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Regulatory Compliance Report

Woolworths Warehouse & Distribution Centre
74 Edinburgh Rd, Marrickville

Prepared for: **Woolworths Limited**
Date: **27 August 2020**
Revision: **C**

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Date	Rev No	No. of Pages	Issue or Description of Amendment	Assessed By	Approved By	Date Approved
20/12/19	A	24	Preliminary	Zac Wilkins	Vijay Perumal	20/12/19
21/08/20	B	22	To Accompany SSDA Submission	Geoff Pearce	Vanessa Hinge	24/08/20
27/08/20	C	23	Updated based on comments received	Geoff Pearce	Geoff Pearce	27/08/20

1. Executive Summary

Development Overview

The proposed development comprises of a new warehouse facility comprising of;

- Woolworths CFC (Customer Fulfilment Centre)
- Woolworths Offices
- Online Pick-up
- Spec Warehouses
- Carparking portions

The site is located at 74 Edinburgh Rd, Marrickville

Compliance Summary

As Certifying Authority we have reviewed the Preliminary concept architectural design documents prepared by Nettleton Tribe (refer appendix A) for compliance with the current building assessment provisions, i.e. the Building Code of Australia 2019 Amd 1(BCA).

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

Furthermore, we note that the development is capable of complying with the relevant requirements of the Environmental Planning and Assessment Act, the Regulations and the Building Code of Australia. We further note that the compliance strategy to achieve compliance with the provisions of the BCA will be through a combination of deemed-to-satisfy and Performance Based solutions.

Performance Solutions

The assessment of the Preliminary design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA, as they deviate from the deemed-to-satisfy provisions of the BCA

No.	Performance Solution Description	DTS Clause	Performance Requirements
Fire Safety Items			
1	If FRL's that are proposed to be rationalised with table C1.1 of the BCA will be required to be included within the Fire Engineered Solution OR the design to achieve compliance with the prescriptive provisions of the BCA.	C1.1, C2.7, C2.8, Spec C1.1	CP1, CP2
2	Perimeter Access to the development currently does not achieve compliance with the prescriptive provisions of the BCA. We note that as access for NSW Fire and Rescue goes under the South Westerns covered Hardstand areas of the site, we note that this element will be required to be considered within the Fire Engineered Solution for the development.	C2.3 & C2.4	CP9
3	If openings to the South Western elevation are not proposed to be protected in accordance with the requirements of Clause C3.4 of the BCA, we note that this scenario will also be required to be included within the Performance Based Solution in accordance with CP2 and CP8 of the BCA.	C3.2	CP2 & CP8

No.	Performance Solution Description	DTS Clause	Performance Requirements
4	Further to our review of the proposed base building layout, we note that the following egress items have been identified. We note that these elements may be addressed through the design process or through the base building Fire Engineering Strategy for the site: - ▪ Egress from the hardstand area to all level of the building to be confirmed. Currently no egress stair is shown from this area of the development, nor the gradient of the vehicular ramp. NB: We note that if the ramp achieves a gradient of 1:8 (or shallower) the ramp can also be utilised for egress. ▪ Currently no egress points are shown from the CFC Mezzanine level. ▪ Ground floor Spec Warehouse 2 – Distance of 100m to an exit and 160m between alternative exits. ▪ Ground Floor Carpark area – Maximum of 70m to an exit and 80m between alternative exits. ▪ Level 1 Carpark area – Maximum of 65m to an exit and 90m between alternative exits. ▪ Level 2 CFC Warehouse – Maximum of 100m to an exit and 150m between alternative exits. ▪ Office Area (generally) – Maximum of 30m to a point of choice in lieu of 20m.	D1.4 & D1.5	DP4 and EP2.2
5	Hydrants located below an awning to be considered external are to be address in a performance solution.	E1.3	EP1.3
6	If 50m Fire Hose Reel lengths are proposed to be utilised as part of the development, we note that they will be required to be included within the Fire Engineered Solution in accordance with Performance Requirement EP1.1 of the BCA.	E1.4	EP1.1
7	We note that if the Smoke Hazard Management system proposed to be provided to the development is not in accordance with the prescriptive provisions of the BCA, we note that smoke hazard management will be rationalised in a performance solution.	E2.2	EP2.2
8	Directional exit signage proposed to be mounted higher than 2.7m from the FFL in the warehouse portions to be included within the Fire Engineered solution for the development.	E4.5	EP4.2
9	Perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter. We note that perimeter access to the site will be required to be included within the Fire Engineered Solution for the project as access is not continuous to the multiple portions of the building	C2.3 and C2.4	CP9
Miscellaneous Items			
10	**Weatherproofing of External Walls**	-	FP1.4

No.	Performance Solution Description	DTS Clause	Performance Requirements
	As there are no deemed to satisfy provisions relating to the weatherproofing of external walls, 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 FP1.4.		

Fire Safety Services

The following key fire safety services are required to meet the minimum Deemed to Satisfy requirements of the BCA.

1.	Effective height of the development to be finalised as part of the design development phase as identified within Section 3.1 of the report.
2.	Internal configuration to be provided to allow for further review of egress from each portion of the site.
3.	Sprinkler system throughout
4.	Fire hydrant system throughout
5.	Fire hose reels to the warehouse and car park portions of the building (office portions are exempt)
6.	Automatic smoke detection and alarm system throughout
7.	Automatic smoke exhaust throughout
8.	Carpark ventilation systems must comply with Clause 5.5 of AS/NZS1668.1-2015 except that fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated

Refer to part 7 of this report for further details regarding the required services.

The fire engineered solution relating to insert relevant CP9, EP1.1, EP1.3, EP2.2 items will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

Further Assessment

We note that the below items will be required to be finalised as part of the Construction Certificate process for the subject development.

No.	Further Information / Review Required
1	Effective height of the development is currently 24.2m. We note that the use and construction of Level 7 is to be determined and clarified. We note that if Level 7 is considered a Story, we confirm the whole development will achieve an effective height of more than 25m and will therefore have additional requirements to consider.
2.	Please advise if there are any proposed alternative building solutions with regard to design of the building services for the project.
3.	Fire service coverage drawings required to be submitted confirming locations of all proposed fire services infrastructure relevant e (sprinklers, portable fire extinguishers, fire hydrants/ booster assemblies and hose reels etc.).

4.	Please confirm if any lightweight fire-resistant construction is proposed to be utilized. Please submit relevant technical data sheets and test reports of proposed products to confirm compliance with the BCA.
5.	Services engineer required to mark-up floor plans confirming intended use of all services & plant rooms within the building. Where these areas are proposed not to be separated in accordance with C2.12 & C2.13 of the BCA, a fire engineered solution will be required to be obtained.
6.	Staff and population numbers to be provided – calculations utilized within the report is based on the DTS provisions of the BCA which may be conservative.
7.	Final stair details required to be provided for review.
8.	Balustrade and barrier details required to be provided for review.
9.	FIP locations within the new portions of the building required to be details.
10.	Section J Report or JV3 assessment report required to be submitted for review.
11.	Access report to be submitted for review.
12.	Test reports of the proposed external wall systems for Building required to be submitted confirming non-combustibility requirements as per the BCA.

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 Regulation 2000.

2. Introduction

The proposed development comprises of a new warehouse facility comprising of;

- Woolworths CFC (Customer Fulfilment Centre)
- Woolworths Offices
- Online Pick-up for delivery vehicles only. NB: Not used for customer pick up.
- Spec Warehouses
- Carparking portions

The site is located at 74 Edinburgh Rd, Marrickville

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 Certifying authority for the Construction Certificate. For the purposes of this Report, BCA 2019 Amd 1 has been utilised as the version of the BCA applicable at the time of preparation this Report.

3. Preliminaries

3.1. Building Assessment Data

Summary of Construction Determination:

Part of Project	
Classification	5, 6, 7a, 7b
Number of Storeys	7
Rise In Storeys	7
Type of Construction	A
Effective Height (m)	24.2m*

NB: The effective height has been determined against the distance between the RL of Level 6 (RL 29.060) to the RL of the Ground Level (RL 4.860).

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
Spec Warehouse 1	7b	4,290.00m^2	TBC	TBC
Spec Warehouse 2	7b	4,290.00m^2	TBC	TBC
CFC Warehouse	7b	16,508.00m^2	TBC	TBC
Online Pickup	6	70.00m^2	TBC	10
CFC Office 1	5	8360.00m^2	TBC	302
CFC Office 2	5		TBC	153
Warehouse Office 1	5	142.00m^2	TBC	14
Warehouse Office 2	5	108.00m^2	TBC	10
CFC Hoist Area (associated with CFC)	7b	490.00m^2	TBC	TBC
Carpark Ground	7a	6,393.00m^2	TBC	TBC
Car Park Level 1	7a	5,976.00m^2	TBC	TBC
Hardstand 1	7a	4,882.00m^2	TBC	TBC
Hardstand 2	7a	3,600.00m^2	TBC	TBC
Hardstand 3 Delivery Van Parking	7a	5,850.00m^2	TBC	TBC

Notes:

- The floor areas to retail portions have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.
- The carpark areas have been considered ancillary to the use for the purposes of population numbers

4. Structure

4.1. Structural Provisions (BCA B1):

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 1170.2-2011 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.

Glazing is to comply with AS1288-2006, and AS2047-2014.

5. Fire Protection

5.1. Fire Compartmentation (BCA 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 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 Table 3 & 3.9of Specification C1.1 of the Building Code of Australia 2019 Amendment 1.

If the building exceeds the area / volume limitations of the BCA provisions, the building is then considered a large isolated building and the following provisions will apply:

- Automatic sprinkler protection to AS2118.1 and BCA Specification E1.5 throughout the development / smoke detection and alarm system in accordance with AS1670,
- Perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter in accordance with BCA Clause C2.4,
- Smoke exhaust or smoke and heat vents required throughout the development if the building exceeds 18,000m^2 or 108,000m^3 in volume
- Provision of a fire hydrant ring main

Further to the above we note the following: -

If FRL's that are proposed to be rationalised with table C1.1 of the BCA will be required to be included within the Fire Engineered Solution OR the design to achieve compliance with the prescriptive provisions of the BCA.

We note that if the Smoke Hazard Management system proposed to be provided to the development is not in accordance with the prescriptive provisions of the BCA, we note that smoke hazard management will be rationalised in a performance solution.

Perimeter Access to the development currently does not achieve compliance with the prescriptive provisions of the BCA. We note that as access for NSW Fire and Rescue goes under the South Westerns covered Hardstand areas

of the site, we note that this element will be required to be considered within the Fire Engineered Solution for the development.

5.2. Fire Resistance (BCA C1.1)

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

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

- Hydrant Pump Rooms;
- Sprinkler Pump Rooms;
- Fire Control Room

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.

5.3. Fire Hazard Properties (BCA C1.10 and BCA C1.9)

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 C1.10 of the Building Code of Australia.

External Wall Cladding

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

- External walls, including façade coverings, framing, insulation;
- Flooring and 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.

5.4. Protection of Openings in External Walls (BCA 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.

If openings to the South Western elevation are not proposed to be protected in accordance with the requirements of Clause C3.4 of the BCA, we note that this scenario will also be required to be included within the Performance Based Solution in accordance with CP2 and CP8 of the BCA.

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.

5.5. Protection of Openings fire rated building elements (BCA 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.

6. Access and Egress

6.1. Provision for Escape (BCA D1)

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

- Fire isolated stairways
- External Doors

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

6.2. Travel via Fire Isolated Exits (BCA D1.7)

The proposed exits are required to be fire isolated.

The BCA requires each fire isolated stairway to provide independent egress from each storey served and discharge directly, or by way of its own fire isolated passageway to:

- A road or open space; or
- To a point in a storey within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter, and an unimpeded path of travel not more than 20m to a road or open space; or
- A covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter, has an unobstructed clear height throughout of not less than 3m, and provides an unimpeded path of travel to a road or open space of not less than 6m.

Additionally, where the path of travel from the point of discharge requires occupants to pass within 6m of any part of the external wall of the same building (measured horizontally), that external wall must have a 60/60/60 FRL and have any openings protected internally for a distance of 3m above or below the path of travel.

6.3. Exit Travel Distances (BCA D1.4)

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

Further to our review of the proposed base building layout, we note that the following egress items have been identified. We note that these elements may be addressed through the design process or through the base building Fire Engineering Strategy for the site: -

- Egress from the hardstand area to all level of the building to be confirmed. Currently no egress stair is shown from this area of the development, nor the gradient of the vehicular ramp. NB: We note that if the ramp achieves a gradient of 1:8 (or shallower) the ramp can also be utilised for egress.
- Currently no egress points are shown from the CFC Mezzanine level.
- Ground floor Spec Warehouse 2 – Distance of 100m to an exit and 160m between alternative exits.
- Ground Floor Carpark area – Maximum of 70m to an exit and 80m between alternative exits.
- Level 1 Carpark area – Maximum of 65m to an exit and 90m between alternative exits.
- Level 2 CFC Warehouse – Maximum of 100m to an exit and 150m between alternative exits.
- Office Area (generally) – Maximum of 30m to a point of choice in lieu of 20m.

The extended travel distances and distance between the exit stairs will need to addressed to comply with the requirements of the deemed to satisfy provisions noted above, or be assessed as performance solutions by the Fire Safety Engineer using BCA Performance Requirements DP4 & EP2.2

6.4. Dimensions of Exits (BCA 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).

6.5. Balustrades and Handrails (BCA 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.

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.

Fire Isolated Stairways & Class 7b/8 Buildings

Balustrades in the fire isolated stairways and Class 7b or 8 parts of buildings are permitted to contain a 3 rail system, with a bottom rail situated at not more than 150mm above the nosing's. The distance between the rails shall not exceed 460mm.

Handrails are required on both sides of all stairways except for fire isolated stairways used only for emergency egress purposes.

Note: in a required exit serving an area required to be accessible, handrails must be designed and constructed to comply with Clause 12 of AS1428.1-2009.

6.6. Slip Resistance

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

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

7. 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.

7.1. Fire Hydrants (BCA E1.3)

A system of Fire Hydrants is required to be provided in accordance with BCA Clause E1.3 and AS2419.1-2005.

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.

7.2. Fire Hose Reels

A Fire Hose Reel System is required to BCA Clause 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.

7.3. Fire Extinguishers (BCA E1.6)

The provision of portable fire extinguishers is required to BCA Clause 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	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 B fire risks in locations where flammable liquids in excess of 50 litres are stored or used (not excluding that held in fuel tanks of vehicles). d) 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). e) To cover Class A fire risks in classrooms and associated schools not provided with fire hose reels. f) To cover Class A fire risks associated with Class 2 or 3 building or class 4 part of building.

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

7.4. Automatic Sprinkler Protection (BCA E1.5)

Automatic sprinkler protection is required to Specification E1.5 and AS2118.1-2017 throughout the development.

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

An occupant warning system should be provided in accordance with BCA Specification E1.5.

7.5. Smoke Hazard Management (BCA E2.2)

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

- Automatic Smoke Exhaust System activated by Automatic Smoke Detection & Alarm System in accordance with the requirements of BCA Spec E2.2a and AS1670.1-2018 OR
- Automatic Smoke and Heat Vents in accordance with the requirements of BCA Spec E2.2b
- Carpark ventilation systems must comply with Clause 5.5 of AS/NZS1668.1-2015 Amendment 1 except that fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated

We note that if the Smoke Hazard Management system proposed to be provided to the development is not in accordance with the prescriptive provisions of the BCA, we note that smoke hazard management will be rationalised in a performance solution.

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.

7.6. Lift Services (BCA E3.4 and BCA E3.6)

The passenger lifts to be installed are to be: -

- Fitted with warning signs, fire service controls in accordance with Clauses E3.3, Figure E3.3, E3.7, E3.9 and E3.10 of the BCA.
- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high;
- Be provided with the following in order to satisfy accessibility requirements:
  - A handrail in accordance with AS1735.12-1999,
  - Minimum internal floor dimensions of 1400 x 1600mm for lifts which travel more than 12m, or 1100 x 1400mm for lifts which travel not more than 12m,
  - Fitted with a series of door opening sensory devices which will detect a 75mm diameter or across the door opening between 50mm and 1550mm above floor level,
  - Have a set of buttons for operating the lift located at heights above level complying with AS1735.12 - 1999
  - For lifts serving more than 2 levels, automatic audible information within the lift car identifying the level each time the car stops, and audible and visual indication at each lift landing to indicate the arrival of a car

7.7. Exit Signs and Emergency Lighting (BCA E4.2 and BCA E4.5)

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 EP4.2.

7.8. Fire Control Centre (BCA E1.8)

As the proposed CFC building contains a floor area of greater than 18,000m^2, a fire control centre is required in accordance with BCA Specification E1.8.

7.9. Fire Precautions During Construction (BCA E1.9)

After the building has reached an effective height of 12m, the following fire services are required to be operational:

- Required fire hydrants and fire hose reels on every storey covered by the roof/floor structure (except the 2 uppermost storeys); and
- Booster connections installed.

Due to the height of the building this will need to be considered and implemented during construction.

8. Health and Amenity

8.1. Sanitary Facilities (BCA F2.2 and BCA F2.3)

Offices

Separate sanitary facilities are required to be provided for male & female employees at a rate at the following.

We note that once population numbers are confirmed for each element of the site, a further review of Sanitary Facility numbers in accordance with the BCA will be undertaken.

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.

8.2. Floor Wastes

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.

8.3. Light and Ventilation (BCA Part F4)

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.

8.4. Waterproofing (BCA FP1.4)

Performance Requirement FP1.4 which relates to the prevention of the penetration of water through external walls, must be complied with. It is noted that there are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls.

As such, a performance solution is to be prepared by a suitably qualified professional that demonstrates that the external walls of the proposed building complies with Performance Requirement 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.

Wet Areas

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.

9. Energy Efficiency

9.1. SECTION J (JP1 Energy Use)

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 and JV4 verification methods have been introduced as options available to achieve compliance.

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

Access for maintenance is to be provided to the building in accordance with the requirements of BCA Part J8.

The proposed site will be located in a **Climate Zone 5.**

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

10. Access for People with Disabilities

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

- The Building Code of Australia 2019 Amendment 1;
- 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

10.1. General Building Access Requirements (BCA D3.1)

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA 2019 Amdt 1 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:

Office/shops (Class 5/Class 6 buildings)

To and within all areas normally used by the occupants

Car parks (Class 7a buildings)

To and within any level containing accessible car parking spaces.

Warehouse and production/Manufacturing facilities

To and within all areas normally used by the occupants, but as the uses of these areas could be deemed inappropriate, confirmation is required as the appropriateness of the areas in question by the owners or tenant.

10.2. Provision for Access to Buildings

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.

10.3. Accessibility within Building (BCA 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).

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.

10.4. Car Parking (BCA D3.5)

Accessible car parking spaces are required to comply with AS 2890.6-2009.

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

10.5. Tactile Indicators (BCA 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.

10.6. Stairs (BCA 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.

10.7. Accessible Sanitary Facilities (BCA 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 are 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

10.8. Signage (BCA 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 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 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.

10.9. Lifts (BCA E3.6)

Lifts compliant to BCA E3.6 and BCA E3.7 must be provided, where required to be provided, with a minimum size of 1400 x 1600mm or 1100mm x 1400mm (whichever is appropriate) in size – with appropriate handrails and auditory commands.

11. Appendix A - Reference Documentation

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

Drawing No.	Title	Date	Revision
10437_DA101	Ground Floor Plan	28.08.2020	Rev 1
10437_DA102	Level 1 Floor Plan	28.08.2020	Rev 1
10437_DA103	Level 2 Floor Plan	28.08.2020	Rev 1
10437_DA104	Level 3 Floor Plan	28.08.2020	Rev 1
10437_DA105	Level 4 Floor Plan	28.08.2020	Rev 1
10437_DA106	Level 5 Floor Plan	28.08.2020	Rev 1
10437_DA107	Level 6 Floor Plan	28.08.2020	Rev 1
10437_DA109	Roof Plan	28.08.2020	Rev 1
10437_DA108	Plant Level	28.08.2020	Rev 1
10437_DA301	Sections	28.08.2020	Rev 1

12. Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
2.	Automatic Smoke Detection and Alarm System	Clause 3 or 4 or 5 BCA Spec. E2.2a, AS 1670.1 – 2018, AS/NZS 1668.1 – 2015, AS 3786-2014
3.	Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 2017 Amdt 1,
4.	Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & Specification E2.2a Clause 7
5.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2018
6.	Emergency Evacuation Plan	AS 3745 – 2002
7.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2018
8.	Fire Control Centre	BCA Spec. E1.8
9.	Fire Dampers	BCA Clause C2.12, C3.15, Spec C2.5, D1.7, E2.2, E2.3, F4.12, Spec E2.2, E2.3, Spec E2.2b, Spec G3.8 & AS 1668.1 – 2015
10.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS 1905.1 – 2015
11.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005 Amdt 1
12.	Fire Hydrant System	Clause C2.12, E1.3, Spec E1.5a, H3.9 & AS 2419.1 – 2005 Amdt 1
13.	Fire Seals	BCA Clause C3.15, C3.16, Spec C3.15, Spec D1.12, & AS 1530.4 –2014
14.	Lightweight Construction	BCA Clause C1.8, Spec C1.8
15.	Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012
16.	Paths of Travel	EP&A Reg 2000 Clause 186
17.	Perimeter Vehicular Access	BCA Clause C2.4
18.	Portable Fire Extinguishers	BCA Clause E1.6 & H3.11, AS 2444 – 2001
19.	Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 2015
20.	Smoke and/or Heat Alarm System	BCA Spec. E2.2a & AS 3786 – 2014
21.	Warning and Operational Signs	AS 1905.1 –2015~~,~~ BCA Clause C3.6, D2.23, E3.3

13. Appendix D - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2019 Amendment 1:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS	**Class of building — FRL: (in minutes)** *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	**5, 7a or 9**	**6**	**7b or 8**
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is -				
For *loadbearing* parts-				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts -				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is -				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS				
Fire-resisting lift and stair *shafts*				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

Table 3.9 REQUIREMENTS FOR CARPARKS				FRL (not less than) Structural adequacy/Integrity/Insulation ESA/M (not greater than)
Wall				
(a)	*external wall*			
	(i)	less than 3 m from a *fire-source feature* to which it is exposed:		
			Loadbearing	60/60/60
			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 Table 3
Column				
(a)	supporting only the roof (not used for carparking) and 3 m or more from a *fire-source feature* to which it is exposed			–/–/–
(b)	steel column, other than one covered by (a) and one that does not support a part of a building that is not used as a *carpark*			60/–/– or 26 m^2/tonne
(c)	any other column not covered by (a) or (b)			60/–/–
Beam				
(a)	steel floor beam in continuous contact with a concrete floor slab			60/–/– or 30 m^2/tonne
(b)	any other beam			60/–/–
Fire-resisting lift and stair shaft (within the *carpark* only)				60/60/60
Floor slab and vehicle ramp				60/60/60
Roof (not used for carparking)				–/–/–
Notes:	1. ESA/M means the ratio of exposed surface area to mass per unit length.			
	2. Refer to Specification E1.5 for special requirements for a sprinkler system in a *carpark* complying with Table 3.9 and located within a multi-classified building.			