to report by separate Access Consultant			
Part E1 Fire-fighting equipment			
E1.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
E1.3: Fire hydrants	A fire hydrant system must be provided to the building. The fire hydrant system must be in accordance with AS 2419.1-2005, as varied by Clause E1.3.	Further details of the fire hydrant system, including fire hydrant locations in accordance with AS 2419.1-2005 will be required at the Construction Certificate stage. A performance solution is proposed in relation to the location of the fire hydrant booster assembly.	FI & PS
E1.4: Fire hose reels	A fire hose reel system complying with BCA Clause E1.4 and AS 2441-2005 must be provided to serve the building.	-	CRA
E1.5: Sprinklers	In accordance with Table E1.5, a sprinkler system complying with Specification E1.5 must be installed to	A sprinkler system compliant with Specification E1.5 is required to <i>fire compartments</i> that exceed the floor area	FI

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<p>'occupancies of excessive hazard' in <i>fire compartments</i> where either of the following apply:</p> <ul style="list-style-type: none"> > A <i>floor area</i> of more than 2,000 m². > A volume more than 12,000 m³. <p>An 'occupancy of excessive hazard' is described in full in Note 4 to Table E1.5 and includes the storage of combustible goods with an aggregate volume exceeding 1000 m³ and stored to a height greater than 4 m.</p>	<p>or volume limitations of this clause, or BCA compliance addressed via a <i>performance solution</i>.</p> <p>Further details are required of the proposed fire compartmentation and whether it is intended to install a sprinkler system.</p>	
E1.6: Portable fire extinguishers	Portable fire extinguishers must be provided in accordance with Table E1.6 of the BCA and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444-2001.	-	CRA
E1.8: Fire control centres	Not applicable	-	NA
E1.9: Fire precautions during construction	<p>(a) During construction, not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required / temporary exit.</p> <p>(b) After the building has reached an effective height of 12 m—</p> <ul style="list-style-type: none"> (i) the required fire hydrants and fire hose reels must be operational in at least every storey that is covered by the roof or the floor structure above, except the 2 uppermost storeys; and (ii) any required booster connections must be installed. 	-	CRA
E1.10: Provision for special hazards	Not applicable	-	NA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
Specification E1.5 Fire sprinkler systems			
1. Scope	Informational	-	Noted
2. Application of automatic fire sprinkler standards	Subject to Specification E1.5, an automatic fire sprinkler system must comply with AS2118.1-2017.	-	CRA
3. Separation of sprinklered and non-sprinklered areas	Where a part of a building is not protected with sprinklers, the sprinklered and non-sprinklered parts must be fire-separated with a wall or floor which must – <ul style="list-style-type: none"> > comply with any specific requirement of the Deemed-to-Satisfy Provisions of the BCA; or > where there is no specific requirement, comply with the relevant part of AS 2118. 	-	CRA
4. Protection of openings	Any openings, including those for service penetrations, in construction separating sprinklered and non-sprinklered parts of a building, including the construction separating the areas nominated for omitted protection in AS 2118.1:2017, must be protected in accordance with the Deemed-to-Satisfy Provisions of Part C3.	-	CRA
5. Fast response sprinklers	Fast response sprinklers may be installed only if they are suitable for the type of application proposed and it is demonstrated that the sprinkler system is designed to accommodate their use.	-	Noted
6. Sprinkler valve enclosures	Sprinkler alarm valves must be located in a secure room or enclosure which has direct egress to a road or open space. All sprinkler valve rooms and enclosures must be secured with a system suitable for use by the fire brigade.	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
7. Water supply	A required sprinkler system must be provided with at least one water supply.	-	CRA
8. Building occupant warning system	A required sprinkler system must be connected to and activate a building occupant warning system complying with Clause 7 of Specification E2.2a.	-	CRA
9. Connection to Other Systems	Not applicable	-	NA
10. Anti-tamper Devices	Not applicable	-	NA
11. Sprinkler Systems in Carparks	Not applicable	-	NA
12. Residential Care Buildings	Not applicable	-	NA
13. Sprinkler systems in lift installations	<p>(a) Where sprinklers are installed in a space housing lift electrical and control equipment, including machine rooms, secondary floors and sheave rooms, sprinklers in these spaces must—</p> <p>(i) have heads protected from accidental damage by way of a guard that will not impair the performance of the head; and</p> <p>(ii) be capable of being isolated and drained, either separately or collectively, without isolating any other sprinklers within the building.</p> <p>(b) Valves provided to control sprinklers referred to in (a) must be installed in accordance with Clause 10(b).</p>	-	CRA
Part E2 Smoke hazard management			

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
E2.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
E2.1: Application of Part	Informational	-	Noted
E2.2: General requirements	<p>(a) A building must comply with Table E2.2a such that each separate part complies with the relevant provisions for the classification.</p> <p>(b) An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a and which recycles air from one <i>fire compartment</i> to another <i>fire compartment</i> or operates in a manner that may unduly contribute to the spread of smoke from one <i>fire compartment</i> to another <i>fire compartment</i> must—</p> <p>(i) be designed and installed to operate as a smoke control system in accordance with AS 1668.1; or</p> <p>(ii)</p> <p>(A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the <i>fire compartments</i> served; and</p> <p>(B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close <i>automatically</i> by smoke detectors complying with clause 7.5 of AS 1670.1.</p> <p>(c) Miscellaneous air-handling systems covered by Section 6 of AS 1668.1 serving more than one <i>fire compartment</i> (other than a carpark ventilation system) and not</p>	<p><u>Class 5, 7b & 8</u></p> <p>Table E2.2a requires compliance with one of the following options:</p> <ul style="list-style-type: none"> > An <i>automatic</i> air pressurisation system for fire-isolated exits; or > A zone pressurisation system between vertically separated <i>fire compartments</i>; or > An <i>automatic</i> smoke detection and alarm system complying with Spec. E2.2a; or > A sprinkler system complying with Spec. E1.5. <p><u>Air-handling systems</u></p> <p>Any air-handling system that serves more than one <i>fire compartment</i> or operates between <i>fire compartments</i> must comply parts (b) and (c) of this clause.</p>	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	forming part of a smoke hazard management system must comply with that Section of the Standard.		
E2.3: Provisions for special hazards	Not applicable	-	NA
Part E3 Lift installations			
E3.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
E3.1: Lift installations	The lift installation must comply with BCA Specification E3.1	-	CRA
E3.2: Stretcher facility in lifts	A stretcher facility must be provided to the passenger lift. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level.	-	CRA
E3.3: Warning against use of lifts in fire	A warning sign stating: "DO NOT USE LIFTS IF THERE IS A FIRE" Or "Do not use lifts If there is a fire" (10 mm letting for capitals and 8mm lettering for lower case type) shall be displayed near every lift call button. The warning sign must consist of –	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> > incised, inlaid or embossed letters on a metal, wood, plastic or similar plate securely and permanently attached to the wall; or > letters incised or inlaid directly into the surface of the material forming the wall. 		
E3.4: Emergency lifts	Not applicable	-	NA
E3.5: Landings	Access and egress to and from lift-well landings must comply with the Deemed-to-Satisfy Provisions of Section D.	-	CRA
E3.6: Passenger lifts	The passenger lift must be one of the types specified in Table E3.6a, have accessible features in accordance with Table E3.6b, and not rely on a constant pressure device for its operation.	-	CRA
E3.7: Fire service controls	<p>As the lift serves a storey above an <i>effective height</i> of 12 m it must be provided with:</p> <ul style="list-style-type: none"> (a) a fire service recall control switch complying with E3.9; and (b) a lift car fire service drive control switch complying with E3.10. 	-	CRA
E3.8: Residential care buildings	Not applicable	-	NA
E3.9: Fire service recall switch	The fire service control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
E3.10: Lift car service drive control switch	The lift car service drive control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	-	CRA
Part E4 Visibility in an emergency, exit signs and warning systems			
E4.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
E4.2: Emergency lighting requirements	An emergency lighting system must be installed throughout all areas of the building in accordance with BCA Clause E4.2 requirements.	-	CRA
E4.3: Measurement of distance	Informational	-	Noted
E4.4: Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1-2018.	-	CRA
E4.5: Exit signs	Exit signage must be installed in accordance with BCA Clause E4.5 requirements.	-	CRA
E4.6: Direction signs	If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.	-	CRA
E4.7: Class 2 and 3 buildings and Class 4 Parts: Exemptions	Not applicable	-	NA
E4.8: Design and operation of exit signs	Exit signs must comply with AS/NZS 2293.1-2018, or for a photoluminescent exit sign, BCA Specification E4.8 and be clearly visible at all times the building is legally occupied.	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
E4.9: Emergency warning and intercom systems	Not applicable	-	NA
Part F1 – Damp and weatherproofing			
F1.0: Deemed-to-Satisfy Provisions	<i>Performance Requirement</i> FP1.4, for the prevention of the penetration of water through external walls, must be complied with.	There are no <i>Deemed-to-Satisfy Provisions</i> for this Performance Requirement in respect of external walls. Compliance must be achieved via a <i>performance solution</i> .	PS
F1.1: Stormwater drainage	Stormwater drainage works must comply with AS/NZS 3500.3-2018.	-	CRA
F1.4: External above ground membranes	Any proposed waterproofing membranes for external above ground use must comply with AS 4654.1 and AS 4654.2.	-	CRA
F1.5: Roof coverings	Metal sheet roofing must comply with AS 1562.1-2018.	-	CRA
F1.6: Sarking	Sarking-type material used for weatherproofing of roofs and walls must comply with AS/NZS 4200.1 and AS 4200.2.	-	CRA
F1.7: Water proofing of wet areas in buildings	Building elements in wet areas must be <i>water resistant</i> or <i>waterproof</i> in accordance with Table F1.7 of the BCA and comply with AS 3740-2010.	-	CRA
F1.9: Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course. Where a damp-proof course is provided, it must consist of— (a) a material that complies with AS/NZS 2904; or (b) impervious sheet material in accordance with AS 3660.1	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
F1.10: Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870.	-	CRA
F1.11: Provision of floor wastes	Not applicable	-	NA
F1.12: Sub-floor ventilation	Not applicable	-	NA
F1.13: Glazed Assemblies	Glazed assemblies in external walls must comply with AS 2047-2014 requirements for resistance to water penetration.	-	CRA
Part F2 Sanitary and other facilities			
F2.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
F2.1: Facilities in residential buildings (including Table F2.1)	Not applicable	-	NA
F2.2: Calculation of number of occupants and facilities	<p>(a) The number of persons accommodated must be calculated according to D1.13 if it cannot be more accurately determined by other means.</p> <p>(b) Sanitary facilities must be provided on the basis of equal numbers of males and females.</p> <p>(c) In calculating the number of sanitary facilities to be provided under F2.3, a unisex facility required for people with a disability (other than a facility provided under F2.9) may be counted once for each sex.</p>	-	Noted

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(d) For the purposes of this Part, a unisex facility comprises one closet pan, one washbasin and means for the disposal of sanitary products.		
F2.3: Facilities in Class 3 to 9 buildings (including Table F2.3)	Except for unisex accessible compartments, separate sanitary facilities for males and females must be provided in accordance with Table F2.3.	One unisex accessible toilet facility is provided within each unit and can serve up to 10 staff, as per Clause F2.3(b) and additional sanitary facilities provided within the end of trip area to satisfy Table F2.3.	Complies
F2.4: Accessible sanitary facilities (including Table F2.4)	An accessible unisex sanitary compartment and ambulant toilets must be provided in accordance with this clause and AS 1428.1-2009.	Refer to report by separate Access Consultant	-
F2.5: Construction of sanitary compartments	<ul style="list-style-type: none"> > Sanitary compartments must have doors and partitions that separate adjacent compartments and extend from floor level to the ceiling in the case of a unisex facility or 1.8 m above the floor in all other cases. > The door to a fully enclosed sanitary compartment must— <ul style="list-style-type: none"> (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway. 	-	CRA
F2.6: Interpretation: urinals and washbasins	(a) A urinal may be— <ul style="list-style-type: none"> (i) an individual stall or wall-hung urinal; or 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(ii) each 600 mm length of a continuous urinal trough; or (iii) a closet pan used in place of a urinal. (b) A washbasin may be— (i) an individual basin; or (ii) a part of a hand washing trough served by a single water tap.		
F2.8: Waste Management	Not applicable	-	NA
F2.9: Accessible adult change facilities	Not applicable	-	NA
Part F3 Room heights			
F3.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
F3.1: Height of rooms and other spaces	The height of rooms and other spaces must be not less than— > 2.4 m generally; and > 2.1 m for corridors, store rooms and sanitary compartments; and > 2.1 m above car parking areas (except for accessible car parking spaces that require 2.5 m above the space and 2.2 m clearance throughout the vehicular route); and > 2 m above stairways and landings, measured vertically above the nosing line of stairway treads.	-	CRA
Part F4 Light and ventilation			

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
F4.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F4.1: Provision of natural light	Not applicable	-	NA
F4.2: Methods and extent of natural lighting	Not applicable	-	NA
F4.3: Natural light borrowed from adjoining room	Not applicable	-	NA
F4.4: Artificial Lighting	Artificial lighting to all areas, including carpark areas, is to comply with AS/NZS 1680.0-2009.	-	CRA
F4.5: Ventilation of rooms	All rooms to be provided with Clause F4.6 compliant natural ventilation OR a mechanical ventilation system complying with AS 1668.2:2012.	-	CRA
F4.6: Natural ventilation	<p>Natural ventilation provided in accordance with F4.5 must consist of permanent openings, windows, doors or other devices which can be opened—</p> <ul style="list-style-type: none"> (i) with an aggregate opening or openable size not less than 5% of the floor area of the room required to be ventilated; and (ii) open to— <ul style="list-style-type: none"> (A) a suitably sized court, or space open to the sky; or (B) an open verandah, carport, or the like; or (C) an adjoining room in accordance with F4.7. 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
F4.7: Ventilation borrowed from adjoining room	Not applicable	-	NA
F4.8: Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a workplace normally occupied by more than one person.	-	Complies
F4.9: Airlocks	<p>If sanitary compartment is prohibited from opening directly to another room–</p> <p>(a) access must be by an airlock, hallway or other room with a floor area not less than 1.1m² and fitted with self-closing doors at all access doorways; or</p> <p>(b) the sanitary compartments must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.</p>	-	CRA
F4.11: Carparks	Not applicable – does not apply to <i>open deck carparks</i>	-	NA
F4.12: Kitchen local exhaust ventilation	Not applicable	-	NA
Part F5 Sound transmission and insulation - not applicable			
Part F6 Condensation Management - not applicable			
Part G1 Minor structures and components			
Part G2 Boilers, pressure vessels, heating appliances, fireplaces, chimneys and flues – not applicable			
Part G3 Atrium construction – not applicable			
Part G4 Construction in alpine areas – not applicable			

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
Part G5 Construction in bushfire prone areas – not applicable			
Part G6 Occupiable outdoor areas			
G6.1: Application of part	<p>(a) The Deemed-to-Satisfy Provisions of this Part apply to buildings containing an <i>occupiable outdoor area</i> in addition to the other Deemed-to-Satisfy Provisions of the BCA.</p> <p>(b) The Deemed-to-Satisfy Provisions of this Part take precedence where there is a difference to the Deemed-to-Satisfy Provisions of Sections C, D, E, F and G.</p>	The carpark at second floor level meets the definition of <i>occupiable outdoor area</i> .	Noted
G6.2: Fire hazard properties	<p>(a) Subject to (b), a lining material or assembly in an <i>occupiable outdoor area</i> must comply with C1.10 as for an internal element.</p> <p>(b) The following <i>fire hazard properties</i> of a lining, material or assembly in an occupiable outdoor area are not required to comply with C1.10:</p> <p>(i) <i>Average specific extinction area</i>.</p> <p>(ii) <i>Smoke-Developed Index</i>.</p> <p>(iii) <i>Smoke development rate</i>.</p> <p>(iv) <i>Smoke growth rate index (SMOGR_{RC})</i>.</p>	Carpark is concrete construction.	Complies
G6.3: Fire separation	For the purposes of the Deemed-to-Satisfy Provisions of C2.7, C2.8 and C2.9, a reference to a storey includes an occupiable outdoor area, however a fire wall cannot be used to separate an occupiable outdoor area into different <i>fire compartments</i> .	-	Noted

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
G6.4: Provision for escape	For the purposes of the Deemed-to-Satisfy Provisions of Part D1, a reference to a storey or room includes an <i>occupiable outdoor area</i> .	-	Noted
G6.5: Construction of exits	For the purposes of the Deemed-to-Satisfy Provisions of Part D2, a reference to a storey or room includes an <i>occupiable outdoor area</i> .	-	Noted
G6.6: Fire fighting equipment	Except for Clause 7(b)(i) of Specification E1.5, for the purposes of the Deemed-to-Satisfy Provisions of Part E1, a reference to a storey includes an <i>occupiable outdoor area</i>	-	Noted
G6.7: Lift installations	For the purposes of the Deemed-to-Satisfy Provisions of Part E3, a reference to a storey includes an <i>occupiable outdoor area</i> .	-	Noted
G6.8: Visibility in an emergency, exit signs and warning systems	For the purposes of the Deemed-to-Satisfy Provisions of Part E4, a reference to a storey includes an <i>occupiable outdoor area</i> .	-	Noted
G6.9: Light and ventilation	For the purposes of the <i>Deemed-to-Satisfy Provisions</i> of F4.4, F4.8 and F4.9, a reference to a room includes an <i>occupiable outdoor area</i> .	-	Noted
G6.10: Fire orders	Not applicable	-	NA
Section H Special use buildings – not applicable			
Section J Energy Efficiency			
NSW Part J(A) – not applicable			
NSW Subsection J(B) Energy efficiency – Class 3 and Class 5 to 9 buildings			

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
NSW J(B)1: Compliance with BCA provisions	The building must comply with all of the provisions of the national Section J that are applicable, as varied by NSW J3.1 Application of Part.	Refer to clauses below.	Noted
Part J1 Building Fabric			
J1.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
J1.1: Application of Part	The provisions of Part J1 apply to building elements forming part of the <i>envelope</i> of the building.	-	Noted
J1.2: Thermal construction general	<p>(a) Where required, insulation must comply with AS/NZS 4859.1 and be installed so that it—</p> <ul style="list-style-type: none"> (i) abuts or overlaps adjoining insulation other than at supporting members such as studs, noggings, joists, furring channels and the like where the insulation must be against the member; and (ii) forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and (iii) does not affect the safe or effective operation of a service or fitting. <p>(b) Where required, <i>reflective insulation</i> must be installed with—</p> <ul style="list-style-type: none"> (i) the necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and (ii) the <i>reflective insulation</i> closely fitted against any penetration, door or window opening; and 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none"> (iii) the <i>reflective insulation</i> adequately supported by framing members; and (iv) each adjoining sheet of roll membrane being— <ul style="list-style-type: none"> (A) overlapped not less than 50 mm; or (B) taped together. (c) Where required, bulk insulation must be installed so that— <ul style="list-style-type: none"> (i) it maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like; and (ii) in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50 mm. (d) Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification J1.2. (e) The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be— <ul style="list-style-type: none"> (i) calculated in accordance with AS/NZS 4859.2 for a roof or floor; or (ii) determined in accordance with Specification J1.5a for wall-glazing construction; or (iii) determined in accordance with Specification J1.6 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces. 		

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
J1.3: Roof and ceiling construction	(a) A roof or ceiling must achieve a Total R-Value greater than or equal to R3.7 for a downward direction of heat flow; and (b) the solar absorptance of the upper surface of a roof must be not more than 0.45.	-	CRA
J1.4: Roof lights	Not applicable	-	NA
J1.5: Walls	(a) The Total System U-Value of <i>wall-glazing construction</i> must not be greater than U2.0. (b) The <i>Total System U-Value</i> of display glazing must not be greater than U5.8. (c) The <i>Total System U-Value</i> of <i>wall-glazing construction</i> must be calculated in accordance with Specification J1.5a. (d) Wall components of a <i>wall-glazing construction</i> must achieve a minimum Total R-Value of— (i) where the wall is less than 80% of the area of the <i>wall-glazing construction</i> , R1.0; or (ii) where the wall is 80% or more of the area of the <i>wall-glazing construction</i> , the value specified in Table J1.5a. (e) The <i>solar admittance</i> of externally facing <i>wall-glazing construction</i> must not be greater than the values specified in Table J1.5b. (f) The <i>solar admittance</i> of a <i>wall-glazing construction</i> must be calculated in accordance with Specification J1.5a.	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
J1.6: Floors	A floor must achieve the Total R-Value specified in Table J1.6, which requires 2.0 in the downwards direction of heat flow.	-	CRA
Part J2 Glazing Part J2 has deliberately been left blank from the BCA2019			
Part J3 – Building sealing			
J3.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
J3.1: Application of Part	<p>The requirements of this Part apply to elements forming the <i>envelope</i> of the building other than:</p> <p>(a) a permanent building opening necessary for the safe operation of a gas appliance; and</p> <p>(b) parts of building that cannot be fully enclosed.</p>	-	Noted
J3.2: Chimneys and flues	Not applicable	-	NA
J3.3: Roof lights	Not applicable	-	NA
J3.4: Windows and doors	<p>(a) A door, openable window or the like must be sealed.</p> <p>(b) The above does not apply to a window complying with AS 2047 or a fire door.</p> <p>(c) A seal to restrict air infiltration—</p> <p>(i) for the bottom edge of a door, must be a draft protection device; and</p> <p>(ii) for the other edges of a door or the edges of an openable window or other such opening, may be a foam or rubber compression strip, fibrous seal or the like.</p>	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	(d) An entrance to a building, if leading to a <i>conditioned space</i> must have a self-closing door. (e) A loading dock entrance, if leading to a <i>conditioned space</i> , must be fitted with a <i>rapid roller door</i> or the like.		
J3.5: Exhaust fans	Any exhaust fan serving a <i>conditioned space</i> must be fitted with a sealing device, such as a self-closing damper of the like.	-	CRA
J3.6: Construction of ceilings, walls and floors	Ceilings, walls, floors and any openings, such as a window frame, doors frame or the like, are to be constructed to minimise air leakage by being enclosed by internal lining systems that are close fitting at junctions.	-	CRA
J3.7: Evaporative Coolers	Not applicable	-	NA
Part J4 – Part J4 has deliberately been left blank in BCA 2019.			
Part J5 – Air-conditioning and ventilation systems			
J5.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
J5.1: Application of Part	Informational	-	Noted
J5.2: Air-conditioning system control	Air-conditioning system control must comply with clause J5.2 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.3: Mechanical ventilation system control	A mechanical ventilation system control must comply with clause J5.3 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.4: Fan systems	Fan systems must comply with Clause J5.4 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
J5.5: Ductwork Insulation	Ductwork insulation must comply with Clause J5.5 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.6: Ductwork Sealing	Ductwork must be sealed in accordance with Clause J5.4 of BCA 2019, where applicable.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.7: Pump Systems	Pump systems must comply with Clause J5.7 of BCA 2019, where applicable.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.8: Pipework Insulation	Pipework insulation must comply with Clause J5.7 of BCA 2019, where applicable.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.9: Space Heating	Space heating must comply with Clause J5.9 of BCA 2019, where applicable.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.10: Refrigerant Chillers	Refrigerant chillers used as part of an air-conditioning system must comply with Clause J5.10 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.11: Unitary Air-Conditioning Equipment	Unitary air-conditioning equipment must comply with Clause J5.11 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
J5.12: Heat Rejection Equipment	Heat rejection equipment must comply with Clause J5.12 of BCA 2019.	Design certification to be provided by air-conditioning systems supplier/installer.	CRA
Part J6 Artificial lighting and power			
J6.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
J6.1: Application of Part	Not applicable	-	NA
J6.2: Artificial lighting	Artificial lighting must comply with BCA Clause J6.2 (b).	Design certification to be provided by the electrical designer.	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
J6.3: Interior artificial lighting and power control	Lighting switches and control devices must comply with BCA Clause J6.3.	Design certification to be provided by the electrical designer.	CRA
J6.4: Interior decorative and display lighting	Not applicable	-	NA
J6.5: Exterior artificial lighting	Exterior lighting attached to or directed at the façade of the building must be controlled by daylight sensors or time switches in accordance with the specific requirements of this clause.	Design certification to be provided by the electrical designer.	CRA
J6.6: Boiling water and chilled water storage units	Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.	Design certification to be provided by the electrical designer.	CRA
J6.7: Lifts	The lift must— (a) be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and (b) achieve the idle and standby energy performance level in BCA Table 6.7a; and (c) achieve the energy efficiency class in BCA Table 6.7b.	Design certification to be provided by the lift supplier/manufacturer.	CRA
J6.8: Escalators and moving walkways	Not applicable	-	NA
Part J7 Heated water supply and swimming pool and spa pool plant			
J7.0: Deemed-to-Satisfy Provisions	Informational	-	Noted

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
J7.2: Heated water supply system	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.	-	CRA
J7.3: Swimming pool heating and pumping	Not applicable	-	NA
J7.4: Spa pool heating and pumping	Not applicable	-	NA
Part J8 Facilities for energy monitoring			
J8.0: Deemed-to-Satisfy Provisions	Informational	-	Noted
J8.1: Application of Part	Informational	-	Noted
J8.3: Facilities for energy monitoring	<p>(a) A building or sole-occupancy unit with a floor area of more than 500 m² must have an energy meter configured to record the time-of-use consumption of gas and electricity.</p> <p>(b) A building with a floor area of more than 2 500 m² must have energy meters configured to enable individual time-of-use energy consumption data recording, in accordance with (c), of the energy consumption of—</p> <ul style="list-style-type: none"> (i) air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and (ii) artificial lighting; and 	-	CRA

BCA Clause	Relevant Deemed-To-Satisfy Requirements	Comment	Status
	<ul style="list-style-type: none">(iii) appliance power; and(iv) central hot water supply; and(v) internal transport devices including lifts, escalators and moving walkways where there is more than one serving the building; and(vi) other ancillary plant. <p>(c) Energy meters required by (b) must be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring system where it can be stored, analysed and reviewed.</p>		

Annexure B – Design Documentation

This report has been prepared based on the following design documentation.

Architectural plans prepared by WMK Architecture			
Drawing no.	Revision	Date	Title
DA000	A	15.12.22	COVER PAGE, INDEX, LOCATION PLAN
DA001	A	15.12.22	SITE PLAN & SITE ANALYSIS
DA020	A	15.12.22	EXISTING CONDITIONS / DEMOLITION
DA100	A	15.12.22	GROUND FLOOR PLAN
DA101	A	15.12.22	GROUND FLOOR MEZZANINE
DA102	A	15.12.22	FIRST FLOOR PLAN
DA103	A	15.12.22	FIRST FLOOR MEZZANINE
DA104	A	15.12.22	SECOND FLOOR PLAN
DA105	A	15.12.22	SECOND FLOOR MEZZANINE
DA106	A	15.12.22	ROOF PLAN
DA500	A	15.12.22	NORTH & EAST ELEVATION
DA501	A	15.12.22	SOUTH & WEST ELEVATION
DA600	A	15.12.22	CROSS SECTIONS
DA601	A	15.12.22	CROSS SECTIONS
DA900	A	15.12.22	3D PERSPECTIVES

Annexure C – BCA Definitions

Terms in *italics* used throughout this report have the BCA definitions, as listed below.

Air-conditioning means a service that actively cools or heats the air within a space, but does not include a service that directly:

- (a) cools or heats cold or hot rooms; or
- (b) maintains specialised conditions for equipment or processes, where this is the main purpose of the service.

Ancillary element means an element that is secondary to and not an integral part of another element to which it is attached.

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Climate zone means an area defined in Figure 2 and in Table 2 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Combustible means—

- (a) applied to a material — combustible as determined by AS 1530.1; and
- (b) applied to construction or part of a building — constructed wholly or in part of combustible materials.

Conditioned space means a space within a building, including a ceiling or under-floor supply air plenum or return air plenum, where the environment is likely, by the intended use of the space, to have its temperature controlled by *air-conditioning*.

Critical radiant flux means the critical heat flux at extinguishment (CHF in kW/m²) as determined by AS ISO 9239.1:2003.

Deemed-to-Satisfy Provisions means provisions which are deemed to satisfy the Performance Requirements.

Deemed-to-Satisfy Solution means a method of satisfying the Deemed-to-Satisfy Provisions.

Display glazing means *glazing* used to display retail goods in a shop or showroom directly adjacent to a walkway or footpath, but not including that used in a café or restaurant.

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

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—
- (c) the floor of a rooftop plant room, lift-machine room or the like; and
- (d) the floor above a carpark or warehouse; and
- (e) the common wall with a carpark, warehouse or the like

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.
- (b) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

External wall means an outer wall of a building which is not a *common wall*.

Fire compartment means—

- (a) the total space of a building; or
- (b) when referred to in—
- (c) 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
- (d) 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 hazard properties means the following properties of a material or assembly that indicate how they behave under specific fire test conditions:

- (a) Average specific extinction area, critical radiant flux and Flammability Index, determined as defined in Schedule 3 of the BCA.
- (b) Smoke-Developed Index, smoke development rate and Spread-of-Flame Index, determined in accordance with Schedule 6 of the BCA.
- (c) *Group number* and *smoke growth rate index* (SMOGRARC), determined in accordance with Specification C1.10 of BCA Volume One.

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 means—

- (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.

Flammability index means the index number as determined by AS 1530.2:1993.

Flight means that part of a stair that has a continuous series of risers, including risers of winders, not interrupted by a landing or floor.

Going means the horizontal dimension from the front to the back of a tread less any overhang from the next tread or landing above (see Figure 3.9.1.4).

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Habitable room means a room used for normal domestic activities, and—

- (a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but
- (b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

Insulation in relation to an FRL, means the ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4.

Integrity in relation to an FRL, means the ability to resist the passage of flames and hot gases specified in AS 1530.4.

Loadbearing means intended to resist vertical forces additional to those due to its own weight.

Non-combustible means—

- (a) applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
- (b) applied to construction or part of a building — constructed wholly of materials that are not deemed combustible.

Occupiable outdoor area means a space on a roof, balcony or similar part of a building—

- (a) that is open to the sky; and
- (b) to which access is provided, other than access only for maintenance; and
- (c) that is not *open space* or directly connected with *open space*.

Open-deck carpark means a carpark in which all parts of the parking storeys are cross-ventilated by permanent unobstructed openings in not fewer than 2 opposite or approximately opposite sides, and—

- (a) each side that provides ventilation is not less than 1/6 of the area of any other side; and
- (b) the openings are not less than 1/2 of the wall area of the side concerned.

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

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

Pliable building membrane means a water barrier as classified by AS/NZS 4200.1.

R-Value ($\text{m}^2\cdot\text{K}/\text{W}$) means the thermal resistance of a component calculated by dividing its thickness by its thermal conductivity.

Resistance to the incipient spread of fire, in relation to a ceiling membrane, means the ability of the membrane to insulate the space between the ceiling and roof, or ceiling and floor above, so as to limit the temperature rise of materials in this space to a level which will not permit the rapid and general spread of fire throughout the space.

Rise in storeys means the greatest number of storeys calculated in accordance with C1.2 of Volume One.

Riser means the height between consecutive treads and between each landing and continuous tread.

Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

Smoke-Developed Index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index (SMOGR_{RC}) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Solar admittance means the fraction of incident irradiance on a wall-glazing construction that adds heat to a building's space.

Spread-of-Flame Index means the index number for spread of flame as determined by AS/NZS 1530.3.

Structural adequacy in relation to an FRL, means the ability to maintain stability and adequate loadbearing capacity as determined by AS 1530.4.

Storey means a space within a building which is situated between one floor level and the floor level next above, or if there is no floor above, the ceiling or roof above, but not—

- (a) a space that contains only—
- (b) a lift shaft, stairway or meter room; or
- (c) a bathroom, shower room, laundry, water closet, or other sanitary compartment; or
- (d) accommodation intended for not more than 3 vehicles; or
- (e) a combination of the above; or
- (f) a mezzanine.

Structural adequacy in relation to an FRL, means the ability to maintain stability and adequate loadbearing capacity as determined by AS 1530.4.

Total R-Value ($\text{m}^2\cdot\text{K}/\text{W}$), for the purposes of Volume One, means the sum of the R-Values of the individual component layers in a composite element including any building material, insulating material, airspace, thermal bridging and associated surface resistances.

Total System U-Value ($\text{W}/\text{m}^2\cdot\text{K}$), for the purposes of Volume One, means the thermal transmittance of the composite element allowing for the effect of any airspaces, thermal bridging and associated surface resistances.

Wall-glazing construction, for the purposes of Section J in Volume One, means the combination of wall and glazing components comprising the envelope of a building, excluding—

- (a) display glazing; and
- (b) opaque non-glazed openings such as doors, vents, penetrations and shutters.

Water resistant means the property of a system or material that restricts moisture movement and will not degrade under conditions of moisture.

Waterproof means the property of a material that does not allow moisture to penetrate through it.

Water control layer means a *pliable building membrane* or the exterior cladding when no *pliable building membrane* is present.

Water sensitive materials means materials that have an inherent capacity to absorb water vapour and include timber, plasterboard, plywood, oriented strand board and the like.