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Regulatory Compliance Report

Learn and Play Childcare
4-10 Iman Road Cromer NS2 2099

Prepared for: **ID Fitouts**
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Table of Contents

Date	Rev No	No. of Pages	Issue or Description of Amendment	Assessed By	Approved By	Date Approved
28.06.23	A	44	Draft Regulatory Compliance Report	Ryan Kim	Aaron Celarc	28.06.23
28.07.23	B	44	Updated Regulatory Compliance Report	Ryan Kim	Aaron Celarc	28.07.23
11.08.23	C	44	Final Regulatory Compliance Report for DA Submission	Ryan Kim	Aaron Celarc	11.08.23

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1. Executive Summary

Development Overview

The proposed development is a single storey childcare tenancy within a heritage building.

Compliance Summary

As Registered Certifiers we have reviewed the concept architectural design documents prepared by ID Fitouts (refer appendix A) for compliance with the building assessment provisions currently outlined in BCA 2022, as current project timeframes indicate that BCA 2022 will be that which applies to the development.

BCA 2022 is scheduled to be adopted by all states and territories on the 1st of May 2023. It is noted that some provisions, such as the liveable housing provisions, have a delayed adoption date of the 'modern homes provisions' i.e. energy efficiency, condensation mitigation and liveable (accessible) housing. Until these adoption dates, NCC 2019 Amendment 1 applies.

It is noted that the full final version of BCA 2022 Volume 1 with state and territory variations has been released, however the Australian Building Codes Board have since advised that editorial corrections will need to be made. These corrections are scheduled to be released in early December 2022. This report has assessed the development against the provisions available at the time of this report.

This report has been prepared to assess the project against the Building Code of Australia to enable issuance of construction approvals. Further assessment of the design will be undertaken as the design develops to ensure compliance is achieved prior to approval being issued

Deviations from the Deemed-to-Satisfy Provisions

The assessment of the schematic design documentation has revealed that the following areas deviate from the deemed-to-satisfy provisions of the BCA. These items are to be addressed to ensure compliance is achieved, either through design amendment to achieve compliance with the deemed-to-satisfy provisions, or through a performance solution demonstrating compliance with the Performance Requirements of the BCA:

No.	Description	DTS Clause	Performance Requirements
Fire Safety Items			
1	**Fire Resistance level.** Any proposed reduction in the Fire Rating Levels within the building will require a Fire Engineering Report meeting the Performance requirements of Clause C1P1 and C1P2 of the BCA.	C2D2, Spec 5	C1P1 and C1P2
2	**Protection of Openings** Any Omission of protections to the opening within external walls will require a Fire Engineering Report meeting the Performance requirements of Clause C1P8 and C1P2 of the BCA	C4D3	C1P8 and C1P2
3	**Fire Compartmentation** Each storey containing Class 9b must contain no less than 2 fire compartments. If there is to be a single fire compartment proposed it will require a Fire Engineering Report meeting the Performance requirements of Clause C1P2 of the BCA	C3D6	C1P2

No.	Description	DTS Clause	Performance Requirements
Miscellaneous Items			
4	**Symphonic stormwater drainage**	F1D3 (previously F1.1)	F1P2, F1P3 (previously FP1.2, FP1.3)
5	**Weatherproofing of External Walls** As the external walls are proposed to be constructed of a material not nominated in F3D5, a performance solution is to be provided by the façade engineer/registered architect demonstrating that the external walls comply with the requirements of Performance Requirement F3P1 (previously FP1.4).	F3D5	F3P1 (previously FP1.4).

The feasibility and any additional requirements that will apply as a result of the performance solution will need to be confirmed by the professional preparing the performance solution. Any performance solution will need to be prepared by a suitably qualified/accredited professional.

Fire Safety Services

The following key fire safety services are required to meet the minimum DTS requirements.

1.	Sprinklers system throughout all portions of the building.
2.	Fire hydrant system throughout all portions of the building.
3.	Fire hose reels throughout all portions of the building.
4.	Zone smoke control system throughout all portions of the building.
5.	Automatic smoke detection and alarm system throughout all portions of the building.
6.	Building Occupant Warning System throughout all portion of the building

Refer to parts 9 and 10 of this report for further details regarding the required services.

Any fire engineered solution relating to the category 2 items will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

Further Assessment

The assessment of the design documentation has also revealed that the following additional information is required in order to complete the assessment, and/or the following areas need to be further reviewed.

No.	Further Information / Review Required
1	Fire Hydrant Locations and Extinguisher Locations to be confirmed to review coverage
2	Sections and details for ramp and stairs to review compliance to the Balustrade and Handrail Provisions of the BCA
3	Fire Compartmentation Drawings to be provided for review of the protection of the openings within the external walls and within the Childcare Tenancy.

Documentation to enable assessment and demonstrate compliance will be required to address the above items prior to approval.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021.

2. Introduction

The proposed development comprises of a Single Storey Childcare Tenancy within a Heritage building.

The site is located on the 4 – 10 Iman Road Cromer.

This report is based upon the review of the design documentation listed in Appendix A of this Report

The report is intended as an overview of the relevant provisions of the Building Code of Australia for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Registered Certifier for the Construction Certificate. For the purposes of this Report, BCA 2022 has been utilised as it is anticipated that BCA 2022 will apply to the project based on project timeframes.

3. Compliance with the Building Code of Australia

The Building Code of Australia is a performance based document, whereby compliance is achieved by complying with the Governing Requirements and the Performance Requirements.

Performance Requirements are satisfied by one of the following:

1) A Performance Solution
2) A Deemed-to-Satisfy Solution
3) A combination of (1) and (2)

4. Documentation of Performance Solutions

A Performance Solution must demonstrate compliance with all relevant Performance Requirements, or the solution must be at least equivalent to the Deemed-to-Satisfy provisions.

Compliance with the Performance Requirements is to be demonstrated through one or a combination of the following:

a) Evidence of suitability in accordance with Part A5 of the BCA that shows the use of a material, product, plumbing and drainage product, form of construction or design meets the relevant Performance Requirements.
b) A Verification Method including the following:
    i. The Verification Methods provided in the NCC.
    ii. Other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements
c) Expert Judgement
d) Comparison with the Deemed-to-Satisfy Provisions

Where a Performance Solution is proposed as the method to achieve compliance, the following steps must be undertaken:

a) Prepare a performance-based design brief in consultation with relevant stakeholders

b) Carry out analysis, using one or more of the assessment methods nominated above, as proposed by the performance-based design brief.
c) Evaluate results from (b) against the acceptance criteria in the performance-based design brief
d) Prepare a final report that includes:
    i. All Performance Requirements and/or Deemed-to-Satisfy Provisions identified as applicable
    ii. Identification of all assessment methods used
    iii. Details of required steps above
    iv. Confirmation that the Performance Requirement has been met; and
    v. Details of conditions or limitations, if an exist, regarding the Performance Solution.

5. Preliminaries

5.1. Building Assessment Data

Summary of Construction Determination:

Part of Project	Childcare Tenancy
Classification	9b
Number of Storeys	3
Rise In Storeys	3
Type of Construction	A
Effective Height (m)	<12

Note: The effective height of the project includes all stories included in the rise in stories of the project.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Approximate Volume (m^3)	Assumed Population
Childcare Tenancy Internal Area	9b	780m2	2652m3	130
Childcare Tenancy External Area	9b	1000m2	NA	NA
Total		780m2(Internal Area Only)	2652m3(Internal Area Only)	130

Notes:

- The above populations have been based on the proposed amount of children and staff shown on the plans
- The carpark areas have been considered ancillary to the use for the purposes of population numbers

Occupiable Outdoor Areas

BCA 2019 introduced specific provisions regarding occupiable outdoor areas. These provisions outline requirements with regards to fire ratings, egress provisions and coverage from essential services and are contained in this report.

An occupiable outdoor area is defined in the BCA as follows:

'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'

6. Structure

6.1. Structural Provisions (BCA B1):

New structural works are to comply with the applicable requirements of BCA Part B1, including AS/NZS 1170.0-2002, AS/NZS 1170-1-2002, AS/NZS 1170.2-2021 and AS 1170.4-2007.

Depending on the importance level of the building as determined by AS/NZS 1170.0-2002, the non structural elements of the building, including partitions (and non-structural fire walls), ceilings, services and racking/shelving may be required to comply with the seismic restraint requirements of AS 1170.4-2007. Where this is required, certification will be required confirming that the design of the seismic restraints comply with AS 1170.4-2002. This may be provided by a specialist seismic consultant or by the architect and services design engineers.

It is noted that BCA 2019 introduced a new Verification Method, B1V2 (previously BV2), which is a pathway available to verify compliance with BCA Performance Requirement B1P1 (1)(c) (previously BP1.1(a)(iii)).

Glazing is to comply with AS1288-2021, and AS2047-2014.

Prior to the issue of the Construction Certificate structural certification is required to be provided by a Professional Engineer registered on the National Engineering Register.

7. Fire Protection

7.1. Fire Compartmentation (BCA C2D2 (previously C1.1))

The BCA stipulates three levels of fire resistant construction, which is based upon the rise in storeys and classification of the building. Each of these types of construction has maximum floor area and volume limitations as per BCA Table C3D3 (previously C2.2).

Based upon the rise in storeys and use of the building, it is required to be constructed in accordance with the requirements of Type A Construction, in accordance with Tables S5C11a-g of Specification 5 (previously Table 3 & 3.9 of Specification C1.1) of the Building Code of Australia 2022.

The building has been assessed on the basis of the following fire separation / compartmentation within the development:

- Fire compartmentation of the building at each floor level,
- Fire compartmentation of the development.

The maximum floor area and volume limitations of a fire compartment as nominated in the deemed to satisfy provisions are as follows:

Classification		Type of Construction		
		A	B	C
5, 9b or 9c aged care building	max floor area—	8 000 m^2	5 500 m^2	3 000 m^2
	max volume—	48 000 m^3	33 000 m^3	18 000 m^3

7.2. Fire Resistance (BCA C2D2 (previously C1.1))

The building should be constructed generally in accordance with the relevant provisions of Specification 5 (previously Specification C1.1) of the BCA applicable to Type A Construction, Please refer to Appendix C which outlines the required fire rating to be achieved by the development.

Where a fire wall is proposed, it is noted that the wall is to achieve a structural rating regardless of whether it is loadbearing or not. Refer to Appendix C for required FRLs.

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Emergency Power Supply;
- Electricity Supply;
- Boilers or Batteries;

The above areas are to be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

Please note that with regards to fire separation, the provisions and required FRL's that apply to the building also apply to an occupiable outdoor space associated with the building.

7.3. Class 9b Early Childhood Fire and Smoke Compartmentation Provisions (BCA C3D6)

An early childhood centre, where it is part of a building of multiple classifications, must be separated from the remainder of the building by walls and floors that achieve an FRL not less than that required for a fire wall, i.e. 120 minutes for an early childhood centre.

Each storey is required to contain not less than 2 fire compartments.

7.4. Fire Hazard Properties (BCA C2D10 and C2D11 (previously C1.10 and BCA C1.9))

External Wall Cladding

Since the building is of Type A construction, the following components are required to be completely non-combustible:

- External walls and common walls, including façade coverings, framing, insulation;
- Flooring and floor framing of lift pits;
- Non-loadbearing internal walls required to have an FRL;
- All non-loadbearing shafts;
- All loadbearing internal walls and loadbearing fire walls, including those that are part of loadbearing shafts.

Please provide product specifications and test reports to AS 1530.1-1994 for all materials to demonstrate compliance

For materials and assemblies that are required to be non-combustible, the material or system must be not deemed combustible when tested in accordance with AS 1530.1-1994.

Combustible Materials

The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required:

a) Plasterboard.
b) Perforated gypsum lath with a normal paper finish.
c) Fibrous-plaster sheet.
d) Fibre-reinforced cement sheeting.
e) 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.
f) Sarking type materials that do not exceed 1mm in thickness and have a Flammability Index not greater than 5.
g) Bonded laminated materials where -
    (i) each laminate is non-combustible; and
    (ii) each adhesive layer does not exceed 1 mm in thickness; and
    (iii) the total thickness of the adhesive layers does not exceed 2 mm; and
    (iv) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole does not exceed 0 and 3 respectively.

It is recommended that once material selections are made, copies of the fire test certificates/reports be provided for review and approval.

Any Aluminium Composite Panels must be labelled in accordance with SA TS 5344.

The BCA 2022 has included additional items that are not required to comply with the above, including glazing, fixings, packers, paints, sealants to joints, adhesives and the like.

Furthermore, the BCA now considers the following items as non-combustible, therefore non-combustibility does not need to be demonstrated to achieve compliance. These items are concrete, steel, masonry, aluminium, autoclaved aerated concrete, iron, terracotta, porcelain, ceramic, natural stone, copper, zinc, lead, bronze, brass.

The BCA does nominate that ancillary elements may not be fixed to an external wall that is required to be non-combustible unless they comprise of the following:

a) An ancillary element that is non-combustible.
b) A gutter, downpipe or other plumbing fixture or fitting.
c) A flashing.
d) A grate or grille not more than 2 m^2 in area associated with a building service.
e) An electrical switch, socket-outlet, cover plate or the like.
f) A light fitting.
g) A required sign.
h) A sign other than one provided under (a) or (g) that—
    i) achieves a group number of 1 or 2; and
    ii) does not extend beyond one storey; and
    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—
    a. meets the relevant requirements of Table S7C7 as for an internal element; and
    b. serves a storey—
        i. at ground level; or
        ii. immediately above a storey at ground level; and
j) does not serve an exit, where it would render the exit unusable in a fire.
k) A part of a security, intercom or announcement system.
l) Wiring.
m) Waterproofing material installed in accordance with AS 4654.2 and applied to an adjacent floor surface, including vertical upturn, or a roof surface.
n) Collars, sleeves and insulation associated with service installations.
o) Screens applied to vents, weepholes and gaps complying with AS 3959.
p) Wiper and brush seals associated with doors, windows or other openings.
q) A gasket, caulking, sealant or adhesive directly associated with (a) to (o)

Please provide fire hazard properties reports for any proposed signs and confirm their extent i.e. not spanning more than one storey or fire compartment:

Interior Linings

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to Specification 7 (previously Specification C1.10) of the Building Code of Australia. The following requirements apply:

Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 1.2 kW/m^2
b) Wall and Ceiling Linings – Material Group No. 1 2 and 3
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 8

7.5. Separation of equipment (C3D13 (previously C2.12))

Equipment listed below must be separated from the remainder of the building providing a FRL as required by Specification 5 (previously Spec C1.1) but not less than 120/120/120 with a self-closing fire door with an FRL or not less than -/120/30. When separating a lift shaft and life motor room, an FRL of not less than 12/-/- is required.

a) Lift motors and lift control panels; or
b) Emergency generators used to sustain emergency equipment operating in the emergency mode; or
c) Central smoke control plant; or
d) Boilers; or
e) A battery system installed in that building that has total voltage of 12 volts or more and a storage capacity of 200kWh or more.

7.6. Protection of Openings in External Walls (BCA C4D3, C4D4, C4D5 (previously C3.2 / C3.3 / C3.4))

The prescriptive provisions of the BCA stipulate that any external opening within 3m of the boundary, within 6m of the far boundary of a road, river, lake or the like that adjoins the allotment, or within 6m of another building on the allotment requires protection by -/60/- fire rated construction, or externally located wall wetting sprinklers.

Where a building is separated into fire compartments, the distance between parts of external walls and openings within them must be not less than the table below unless those parts of each external wall has an FRL not less than 60/60/60 and openings are protected.

Angle Between Walls	Minimum Distance
0º (walls opposite)	6m
More than 0º to 45º	5m
More than 45º to 90º	4m
More than 90º to 135º	3m
More than 135º to 180º	2m
More than 180º	Nil

Fire source feature is defined as;

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

7.7. Protection of Openings fire rated building elements (BCA C4D6, C4D11 (previously C3.5 and BCA C3.10))

The prescriptive provisions of the BCA stipulate that openings within building elements required to have an FRL shall be protected as follows:

a) Penetrations through fire rated floors to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a fire rated shaft achieving an FRL the same as the FRL of the floor it is passing through;
b) Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, apartment separating wall etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a shaft achieving an FRL the same as the FRL of the floor it is passing through; (or 120/120/120 where it is a room such as a substation);
c) Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).

Note that where fire dampers, fire collars, etc are utilised, allowance needs to be made for access hatches to be provided within the walls / ceilings to ensure that maintenance access is provided.

As the design develops, details will need to be included in relation to sealing of penetrations / construction of fire rated shafts.

8. Access and Egress

8.1. Provision for Escape (BCA D2 (previously D1))

The egress provisions for the proposed building are provided by the following:

- Non-Fire isolated Stairs
- External Doors

The egress provisions that apply to the building also apply to any occupiable outdoor areas.

Detailing issues that will need to be addressed as the design develops include:

- Door Hardware
- Exit Door Operation
- Stair Construction
- Handrail and Balustrade construction
- Details of the egress provisions to the Road.

Class 9b Early Childhood Centres

A minimum of two exits, in addition to any horizontal exits, are required to be provided to each storey containing an early childhood centre. Each compartment of an early childhood centre is also required to be provided with at least two horizontal exits, and one non-horizontal exit.

All exits that are not horizontal exits or external perimeter doors are required to be fire isolated.

8.2. Exit Travel Distances (BCA D2D5, D2D6 (previously D1.4, D1.5))

The locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits and egress widths would be satisfied.

The travel distances to exits should not exceed:

Class 5 to 9

- no point on the floor must be more than 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- exits shall be located to not be more than 60m apart and not closer than 9m

The Current Layout provides complaint Travel Distances as per the requirements of D2D5 and D2D6.

8.3. Dimensions of Exits (BCA D2D7, D2D8, D2D9, D2D10, D2D11 (previously D1.6))

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657-2018 in which case a 600mm clear width is required).

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e. minimum 920 mm doors).

8.4. Travel via Required Non-Fire Isolated Stairs (BCA D2D14 (previously D1.9)

A required non-fire isolated stair must provide direct egress, via its own flights from every storey served to the level of road or open space.

The following additional travel distance parameters apply where a required non-fire isolated stair is utilised for egress:

- In Class 9 buildings, the distance from any point of a floor to road or open space is not to exceed 80m
- In a Class 9b building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than:
  - 20 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or
  - 40 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire isolated ramp is in opposite or approximately opposite directions

8.5. Balustrades and Handrails (BCA D3D17, D3D18, D3D19, D3D20, D3D22, D3D29 (previously D2.16 / BCA D2.17 / D2.24))

Generally

Balustrading to a minimum height of 1000mm with a maximum opening of 124mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm, or where it is possible to fall through an openable window located more than 4m above the surface beneath.

Where it is possible to fall more than 4m to the surface below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing between 150 – 760mm above the floor. It is noted that these provisions also apply to any building elements, including AC covers and the like, that are within 1m of the required balustrade.

Where a required barrier is fixed to the vertical face forming an edge of a landing, balcony, deck, stairway or the like, the opening formed between the barrier and the face must not exceed 40 mm.

Handrails should generally be provided at a minimum height of 865mm alongside of all ramps and stairs.

The public stairs and ramps located along an accessible path of travel should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

In addition to the above, handrails are required to both sides of all stairs with a width of 2m or more.

Intermediate handrails are required to be provided to stairs in a building that contains a Class 9b early childhood centre between 450mm and 700mm in height, with a diameter of between 16mm and 45mm.

Balustrades to Early Childhood Centres

Where the trafficable surface of an outdoor play space is not more than 2m above the surface below, the balustrading provisions are to comply with the requirements of AS 1926.1.

Where the surface of the play space is more than 2m above the surface beneath, the balustrade is to be:

i. is not less than 1.8 m high, as measured from above the trafficable surface; and
ii. is non-climbable and does not contain horizontal or other elements that could facilitate climbing; and
iii. does not have any openings or apertures through which a 100 mm or greater sphere could pass; and
iv. is not within 1.8 m, as measured directly from the top of the barrier, of any elements within the outdoor play space that facilitate climbing; and
v. is not within 900 mm of elements in a wall that facilitate climbing

Strength and rigidity of all balustrades to play spaces are to comply with AS 1926.1.

Openable Windows in Bedrooms & Early Childhood Centres

In Class 9b early childhood centres, where the distance from the floor level to the level below exceeds 2m, window openings shall be provided with protection in accordance with BCA Clause D2.24.

Where the lowest part of the window opening is less than 1.7m above a floor, the window opening must be:

a) Fitted with a device to restrict the opening; or
b) Fitted with a screen with secure fittings

The device or screen required must –

a) Not permit a 125mm sphere to pass through it; and
b) Resist an outward horizontal action of 250N; and
c) Have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden

Further review will be undertaken to ensure compliance as the design develops.

8.6. Slip Resistance (BCA D3D15 (previously D2.14))

The adoption of BCA 2014 introduced a requirement for slip resistance of stairway treads and ramp surfaces. The requirements are as follows:

Table D3D15 (prev. Table D2.14) SLIP-RESISTANCE CLASSIFICATION

Application	Surface conditions	
	Dry	Wet
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

9. Services and Equipment

The following section of this report describes the essential fire safety measures and the minimum performance requirements of those measures. A draft essential fire safety schedule can be found in Appendix B.

It is noted that the provisions below also apply to occupiable outdoor areas.

9.1. Fire Hydrants (BCA E1D2 (previously E1.3))

A system of Fire Hydrants is required to be provided in accordance with BCA Clause E1D2 (prev. E1.3) and AS2419.1-2021.

Pressure and flow information will be required to confirm the required pressures and flow to the system, depending on the type of hydrant to be utilized;

The fire services/hydraulic engineer is to confirm the required flow rates for the development.

The building is required to be provided with a booster assembly as part of the fire hydrant requirements. The booster is required to be located attached to the building at the main entry. If remote from the building, the booster is to be located at the main vehicle entry or with sight of the main entry of the building within 20m of a hardstand area.

Fire Hydrant Locations are to be confirmed to review compliance for the Hydrant coverage distances.

9.2. Fire Hose Reels (BCA E1D3 (previously E1.4))

A Fire Hose Reel System is required to BCA Clause E1D3 (previously E1.4) and AS2441-2005.

Fire hose reels are to be located within 4m of exits and provide coverage within the building based on a 36m hose length and 4m of water spray. Where required, additional fire hose reels shall be located internally as required to provide coverage. These hose reels are to be located adjacent to internal hydrants.

Fire hose reel cupboards must not contain any other services such as water meters, etc., and doors to fire hose reel cupboards are not to impede the path of egress unless a performance solution is developed under BCA Performance Requirement E1P1 (previously EP1.1).

Fire Hose reel are not to extend through Fire and Smoke Walls.

The hose reels currently indicated are satisfactory.

9.3. Fire Extinguishers (BCA E1D14 (previously E1.6))

The provision of portable fire extinguishers is required to BCA Clause E1D14 (previously E1.6) and AS2444 – 2001.

Table E.6 details when portable fire extinguishers are required:

Occupancy Class	Risk Class (as defined in AS 2444)
General provisions – Class 2 to 9 buildings (except within sole-occupancy units of a Class 9c building)	a) To cover Class AE or E fire risks associated with emergency services switchboards. (Note 1) b) To cover Class F fire risks involving cooking oils and fats in kitchens. c) To cover Class A fire risks in normally occupied fire compartments less than 500m^2 not provided with fire hose reels (excluding open deck carparks). d) To cover Class A fire risks in classrooms and associated schools not provided with fire hose reels.

Fire extinguishers are to be located in accordance with AS 2444 - 2001, often collocated with fire hydrants and/or fire hose reels.

The fire extinguisher locations are to be confirmed for review.

9.4. Automatic Sprinkler Protection (BCA E1D4 – E1D13 (previously E1.5))

Automatic sprinkler protection is required to Specification 17 (previously Spec. E1.5) and AS2118.1-2017 to the following areas:

- Throughout the entire building where the building contains a Class 9b early childhood centre

It is noted that a system complying with FPAA101D or FPAA101H does not afford concessions elsewhere in the BCA such as spandrel separation and fire hazard properties.

The sprinkler system shall be connected to and activate an occupant warning system complying with BCA Specification 20 (prev. Spec E2.2a).

Details of the proposed sprinkler system design will need to be reviewed as the design develops.

An occupant warning system should be provided in accordance with BCA Specification 17 (previously Spec E1.5).

9.5. Smoke Hazard Management (BCA E2D3 – E2D20 (previously E2.2)

Smoke hazard management shall be provided throughout the building by means of the following systems:

- Zone Pressurisation System/Smoke Control between vertically separated fire compartments in accordance with the requirements of AS/NZS 1668.1-2015 Amendment 1 OR
- Automatic Smoke Detection/Alarm System in accordance with the requirements of BCA Spec 20 Clause 3, 4 or a combination of Clause 3 and 4 (previously E2.2a) and AS 3786 and/or AS 1670.1-2018 OR
- Sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

9.6. Exit Signs and Emergency Lighting (BCA E4D2, E4D4, E4D5, E4D6 and E4D8 (previously E4.2 E4.5, E4.6, E4.8))

Emergency Lighting and Exit Signs indicating exit location paths of travel to exits to be provided in accordance with BCA Part E4 and AS/NZS 2293.1-2018, including the potential use of photo luminescent exit signs.

Where exit signs are proposed to be above 2.7m to avoid potential damage by forklifts in the warehousing areas, this will need to be documented as a performance solution by an accredited fire safety engineer. This would need to be assessed to BCA Performance Requirement E4P2 (previously EP4.2).

Details are required to be provided for review.

10. Health and Amenity

10.1. Stormwater Drainage (BCA Clause F1D3 (previously Clause F1.1)

Stormwater drainage systems serving the building are to comply with AS3500.3 - 2018.

The use of a syphonic stormwater drainage system is not covered by Australian Standards and any design incorporating one would need an appropriate performance solution will need to be documented by the hydraulic

consultant addressing the system compliance against BCA Performance Requirements F1P2 and F1P3 (prev. FP1.2 & FP1.3).

10.2. Surface Water Management (BCA Part F1)

Exposed Joints

Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must not be located beneath or run through a planter box, water feature or similar part of the building.

Joints are to be protected in accordance with Section 2.9 of AS 4654.2.

External Waterproofing Membranes

All external above ground areas (roof slabs, balconies etc.) shall be protected by a waterproofing system in accordance with AS4654 Parts 1 and 2 – 2012.

10.3. Floor Wastes (BCA Clause F2D4 (previously F1.11)

Floor wastes to be provided within bathrooms and laundries where located above another sole occupancy unit. The floor shall be sloped towards these wastes.

Floor wastes are required to be provided where wall hung urinals are provided and the floor shall be sloped towards these wastes.

10.4. Roof & Wall Cladding (BCA Part F3 (previously Part F1))

BCA 2022 has introduced some deemed to satisfy provisions that relate to the waterproofing of external walls. These provisions apply as follows:

- Masonry, including masonry veneer, unreinforced and reinforced masonry is to comply with AS 3700
- Autoclaved aerated concrete is to comply with AS 5146.3
- Metal wall cladding is to comply with AS 1562.1

Where the installation is not proposed to comply with the above, or a different material is proposed to be used, a performance solution can be utilised to demonstrate compliance.

Performance Requirement F3P1 (previously FP1.4) which relates to the prevention of the penetration of water through external walls, must be complied with. Where a performance solution is proposed, it is to be prepared by a suitably qualified professional (façade engineer with NER for structural engineering) that demonstrates that the external walls of the proposed building comply with Performance Requirement F3P1 (previously FP1.4) which reads as follows:

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—

a) unhealthy or dangerous conditions, or loss of amenity for occupants; and
b) undue dampness or deterioration of building elements.

10.5. Wet Areas & Overflow Protection (BCA Part F2 (previously Part F1)

Internal wet areas throughout the development (e.g. bathrooms, laundries) shall be waterproofed in accordance with AS3740 - 2010 requirements.

Further review will be undertaken as the design develops with respect to the specification of waterproofing membrane, provision of water-stops at doorways etc.

10.6. Sanitary Facilities (BCA F4D2, F4D3, F4D4, F4D5, F4D6 (previously F2.2 and F2.3)

Schools / Education

Separate sanitary facilities are required to be provided for male & female staff and for male & female students; this also includes the provision of a unisex disabled facility for both staff and students separately.

The following table summarises the sanitary facilities provided:

Sanitary Facilities Provided for Children			
	WC	Urinals	Basins
Children	8	NA	8
Accessible		NA	
The Above Facilities are adequate for 120 Children			

The provided base build toilets will be satisfactory for the Employees within the Childcare Centre

Detailed designs will need to be developed as to the layout, dimensions, etc of the sanitary facilities.

Note: The Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.

Bathroom Construction

Where bathrooms or rooms containing water closets have the WC within 1200mm of the doorway, the door shall be either sliding, open outwards, or be provided with removable hinges.

10.7. Light and Ventilation (BCA Part F6 (previously Part F4)

Natural Ventilation is required to be provided to rooms at a rate of 5% of the floor area in openings. Alternatively, mechanical ventilation is required in accordance with AS1668.2-2012

Artificial lighting complying with AS/NZS1680.0-2009 is to be incorporated with the final detailed design to be developed to confirm this.

These provisions also apply to areas considered as occupiable outdoor areas.

In an early childhood centre, the sills of 50% of windows in children's rooms must be located not more than 500 mm above the floor level.

10.8. Condensation management (BCA Part F8 (previously Part F6)

External Wall Construction

Pliable building membranes installed to an external wall must:

- achieve compliance with AS 4200.1, and
- be installed in accordance with AS4200.2, and
- be located on the exterior side of the primary insulation layer or the wall assembly and except for the single skin mason and single skin concrete be separated from water sensitive materials.

Where a pliable building membrane, sarking-type material or insulation layer is installed on the exterior sode of he primary insulation layer, it must have a vapour permeance of not less than: 0.143µg/N.s in climate zones 4 and 5, and not less than 1.14µg/N.s in climate zones 6,7 and 8.

Exhaust Systems

Exhaust systems must achieve a minimum flow rate of 25L/s for bathrooms and sanitary compartments and 40L/s for kitchens and laundries. These exhaust systems must all discharge directly or via a shaft/duct to outdoor air.

An exhaust system that is not run continuously and is serving a bathroom or sanitary compartment that is not ventilated in accordance with F6D7 is to be:

- Interlocked with the rooms light switch; and
- Include a run on timer so that the exhaust system continues to operate for 10 minutes after the light switch is turned off.

Ventilation of Roof Spaces

A roof in climate zones 6 must have a roof space that:

a) Is located
   i. Immediately above the primary insulation layer; or
   ii. Immediately above sarking with a vapour permeance of not less than 1.14µg/N.s, which is immediately above the primary insulation layer; or
   iii. Immediately above ceiling insulation which meets the requirements of J3D7 (3) and (4)
h) Has a height of not less than 20mm; and
i) Is either
   i. Ventilated to outdoor air through evenly distributed openings in accordance with Table F8D5; or
   ii. Located immediately underneath roof tiles of an unsarked tiled roof

11. Energy Efficiency

11.1. SECTION J (JP1 Energy Efficiency)

Efficient energy use must be achieved appropriate to the function and use of the building, level of human comfort, solar radiation, energy source of the services and sealing of the building envelope. To achieve this JV1, JV2, JV3, JV4 and JV5 verification methods have been introduced as options available to achieve compliance.

It is noted that a deemed to satisfy pathway is still available.

The proposed site will be located in a climate zone 6.

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved.

Verification Methods

The Verification Methods available to demonstrate compliance with the BCA on a performance basis are as follows:

J1V2 (previously JV3) Green Star

To achieve compliance with J1P1 (previously JP1) for Class 9 buildings Green Star can be used as a verification method when the calculation method complies with ANSI/ASHRAE Standard 140, Specification 34 (previously Spec JVb) and when:

- The building complies with simulation requirements and is registered for a Green Star – Design & As-Built rating; and
- The annual greenhouse gas emissions of the proposed building are less than 90% of the annual greenhouse gas emissions of the reference building; and
- In the proposed building, a thermal comfort level of between predicted mean vote of -1 to +1 is achieve across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation of the building; and

J1V3 (previously JV3) Verification Using a Reference Building

To achieve compliance with JP1 for Class 9 buildings verification using a reference building can be used when the calculation method complies with ANSI/ASHRAE Standard, Specification 34 (previously Spec JVb) and when:

- It is determined that the annual greenhouse gas emissions of the proposed building are not more than the annual greenhouse gas emissions of a reference building when
  - the proposed building is modelled with the proposed services; and
  - the proposed building is modelled with the same services as the reference building.
  - The proposed building thermal comfort level is to be between predicted mean vote of -1 to +1 across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation; and
  - The building achieves the additional requirements in Specification 33 (previously Spec JVa); and
  - The greenhouse gas emissions of the proposed building may be offset by renewable energy generated and use on site and another process such as reclaimed energy used on site.

11.2. Building Fabric (Part J4 (previously Part J1))

Roof and Ceiling Construction (Part J4D4 (previously J1.3))

For a deemed-to-satisfy solution roofs and or ceilings are to be constructed to provide a total R-Value greater than or equal to-

(i) in climate zone 6, R3.2 for a downward direction of heat floor; and

In climate zones 6, the solar absorptance of the upper surface of a roof must be not more than 0.45.

Where the layer of insulation is penetrated by the percentages as tabled below, additional upgrading of the remainder of the insulation level is required.

To achieve compliance with J0.2 (c) a roof that has a metal sheet roofing fixed to metal purlins, metal rafters or metal battens and does not have a celling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens must have a thermal break. The thermal break to be consisting of a material with a R-Value of not less than R0.2, installed at all points of contact between the metal sheet roofing and its supporting metal purlins, metal rafters or metal battens.

Roof lights (Part J4D5 (previously J1.4))

Where roof lights are installed they must have :-

(a) a total area of not more than 5% of the floor area of the room or space served; and

(b) transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of:-

(i) for Total system SHGC, in accordance with the below table; and

(ii) for Total system U-value, not more than U3.9;

Roof light shaft index (see Note 1)	Total area of roof lights up to 3.5% of the floor area of the room or space	Total area of roof lights more than 3.5% and up to 5% of the floor area of the room or space
Less than 1.0	Not more than 0.45	Not more than 0.29
1.0 to less than 2.5	Not more or equal to than 0.51	Not more than 0.33
Greater than 2.5	Not more than or equal to 0.76	Not more than 0.49

External Walls and Glazing (Part J4D6 (previously J1.5))

For walls and glazing construction the total system U-value must not be greater than-

(i) a Class 9b building, U2.0; and

The total system U-value of wall-glazing construction should be calculated in accordance with Specification 37 (previously J1.5a).

Wall components of the wall-glazing construction must achieve a minimum total R-Value of R1.0 where the wall is less 80% if the area and reflect the value specified in Table J4D6a (previously J1.5a) where the wall is *0% or more of the area.

There are further design parameters for display glazing and solar admittances for wall-glazing construction, both of which should comply with the relevant provisions of J4D6 (previously J1.5).

Floors (Part J4D7 (previously J1.6))

Floors are to achieve an R rating of 2.0.

11.3. Building sealing (Part J5 (previously J3))

Windows and Doors (Part J5D5 (previously J3.4))

a) A door, openable window or the alike must be sealed –
   (i) When forming part of the envelope; or
   (ii) In climate zones 6

b) The requirements of (a) do not apply to –
   (i) A window complying with AS2047; or
   (ii) A fire door or smoke door; or
   (iii) A roller shutter door, roller shutter grille or other security door or device installed only for out of house security

c) A seal to restrict air infiltration –
   (i) For the bottom edge of a door, must be draft protection device; and
   (ii) For the other edged 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.

d) An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, rapid roller door, revolving door or the like, other than –
   (i) When the conditioned space has a floor area of not more than 50m²; or
   (ii) Where a café, restaurant, open front shop or the like has –
      (A) A 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and
      (B) At all other entrances to the café, restaurant, open front shop or the like, self-closing doors.
   (iii) A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like

Exhaust fans (Part J5D6 (previously J3.5))

An exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space or a habitable room in climate zones 6.

Construction of ceilings, walls and floors (Part J5D7 (previously J3.6))

A seal to restrict air infiltration must be fitted to each edge of the external doors and openable windows. The seals may be foam or compressible strip, fibrous seal or the like. The main entry doors must have either an airlock, or self-closing doors, or a revolving door.

Ceilings, walls, floors and any openings such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage in accordance with the below when forming part of –

(i) The envelope; or
(ii) In climate zones 6

Construction required by above must be –

(iii) Enclosed by internal lining systems that are close fittings at ceiling, wall and floor junctions; or
(iv) Sealed at junctions and penetrations with –
   (A) Close fitting architrave, skirting or cornice; or
   (B) Expanding foam, rubber compressible strip, caulking or the like

The above does not apply to openings, grilles or the like required for smoke hazard management.

Evaporative coolers (Part J5D8 (previously J3.7))

An evaporative cooler must be fitted with a self-closing damper or the like –

(a) When serving a heated space; or
(b) In climate zones 6

11.4. Air Conditioning and Ventilation systems (Part J6 (previously J5))

Air conditioning and ventilation systems must be designed to comply with the following provisions:

- Be capable of being deactivated when the building or part of a building being served by that system is not occupied;
- Where motorised dampers are in place, they should close when the system is deactivated

- Time switches should be provided to control an air-conditioning system of more than 2kWr and a heater of more than 1kW $_{heating}$ used for air-conditioning, and be capable of switching electric power on and off at variable pre-programmed times on variable pre-programmed days.
- Ductwork and fittings in an air-conditioning system should have insulation complying with AS/NZS 4859.1 and have an insulation R-Value greater than or equal to:-
  - for flexible ductwork R1.0; or
  - for cushion boxes, that of the connecting ductwork; or
  - That specified in Table J6D6 (previously J5.5)

Table J6D6 (previously Table J5.5)

Location of ductwork and fittings	Climate zone 1, 2, 3, 4, 5, 6 or 7	Climate zone 8
Within a conditioned space	1, 2	2.0
Where exposed to direct sunlight	3.0	3.0
All other locations	2.0	3.0

Mechanical:

- Be capable of being deactivated where the building or part of the building served by that system is not occupied
- Time switches must be provided to a mechanical ventilation system with an air flow rate of more than 1000 L/s, capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days;

Heaters

A heater used for air-conditioning or as part of an air-conditioning system must be a either a solar heater, gas heater, heat pump heaters, a heater using reclaimed heat or an electric heater.

A gas water heater, that is used as part of an air-conditioning system must:-

(i) if rated to consume 500 MJ/hour of gas or less, achieve a minimum gross thermal efficiency of 86% ; or
(ii) If rated to consume more than 500 MJ/hour of gas, achieve a minimum gross thermal efficiency of 90%

Refrigerant chillers

An air-conditioning system refrigerant chiller must comply with MEPS and the full load operation energy efficiency ratio and integrated part load energy efficiency ratio laid out under clause J5.10 of the BCA when determined in accordance with AHRI 551/591

Unitary air-conditioning equipment

Unitary air-conditioning equipment including packaged air-conditioners, split systems, and variable refrigerant flow systems must comply with MEPS and for a capacity greater than or equal to 65 kWr –

(a) Where water cooled, have a minimum energy efficiency ratio of 4.0 W_r/ $W_{input\ power}$ for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power; or
(b) Where air cooled, have a minimum energy efficiency ratio of 2.9 W_r / $W_{input\ power}$ for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power.

11.5. Artificial Lighting and Power (Part J6)

Interior Artificial Lighting and Power Control (Part J6.2 & 6.3)

In a building other than a sole-occupancy unit of a Class 2 building or a Class 4 building for artificial lighting, the aggregate design illumination power load must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum illumination power density below:-

The maximum illumination power density;

Stairways, including fire-isolated stairways	2W/m^2
Toilet, locker room, staff room, rest room or the like	3W/m^2
Lift cars	3W/m^2
Service area, cleaner's room and the like	3W/m^2
Office:	
(A) Artificially lit to an ambient level of 200 lx or more	4.5W/m^2
(B) Artificially lit to an ambient level of less than 200 lx	2.5W/m^2
Storage	1.5W/m^2
School:	4.5W/m^2
Kitchen and food preparation area:	4W/m^2

Artificial Lighting must be controlled by a time switch, other control device or a combination of both.

Each light control in a building must not operate lights within an area of more than;

- Not operate lighting for an area more than -
  a) 250m^2 for a space of not more than 2000m^2;
  b) 1000m^2 for a space of more than 2000m^2
  if in a Class 9 building;
- 1000m^2 for a space of more than 2000m^2

<u>Interior decorative and display lighting</u>

Interior decorative and display lighting, such as for a foyer mural or art display, must be controlled -

- Separately from other artificial lighting; and
- By a manual switch for each area other than when operating times of the displays are the same in a number of areas (e.g. where in a museum) in which case they may be combined; and
- By a time switch in accordance with Specification 40 (previously J6) where the display lighting exceeds 1 kW

Window display must be controlled separately from other display lighting exceeds 1kW.

<u>Exterior artificial lighting</u>

Artificial lighting attached to or directed at the façade of the building if it exceeds a total of 100W must;

- Use LED luminaires for 90% of the total lighting load; or
- Be controlled by a motion detector in accordance with Specification J6 of the BCA;

- When used for decorative purposes, such as façade lighting or signage lighting, have a separate switch in accordance with Specification J6.

Lifts (Part J7D8 (previously J6.7))

Lifts must be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes and achieve the idle and standby energy performance level required, and the energy efficiency class under J7D8 (previously J6.7) of the BCA.

11.6. Heated Water Supply and Swimming Pool and Spa Pool Plant (Part J8 (previously J7))

Heated water supply (Part J8D2 (previously J7.2))

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.

11.7. Energy Monitoring and On-Site Distributed Energy Resources (Part J9 (previously Part J8))

Facilities for Energy Monitoring (J9D3 (previously J8.3))

A building or sole-occupancy unit with a floor area of more than 500 m2 must have energy meters configured to record the time-of-use consumption of gas and electricity.

A building with a floor area of more than 2 500 m2 must have energy meters configured to enable individual time-of-use energy data recording, in accordance with the below, of—

a) artificial lighting; and
b) appliance power; and
c) central hot water supply; and
d) internal transport devices including lifts, escalators and moving walkways where there is more than one serving the building; and
e) on-site renewable energy equipment; and
f) on-site electric vehicle charging equipment; and
g) on-site battery systems; and
h) other ancillary plant.

Energy meters required by the above must be interlinked by a communication system that collates the time-of-use energy data to a single interface monitoring system where it can be stored, analysed and reviewed.

Facilities for Electric Vehicle Charging Equipment (Clause J9D4)

A carpark associated with a Class 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging in accordance with Table J9D4 in each storey of the carpark, and labelled to indicate use for electric vehicle charging equipment.

Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must—

a) be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and
b) when associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily; and

c) when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily; and
d) when associated with a Class 3 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48 kWh from 11:00 pm to 7:00 am daily; and
e) be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in—
    i. 100% of the car parking spaces associated with a Class 2 building; or
    ii. 10% of car parking spaces associated with a Class 5 or 6 building; or
    iii. 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and
f) contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and
g) be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.

Facilities for Solar Photovoltaic and Battery Systems

The main electrical switchboard of a building must—
a) contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for—
    i. a solar photovoltaic system; and
    ii. a battery system; and
b) be sized to accommodate the installation of solar photovoltaic panels producing their maximum electrical output on at least 20% of the building roof area.

At least 20% of the roof area of a building must be left clear for the installation of solar photovoltaic panels, except
for buildings—

a) with installed solar photovoltaic panels on—
    i. at least 20% of the roof area; or
    ii. an equivalent generation capacity elsewhere on-site; or
b) where 100% of the roof area is shaded for more than 70% of daylight hours; or
c) with a roof area of not more than 55 m2; or
d) where more than 50% of the roof area is used as a terrace, carpark, roof garden, roof light or the like.

The requirements do not apply to a building with solar photovoltaic panels installed on at least 20% of the roof area or to a building with battery systems installed.

12. Access for People with Disabilities

The development is required to comply with the accessibility provisions contained within:

- The Building Code of Australia 2022;
- Disability (Access to Premises – Buildings) Standards 2010;
- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4.1 -2009 Tactile Ground Surface Indicators
- AS2890.6-2009 Car Parking for People with Disabilities

Note: With the introduction of the Commonwealth *Disability Discrimination Act (DDA)* in 1992 (enacted in 1993), all organisations have a responsibility to provide equitable and dignified access to goods, services and premises used by occupants. Organisations and individuals since its introduction, are required to work to the objects of the Act which are to eliminate, as far as possible, discrimination against persons on the ground of disability in the **areas of work, accommodation, education, access to premises, clubs and sports, and the provision of goods, facilities, services and land, existing laws and the administration of Commonwealth laws and programs.**

This report assesses against the requirements contained with the Building Code of Australia (and documents referred to therein) and is not considered to be a full assessment against the Disability Discrimination Act.

12.1. General Building Access Requirements (BCA D4D2 (previously D3.1))

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D4D3, D4D4 and D4D5 (previously D3.2, D3.3 and D3.4) of the BCA 2022 and AS 1428.1. Parts of the building required to be accessible shall comply with the requirements of:-

- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4.1 -2009 Tactile Ground Surface Indicators
- AS2890.6-2009 Car Parking for People with Disabilities

Access for persons with a disability is to be provided as follows:

Schools and early childhood centres

To and within all areas normally used by the occupants.

12.2. Provision for Access to Buildings (BCA Clause D4D3 (previously D3.2)

The BCA prescribes access to be provided to and within the building as follows:

- Via the principle pedestrian entry and at least 50% of all other entrances from the allotment boundary
- From designated car parking spaces for the use of occupants with a disability.
- From another accessible building connected by a pedestrian link.
- All areas used by the occupants.

In buildings over 500m^2 in floor area, a non-accessible entrance must not be located more than 50m from an accessible entrance.

Where a pedestrian entry contains multiple doors, the following is required;

- Entrance containing not more than 3 doors, at least one of the doorways must be accessible.
- Where an entrance contains more than 3 doors, not less than 50% of the doorways must be accessible.

A door is considered to be accessible if it is automatic (open and closing) or is more than 850mm in clear opening width and contains the required door circulation space.

12.3. Accessibility within Building (BCA Clause D4D4 (previously D3.3))

A building required to be accessible is required to be equipped with either a AS 1428.1 compliant lift or AS 1428.1 compliant ramp, (but the maximum vertical rise of a ramp must not exceed 3.6m).

Within the building the following are required;

- Door circulation space as per AS1428.1 Clause 13.3.
- Doorways must have a clear opening of 850mm;
- Passing spaces (1.8m wide passages) must be provided at maximum of 20m intervals
- Within 2.0m of end access ways/corridors, turning areas spaces are required to be provided.
- Carpet pile height of not more than 11mm to an adjacent surface and backing <4mm
- Any glazing capable of being mistaken for a doorway or opening must be clearly marked (or contain chair rail, hand rail or transom as per AS 1288 requirements)

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details are to be provided or access to these areas is to be assessed by an access consultant.

12.4. Car Parking (BCA Clause D4D6 (previously D3.5))

Accessible car parking spaces are required to comply with AS 2890.6-2009 at the rate of (1 space for every 100 spaces)

A ‘shared zone’ of minimum 5400mm x 2400mm is required adjacent to accessible car parking spaces, protected with a bollard.

Currently no spaces are shown for review.

12.5. Tactile Indicators (BCA Clause D4D9 (previously D3.8))

Tactile indicators are required to be provided to warn occupants of all stairs (except Fire Isolated stairs) and ramps regardless of public nature or private environment and where an overhead obstruction occurs less than 2.0m above the finished floor level.

12.6. Stairs (BCA Clause D4D4 (previously clause D3.3 inter Alia AS1428.1))

Stairs shall be constructed as follows:

a) Where the intersection is at the property boundary, the stair shall be set back by a minimum of 900mm so that the handrail and TGSIs do not protrude into the transverse path of travel.
b) Where the intersection is at an internal corridor, the stair shall be set back one tread width plus 300mm (nominally 700mm as per AS 1428.1-2009 Fig 26(b)), so the handrails do not protrude into transverse path of travel.
c) Stairs shall have opaque risers.
d) Stair nosing shall not project beyond the face of the riser and the riser may be vertical or have a splay backwards up to a maximum 25mm.

e) Stair nosing profiles shall;
   - Have a sharp intersection;
   - Be rounded up to 5mm radius; or
   - Be chamfered up to 5mm x 5mm

f) All stairs, including fire isolated stairs shall, at the nosing of each tread have a strip not less than 50mm and not more than 75mm deep across the full width of the path of travel. The strip may be set back a maximum of 15mm from the front of the nosing. The strip shall have a minimum luminance contrast of 30% to the background. Where the luminous contrasting strip is affixed to the surface of the tread, any change in level shall not exceed a difference of 5mm.

12.7. Accessible Sanitary Facilities (BCA Clause F4D5, F4D6, F4D7 (previously F2.4))

Unisex Accessible Sanitary Facilities

An accessible unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only and provided in accordance with AS 1428.1-2009 and must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary products and as per following.

Building Type	Minimum accessible unisex sanitary compartments to be provided
Office, industrial, assembly building, schools, health care except for within a ward area of a Class 9a health-care building	a) 1 on every storey containing sanitary compartments; and b) Where a storey has more than 1 bank of sanitary compartments containing male and female sanitary compartments, at not less than 50% of those banks.

Ambulant Facilities

At each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1-2009 must be provided for use by males and females.

Where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations.

An accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey or level that is not provided with a passenger lift or ramp complying with AS 1428.1-2009

12.8. Signage (BCA Clause D4D7 (previously D3.6))

As part of the detailed design package, specifications will need to be developed indicating:

- Sanitary Facility Identification Signs (note that they are to comply with BCA Specification 15 (previously Spe. D3.6) and include the use of Braille, Tactile, etc and be placed on the wall on the latch side of the facility);
- Directional / Way Finding signs to the Lifts, Sanitary Facilities, etc;
- Hearing Augmentation System;
- Identify each door required by BCA Clause E4D5 (previously E4.5) to be provided with an exit sign, stating ‘EXIT’ and ‘Level” number
- Braille and tactile signs must be illuminated to ensure *luminance contrast* requirements are met at all times during which the sign is required to be read.

12.9. Hearing Augmentation (BCA Clause D4D8 (previously D3.7))

A hearing augmentation system shall be installed throughout the building in accordance with the requirements of Clause D4D8 (previously D3.7) of the BCA, where ever in a 9b building, auditorium conference room, meeting room etc. contain a PA system not used for emergency purposed or any ticket office or teller's booth or reception where the public is screened from the service provider.

13. Appendix A - Reference Documentation

The following documentation was used in the assessment and preparation of this report:

Drawing No.	Title	Revision	Date	Prepared By
DA-00	COVER PAGE LOCATION/ KEY PLAN	A	25.05.23	ID Fitouts
DA-01	SITE SURVEY PLAN / ROOF PLAN	A	25.05.23	ID Fitouts
DA-02	EXISTING TENANCY - BASEMENT FLOOR	A	25.05.23	ID Fitouts
DA-03	DEMOLITION PLAN	A	25.05.23	ID Fitouts
DA-04	GENERAL ARANGEMENT PLAN	A	25.05.23	ID Fitouts
DA-05	SETOUT / AREA ZONE PLAN	A	25.05.23	ID Fitouts
DA-06	REFLECTED CEILING PLAN	A	25.05.23	ID Fitouts
DD-07	FLOOR FINISHES PLAN	A	25.05.23	ID Fitouts
DA-08	CAR PARKING ALLOCATION PLAN	A	25.05.23	ID Fitouts
DA-E1	ELEVATIONS NORTH / SOUTH	A	25.05.23	ID Fitouts
DA-E2	ELEVATIONS EAST / WEST	A	25.05.23	ID Fitouts
DA-S1	SECTIONS A-A B-B	A	25.05.23	ID Fitouts
DA-SE1	SHADED ELEVATIONS - EXTENT OF NEW WORK	A	25.05.23	ID Fitouts

14. Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Automatic Fail Safe Devices	BCA 2022 Clause D3D24 & D3D26
2.	Automatic Smoke Detection and Alarm System	BCA 2022 Clause E2D3, E2D5, E2D7, E2D8, E2D9, E2D10, E2D11, E2D13, E2D14, E2D15, E2D16, E2D17, E2D19, E2D20, Spec 20 Clause S20C3/S20C4/S20C5, AS 1670.1 – 2018, AS/NZS 1668.1 – 2015, AS 3786-2014
3.	Automatic Fire Suppression System	BCA 2022 Clause C3D4, E1D5, E1D6, E1D7, E1D8, E1D9, E1D10, E1D11, E1D13, E2D8, E2D9, E2D10, E2D11, E2D13, E2D14, E2D15, E2D16, E2D17, E2D19, E2D20, Spec 17, & AS 2118.1 – 2017 Amdt 1 & 2,
4.	Building Occupant Warning System activated by the Sprinkler System	BCA 2022 Spec 17 & Spec 20 Clause S20C7 & AS 1670.1 – 2015 – Clause 3.22
5.	Emergency Lighting	BCA 2022 Clause E4D2, E4D4 & AS/NZS 2293.1 – 2018
6.	Emergency Evacuation Plan	AS 3745 – 2002
7.	Exit Signs	BCA 2022 Clauses E4D5, E4D6 & E4D8 and AS/NZS 2293.1 – 2018
8.	Fire Blankets	BCA 2022 Clause E1D14, I3D11 and AS 2444 – 2001
9.	Fire Hose Reels	BCA 2022 Clause E1D3 & AS 2441 – 2005 Amdt 1
10.	Fire Hydrant System	BCA 2022 Clause C3D13, E1D2, Spec 18, I3D9 & AS 2419.1 – 2021
11.	Fire Seals	BCA 2022 Clause C4D15, C4D16, Spec 13, Spec 14, & AS 1530.4 –2014
12.	Lightweight Construction	BCA 2022 Clause C2D9, Spec 6
13.	Mechanical Air Handling System	BCA 2022 Clause E2D3, E2D4, E2D6, E2D7, E2D8, E2D9, E2D10, E2D11, E2D12, E2D13, E2D14, E2D15, E2D16, E2D17, E2D18, E2D19, E2D20, G3D8, Spec 21, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012
14.	Portable Fire Extinguishers	BCA 2022 Clause E1D14 & I3D11, AS 2444 – 2001
15.	Smoke Hazard Management System	BCA 2022 Clause E2D3, E2D4, E2D6, E2D7, E2D8, E2D9, E2D10, E2D11, E2D12, E2D13, E2D14, E2D15, E2D16, E2D17, E2D18, E2D19, E2D20, G3D8, Spec 21, AS/NZS 1668.1 – 2015
16.	Warning and Operational Signs	BCA 2022 Clause C4D7, D2.23, E3D4, AS 1905.1 – 2015
17.	Fire Engineering Report	TBC

15. Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2022:

Type A Construction

Table S5C11a: Type A Construction: FRL of loadbearing parts of external walls

Distance from a fire source feature	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/30	120/90/90	180/180/120	240/240/180
3m or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A Construction: FRL of non-loadbearing parts of external walls

Distance from a fire source feature	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5m	-/90/90	-/120/120	-/180/180	-/240/240
1.5 to less than 3m	-/60/60	-/90/90	-/180/120	-/240/180
3m or more	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11c: Type A Construction: FRL of external columns non incorporated in an external wall

Column tyle	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11d: Type A Construction: FRL of common walls and fire walls

Wall type	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-loadbearing	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A Construction: FRL of loadbearing internal walls

Location	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	90/90/90	120/120/120	180/120/120	240/120/120

Bounding public corridors, public lobbies and the like	90/90/90	120/-/-	180/-/-	240/-/-
Between or bounding sole-occupancy units	90/90/90	120/-/-	180/-/-	240/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A Construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	-/90/90	-/120/120	-/120/120	-/120/120
Bounding public corridors, public lobbies and the like	-/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	-/90/90	-/90/90	-/120/120	-/120/120

Table S5C11g: Type A Construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Location	FRL (in minutes): Structural Adequacy/ Integrity/ Insulation			
	Class 2,3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other loadbearing internal walls, internal beams, trusses and columns	90/-/-	120/-/-	180/-/-	240/-/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

(3) Carparks

For building elements in a carpark as described in (1) and (2), the following minimum FRLs are applicable:

a) External wall:
   i. Less than 3 m from a fire-source feature to which it is exposed:
      A. Loadbearing: 60/60/60.
      B. Non-loadbearing: –/60/60.
   ii. 3 m or more from a fire-source feature to which it is exposed: –/–/–.

b) Internal wall:
   i. Loadbearing, other than one supporting only the roof (not used for carparking): 60/–/–.
   ii. Supporting only the roof (not used for carparking): –/–/–.
   iii. Non-loadbearing: –/–/–.

c) Fire wall:
   i. From the direction used as a carpark: 60/60/60.
   ii. From the direction not used as a carpark: as required by Tables S5C11a to S5C11g.

d) Columns:
   i. Supporting only the roof (not used for carparking) and 3 m or more from a fire-source feature to which it is exposed: –/–/–.
   ii. Steel column, other than one covered by (i) and one that does not support a part of a building that is not used as a carpark—
      A. 60/–/–; or
      B. an ESA/M of not greater than 26m2/tonne.
   iii. Any other column not covered by (i) or (ii): 60/–/–.

e) Beams:
   i. Steel floor beam in continuous contact with a concrete floor slab
      A. 60/–/–; or
      B. an ESA/M of not greater than 30m2/tonne.
   ii. Any other beam: 60/–/–.

f) Fire-resisting lift and stair shaft (within the carpark only): 60/60/60.

g) Floor slab and vehicle ramp: 60/60/60.

h) Roof (not used for carparking): –/–/–.

(4) For the purposes of subclause (3):

a) ESA/M means the ratio of exposed surface area to mass per unit length.
b) Refer to Specification 17 for special requirements for a sprinkler system in a carpark complying with (3) and (b) located within a multi-classified building.

16. Appendix D – Draft BCA 2022 Volume 1 Amendments

BCA 2022 is now scheduled to be adopted in all states and territories in Australia on 1 May 2023. This is a delay from the previously advised date of the 1st of September 2022. The final version of BCA 2022, incorporating all state and territory variations is to be made available on the 1st of October 2022. The first stage of changes has been released and includes a range of amendments relating to BCA structure, fire safety and health and amenity. The second set of amendments have just been released and includes energy efficiency and condensation mitigation provisions. The 'modern home provisions', i.e. liveable housing, condensation management and energy efficiency provisions are proposed to have a transition period until the 1st of October 2023.

State and territory variations are still yet to be confirmed, but will be included in the final version to be released on 1 October 2022. The national requirements have been agreed and it is understood these will not be amended further except by any state and territory variations.

The below table includes a summary of the key changes that have been included in the amendments to the national requirements.

For a full outline of the changes, refer the ABCB website: https://abcb.gov.au/news/2022/whats-new-about-ncc-2022 and https://ncc.abcb.gov.au/news/2022/overview-changes-energy-efficiency-and-condensation

(NSW) Where the construction of a project is staged across multiple Construction Certificates, the BCA version that applies to a part of a project is determined by the date the Construction Certificate application is made for that part.

This means that a project may span multiple versions of the BCA, and that BCA 2022 will apply to any components where the Construction Certificate is applied for on or after the 1st of October 2022.

It is, however, noted that the government has agreed to amend the regulation to enable one version of the BCA to be applied to the development as a whole. The BCA that applies to the whole development will be that which is in force on the date of the application for the Construction Certificate which includes the ground floor or podium of the building, whichever is higher. This amendment is schedules to commence in quarter 4, 2022.

Summary of Changes	BCA 2022 Clause Reference	BCA 2019 Amdt 1 Clause Reference
BCA Structure The Performance Requirements, clauses and specifications have been renumbered according to a proposed new system. To assist with this summary, a reference in BCA 2022 and BCA 2019 Amdt 1 have been included in the new BCA and in this document.		
Use of NatHERS Where house energy rating software is required to be used, the output must be in the for of a NatHERS certificate issued in accordance with the NatHERS scheme.	A5G9	-
Minor Use Classification Class 9b early childhood centres will no longer be able to be considered as the minor classification if less than 10% of the floor area. The early childhood centre is required to comply with all provisions relating to Class 9b early childhood centres	A6G1	A6.0
Multiple Classifications A building or part may have multiple purposes and classifications, so long as that building or part complies with all requirements for each classification assigned to it.	A6G12	-
Structural Reliability Performance Requirement B1P1 has also been updated to include an allowance for solar PV in the structural design of the roof.	B1P1	BP1.1
Non-Combustible Building Elements The list of elements that are excluded from needing to be non-combustible has been expanded to include additional construction elements such as packers, blocking for fixtures, waterproofing materials, joint trims, reinforcing bars and paint. The list also includes several elements that were generally considered non-combustible prior to the clarification, including concrete, steel, masonry, aluminium, autoclaved aerated concrete, concrete, porcelain, stone, lead, bronze, zinc and terracotta tiles.	C2D10	C1.9
Ancillary Elements The list of items considered to be ancillary has been expanded to include waterproofing material, screens applies to vents to AS 3959, seals to windows and openings, and gaskets caulking, sealants and adhesives associated with other ancillary elements.	C2D14	C1.14
Bonded Laminated Materials	C2D15	-

Materials to be fixed in accordance with the new clause C2D15, which requires mechanical fixings to hold all layers of the cladding.		
FRL of Fire Walls The BCA now clarifies that, regardless of whether a fire wall is loadbearing or not, the wall is to be provided with a rating for structural integrity.	Specification 5	Spec C1.1
Fire Separation & Egress Requirements for Early Childcare Centres This Clause has been expanded to include fire separation and egress requirements for early childcare centres. Early childhood centres are required to be fire separated from the remainder of the building, and each storey of the early childhood centre is required to have at least 2 fire compartments, with each compartment having at least 2 horizontal exits and an exit other than a horizontal exit. The clear area provided to horizontal exits is required to accommodate all occupants of the early childhood centre. These requirements do not apply where the early childhood centre is wholly within a storey that provides direct egress to road or open space or where the building has a rise in storeys of not more than 2 and the early childhood centre is to only use in the building.	C3D6 D2D3 D2D16	C2.5 D1.2 D2.11
Fire Isolated Exits from Class 9b Early Childhood Centres Any exits serving a Class 9b early childhood centre required to be fire isolated.	D2D4	D1.3
Egress from Primary Schools Every part of a primary school is required to be located wholly within a storey that provides direct egress to road or open space unless the building has a rise in storeys of not more than 4 and the building is used only as a school.	D2D23	D1.8
Balustrade Provisions Exemptions from balustrading requirements for fire isolated stairs do not apply where the stair serves an early childhood centre. The gap between the face of a landing, balcony, deck or the like and the barrier is not to exceed 40mm.	D3D19 D3D20	D2.16
Handrails to Early Childhood Centres A second handrail fixed at a height between 450 mm and 700 mm is required to all stairs and ramps serving an early childhood centre.	D3D22	D2.17
Re-entry from Fire Isolated Exits Re-entry provisions apply to fire isolated exits serving early childhood centres unless the door automatically unlocks on fire alarm.	D3D27	D2.22
Smoke Detection and Alarm to Buildings Containing Early Childhood Centres Where a building contains an early childhood centre which is not located wholly on a storey that provides direct egress to road or open space, an automatic smoke detection and alarm system must be provided throughout the whole building.	E2D20	E2.2

Sprinkler Systems to Early Childhood Centres Sprinklers are required to be provided throughout the building where the building contains a Class 9b early childhood centre. This includes providing sprinklers to parts of other classifications. FPAA101D and FPAA101H sprinkler systems are not permitted to be utilised in buildings that contain an early childhood centre (other than one located wholly within a storey that provides direct egress to road or open space. Sprinkler systems serving early childhood centres are to use quick response heads.	E1D11 S17C2 S17C14	Spec E1.2 Cl 2 -
Additional Provisions for Weatherproofing New provisions have been added relating to exposed joints and external waterproofing membranes.. Exposed joints are to be protected in accordance with Section 2.9 of AS 4654.2 and are not to be located or run through a planter, water feature or similar.	F1D4, F1D5	-
Deemed To Satisfy Provisions for Weatherproofing of External Walls Part F3 of the BCA now contains deemed to satisfy provisions for roof and wall cladding relating to weatherproofing. External walls are required to comply with one or a combination of the following: ▪ Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. ▪ Autoclaved aerated concrete: AS 5146. ▪ Metal wall cladding: AS 1562.1	Part F3	FP1.4, F1.0
Sound Transmission Performance Requirements The Performance Requirements relating to sound transmission and insulation now include quantifiable requirements that must be met in lieu of phrases such as ‘sufficient to prevent illness or loss of amenity’.	Part F7	Part F5
Sound Transmission Acceptable Forms of Construction Additional wall types have been included in the timber and steel framing category for sound transmission and insulation requirements.	S28C7	Spec F5.2
Updated Verification Method for Condensation Management This method has been updated to reference AIRAH DA07 to clarify input assumptions, and failure criteria for analysis is included (mould index of greater than 3).	F8V1	FP6.1
Vapour Permeable Materials Pliable building membranes, sarking-type materials and secondary insulation layers on the outside of primary insulation layers are required to be vapour permeable in climate zones 4 to 8 with required vapour permeance rates prescribed.	F8D3	-
Requirements to Exhaust Systems for Condensation Management The following additional requirements have been added:	F8D4	F6.3

▪ Exhaust systems from a bathroom, sanitary compartment or laundry must discharge outside the building (previously discharge to ventilated ▪ Where space for a clothes drying appliance has been provided, spae must also be provided for ducting from the appliance to outside air. Make up air must also be provided to this room (where not naturally ventilated) to AS 1668.2 ▪ Exhaust systems to bathrooms/WC's that are not naturally ventilated must be interlocked with the rooms light switch and run for 10 minutes after the light is switched off.		
Ventilation of Roof Spaces Roofs in climate zones 6,7 and 8 (except Bushfire Attack Level FZ) are required to have evenly distributed ventilation openings and a height of at least 20mm. the minimum ventilation area is determined by the roof pitch.	F8D5	F6.4
Balustrade Provisions to Outdoor Play Spaces in Early Childhood Centres Where the trafficable surface of an outdoor play space is not more than 2m above the surface below, the balustrading provisions are to comply with the requirements of AS 1926.1. Where the surface of the play space is more than 2m above the surface beneath, the balustrade is to be: vi. is not less than 1.8 m high, as measured from above the trafficable surface; and vii. is non-climbable and does not contain horizontal or other elements that could facilitate climbing; and viii. does not have any openings or apertures through which a 100 mm or greater sphere could pass; and ix. is not within 1.8 m, as measured directly from the top of the barrier, of any elements within the outdoor play space that facilitate climbing; and x. is not within 900 mm of elements in a wall that facilitate climbing Strength and rigidity of all balustrades to play spaces are to comply with AS 1926.1.	G1D4	G1.3
Bushfire Provisions for Class 9a Health Care Buildings, Class 9b Early Childhood Centres and Primary or Secondary Schools or Class 9c Residential Care Buildings A new Performance Requirement has been introduced to nominate bushfire requirements for the above nominated Class 9 buildings. Deemed to Satisfy provisions have been introduced in G5D4, along with Specification 43 that outlines the specific requirements that apply to these buildings. These requirements relate to: ▪ separation form vegetation, buildings, hazards and carparks, ▪ Access and pathways ▪ Exposed external area ▪ Internal tenability ▪ Building envelope	G5P2 G5D4 Specification 43	-

▪ Water supply for fire fighting, emergency power supply and vehicular access for fire brigade appliances		
Liveable Housing Design This new part sets requirements for dwellings to include features that are designed to improve their accessibility and usability for occupants and visitors, including those with a mobility-related disability. This part applies to all new Class 2 sole occupancy units. These requirements outline that compliance with the ABCB Standard for Liveable Housing Design is required by the deemed to satisfy provisions and apply to every sole occupancy unit except those with an internal floor area of less than 55m2. The requirements in the standard have been adapted from the 'silver' level requirements of the Liveable Housing Design Guidelines. These provisions require that access be provided to every sole occupancy unit, and that within each unit, the dwelling entrance, internal doors and corridors, WCs and showers comply with requirements to provide access for people ageing in place. The provisions also include requirements for reinforcement of bathroom and toilet walls, and outlines requirements for internal stairs where available. Compliance with this part will need to be verified by an accredited access consultant.	Part G7	-
Energy Efficiency Performance Requirements for Sole Occupancy Units These performance requirements are specific to SOU's in a Class 2 building and will address the envelope of an SOU and energy usage.	J1P2, J1P3	-
Distributed Energy Resources Provisions included to enable buildings to be retrofitted with distributed energy resources such as photovoltaic panels, battery storage and electric vehicle charging equipment. This includes a new Performance Requirement (J1P4) and DTS provisions	J1P4 Part J9	-
NABERS for Additional Building Classifications NABERs is proposed to be an accepted Verification Method for common areas in Class 2 buildings, Class 3 buildings and Class 6 shopping centres.	J1V1	JV1
Amendments to J1V2 Alignment of BCA with current Green Star modelling and reduces conflict between modelling requirements in J1V3.	J1V2	JV2
Amendments to J1V4 Additional parameters have been included for within sole occupancy units in a Class 2 or Class 4 part of a building	J1V4	JV4
Energy Efficiency – Verification Using a Reference Building (Residential Sole Occupancy Units) Annual energy use budget for sole occupancy units in a Class 2 building. This budget approach is similar as for Class 1 buildings.	J1V5 Specification 33	- Specification JVb

The verification method using a reference building compliance pathway is similar to the J1V3 (previously JV3) for commercial buildings. A single energy model will be an option to show compliance, however it will also be required to show that no single sole occupancy unit has an unacceptable heating or cooling load. The modelling parameters have also been updated.		
New DTS Provisions for Class 2 Sole Occupancy Units and Class 4 Parts The building fabric provisions for class 2 have been updated to be based on a 7-star NatHERS rating, and energy useage requirements based on heating and cooling loads have been introduced. These provisions relate to external building fabric and domestic services.	Part J3	J0.3, J0.4, J0.5
Energy Efficiency – Monitoring Clarification of metering requirements, expanding sub-metering capabilities for distributed energy resources, and introducing new provisions to make retrofitting equipment over the life of the building easier.	Part J9	Part J8
Building Complexity Criteria Definition A 'building complexity criteria' definition has been introduced, however there are no technical provisions yet that these definitions apply to. The definition seeks to assign a 'complexity' level to each building based on building attributes (e.g. location, effective height, whether the building contains performance solutions) occupant numbers and characteristics (more than 100 occupants total, more than 10 occupants who require assistance egressing the building in an emergency), and level of importance (importance level 4). The complexity levels proposed are 'low', 'medium', 'high' or 'very high'. Provisions will likely be introduced through future versions of the BCA and potentially through legislation in each state.	Glossary	Definitions
Definitions Several definitions have been added relating to structure, stormwater and waterproofing.	Glossary	Definitions

The following reference documents are also scheduled to be updated:

AS/NZS 1170.2 Structural Design Actions - Wind Actions	2021	2011
AS 1288 Glass in Buildings – Selection and Installation	2021	2006
AS 1397 Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium	2021	2011
AS 1530.8.1 Methods for fire tests of building materials, components and structures – Tests of elements of construction for buildings exposed to simulated bushfire attack – Radiant heat and small flaming sources	2018	-

AS/NZS 1546.1 On-site domestic wastewater treatment unit – Septic tanks	2008	-
AS/NZS 1546.2 On-site domestic wastewater treatment unit – Waterless composting toilets	2008	-
AS/NZS 1546.3 On-site domestic wastewater treatment unit – Secondary treatment systems	2017	-
AS/NZS 1546.4 On-site domestic wastewater treatment unit – domestic greywater treatment systems	2016	-
AS/NZS 1547 On-site domestic wastewater management	2012	-
AS 1563.3 Design and installation of sheet roof and wall cladding – Plastic	2006	2006
AS 1684.2 Residential timber framed construction – Non-cyclonic areas	2021	2010
AS 1684.3 Residential timber framed construction – Cyclonic areas	2021	2010
AS 1720.4 Timber structures – Fire resistance for structural adequacy of timber members	2019	2006
AS 2118.5 Automatic fire sprinkler systems – Home fire sprinkler systems	2008 (R 2020)	-
AS 2312.1 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings – Paint coatings	2014	-
AS 2312.2 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings – Hot dip galvanising	2014	-
AS 2419.1 Fire hydrant installations – System design, installation and commissioning	2021	2005
AS 2699.1 Built-in components for masonry construction – wall ties	2020	2000
AS 2699.3 Built-in components for masonry construction – Lintels and shelf angles (durability requirements)	2020	2002
AS 3500.0 Plumbing and drainage – Glossary of Terms	2021	2003
AS 3500.1 Plumbing and drainage – Water Services	2021	2018
AS 3500.2 Plumbing and drainage – Sanitary plumbing and drainage (incorporating amendment 1)	2021	2018
AS 3500.3 Plumbing and drainage – Stormwater drainage	2021	2018
AS 3500.4 Plumbing and drainage – Heated water services	2021	2018
AS 3740 Waterproofing of domestic west areas	2021	2010
AS 4055 Wind loads for housing	2021	2012
AS 4100 Steel structures	2020	1998
AS/NZS 4234 Heated water systems – Calculation of energy consumption	2021	2008
AS 4256 Series – Plastic roof and wall cladding materials	Removed	1994
AS 4858 Wet area membranes	2004	-
AS 5146.3 Reinforced autoclaved aerated concrete	2018	-
AS 5216 Design of post-installed and cast-in fastenings in concrete	2021	2018

AS/NZS 5601.1 Gas installations – General installations	2013	-
AIRAH-DA07 Criteria for moisture control design analysis in buildings	2021	-
ASTM E903 Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	Removed	2012
ASTM E96 Standard Test Methods for Water Vapour Transmission of Materials	2016	-
ABCB Fire Safety Verification Method	2022	-
ABCB Housing Provisions Standard	2022	-
ABCB Standard for Whole-of-Home Efficiency Factors	2022	-
ABCB Liveable Housing Design	2022	-
FPAA101D Automatic Fire Sprinkler System Design and Installation – Drinking Water Supply	2021	2018
NASH Standard Steel Framed Construction in Bushfire Areas	2021	-
NSF/ANSI/CAN 372 Drinking Water System Components – Lead Content	2020	-