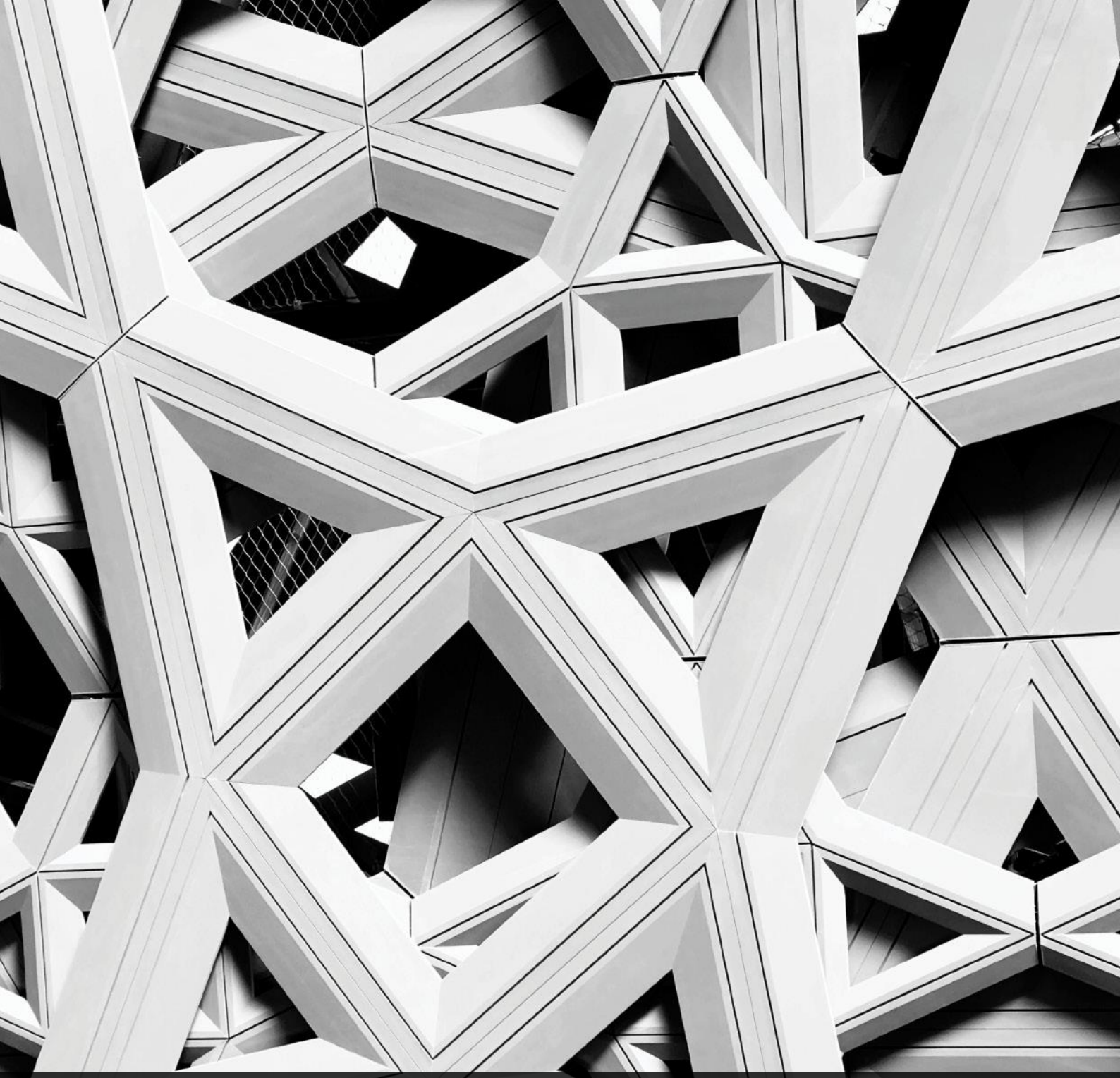


BCA Assessment Report

ESR Westlink Lot 4
Aldington & Abbots Road Kemps Creek

Prepared for:
ESR

Revision 0
14th December 2023
Reference: 230446

bmplusg.com.au

Executive Summary

The following comprises a summary of the key compliance issues identified under the assessment in this report that will be required to be addressed prior to the Certification Applications for the project.

A. Matters requiring redesign or additional information at CC:

+ BCA (DTS) Clause		+ Description
1.	**C2D10 / C2D14**	An External Wall Disclosure Statement (Type B Construction) is required to be provided to confirm compliance with the non-combustibility provisions that are applicable to the external a walls and other elements as noted in C2D10 and C2D14. Details of any performance solution to rationalise the non-combustibility requirements of the external walls of the building are to be submitted with the CC Application for assessment.
2.	**C3D8, C3D9, C4D4 & Spec 5.**	Confirmation is to be provided that the Class 7b FRLs are to be applied throughout the entirety of the building. Alternatively, where Fire Walls are proposed to separate the Class 5 & 7b areas to apply the different FRL requirements to the various classifications, details of the proposed 240/240/240 FRL Fire Walls will need to be provided for review.
3.	**C3D13 / C3D14**	Details of any proposed Fire Separation of Equipment & Electrical infrastructure to be provided at CC Application stage.
4.	**Spec. 5**	The western external wall of the building is located within 18m of the side boundary and as such the load-bearing elements require an FRL per Table S5C21a – see note in Section B below also.
5.	**D2D7, D2D8, D2D18 & F4D4**	The proposed population of the building is required to be confirmed by ESR/The tenant to facilitate an assessment of the overall required egress widths and sanitary facility requirements.
6.	**Part D4, F4D4**	A separate report will be required from an Access Consultant to outline the applicable requirements for the building. Specific details regarding the possible application of D4D5 to the Class 7b portions of the building will also be required.
7.	**D4D5**	Consideration to an exemption to the Warehouse area may be appropriate on this project. Confirmation from the tenant stating where this would be applied and the reasons why it would be inappropriate for access for people with disabilities within the facility to be provided at CC application stage.
8.	**Section J**	A Section J Compliance Report or JV3 Report will be required to be provided with the CC application.

B. Matters requiring fire safety engineered performance solutions:

+ BCA (DTS) Clause		+ Description
1.	**C3D4 / C3D5**	A performance solution is required to address the Perimeter Vehicular Access non-compliances identified in the report below.
2.	**C3D9, C3D8, Spec 5**	Confirmation is to be provided if it is proposed to rationalise FRL's for the load-bearing elements in the building, including floors, columns, beams, etc.
3.	**D2D5, D2D6**	The current plans indicate that exit travel distances, and distances between alternative exits within the building does not comply with D2D5 & D2D6.
4.	**E1D2**	Design of Hydrant System per AS 2419.1-2021 Appendix C, along with the location of the sprinkler boosters serving the site. Note: There is potential for limited hydrant coverage in the warehouse.
5.	**E1D4**	Sprinkler Booster location may not comply with the requirements of AS 2419.1-2021 and as such may need to be addressed as a performance solution.
6.	**E1D17/E2D21**	Provision of additional fire services & smoke hazard management requirements to address additional hazard resulting from any proposed dangerous goods storage/use.
7.	**E2D3**	Confirmation is to be provided if a Performance Solution is proposed to rationalize the requirements associated with the required automatic smoke exhaust system.

C. Other matters requiring performance solutions:

+ BCA (DTS) Clause		+ Description
1.	**F3P1**	A Performance Solution report is to be provided by the Architect / Façade Engineer to demonstrate how the external walls & roof are designed to prevent the penetration of water into the building.
2.	**Section J**	A Section J Compliance Report or JV3 Report will be required to be provided with the CC application.

+ Contents

Report Status

Date	14.12.2023
Revision	0
Status	Preliminary Assessment – For Client and Consultant Review
Author	Dean Goldsmith
Reviewed	Jack Gunning

Prepared by:

Dean Goldsmith
Director
BM+G
Building Surveyor-Unrestricted (NSW)
BDC No.: 0141

Reviewed by:

Jack Gunning
Cadet
BM+G

Revision History

Revision	0	**Date**	14.12.2023
Status	Preliminary Assessment – For Client and Consultant Review		

1.0 Description of Project

1.1 Proposal

bm+g have been commissioned by ESR to undertake an assessment of the proposed Westlink Lot 4 Industrial Development at Aldington & Abbots Road Kemps Creek, against the relevant provisions of the Building Code of Australia 2022 (BCA).

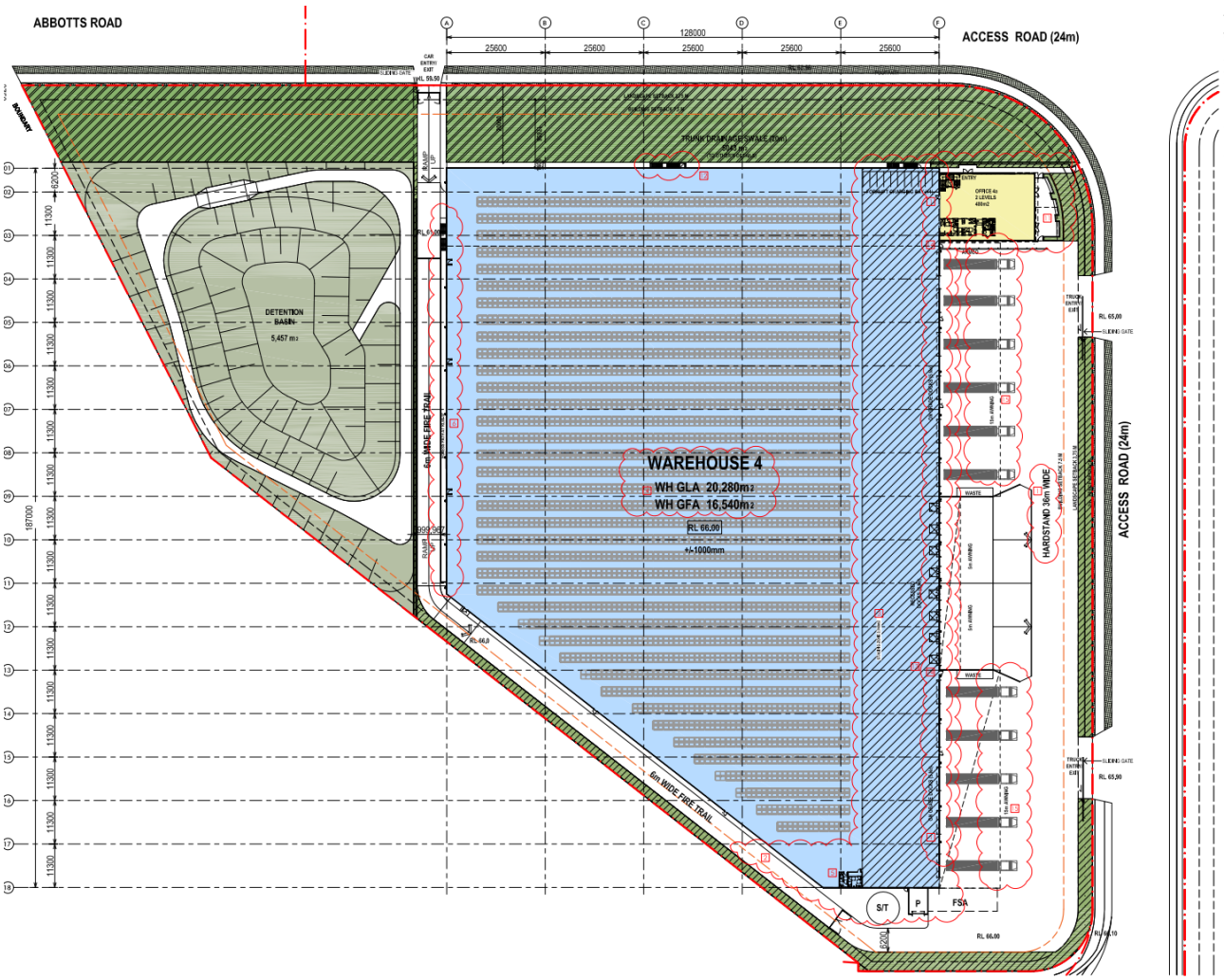


Figure 1, Source: Nettleton Tribe Architects Drawing No. 12587_DA106 (P25) dated 10.12.2023

1.2 Aim

The aim of this report is to:

- Undertake an assessment of the proposed development against the deemed-to-satisfy provisions of the BCA.
- Identify matters that require plan amendments in order to achieve compliance with the BCA.

- Identify matters that are to be required to be addressed by Performance Solutions.
- Enable the certifying authority to satisfy its statutory obligations under Clause 19(1) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021.

1.3 Project Team

The following BM+G team members have contributed to this Report:

- **Dean Goldsmith** – Report Preparation (Director) | Building Surveyor-Unrestricted
- **Jack Gunning** – Peer Review (Cadet)

1.4 Referenced Documentation

The following documentation has been reviewed, referenced and/or relied upon in the preparation of this report:

- Building Code of Australia 2022 (BCA)
- Architectural Plans prepared by Nettleton Tribe numbered:

+ Drawing No.	+ Revision	+ Date
12587_DA102	P26	10.12.2023
12587_DA104	P7	10.12.2023
12587_DA106	P25	10.12.2023
12587_DA108	P13	13.12.2023

+ Drawing No.	+ Revision	+ Date
12587_DA117	P11	10.12.2023
12587_DA124	P12	10.12.2023
12587_DA127	P9	10.12.2023
-	-	-

1.5 Regulatory Framework

- Pursuant to Section 19(1) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 all new building work must comply with the current BCA however the existing features of an existing building need not comply with the BCA unless upgrade is required by other clauses of the legislation.
- Pursuant to Section 60 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021, if a Certifier becomes aware of any significant fire safety issues in the process of determining a CDC, there are two options:
  - Address the significant fire safety issue in the proposed development, or
  - Notify Council of the significant fire safety issue (noting Council may potentially then issue a Fire Safety Order on the building compelling the building owner to rectify the issue).

The assessment has been undertaken in accordance with Clause 24 and 25 of the Building and Development Certifiers Regulation 2020. bm+g are the proposed Registered Certifier and the advice provided in this Report is limited to whether submitted documentation complies with the Building Code of Australia or a legislative requirement.

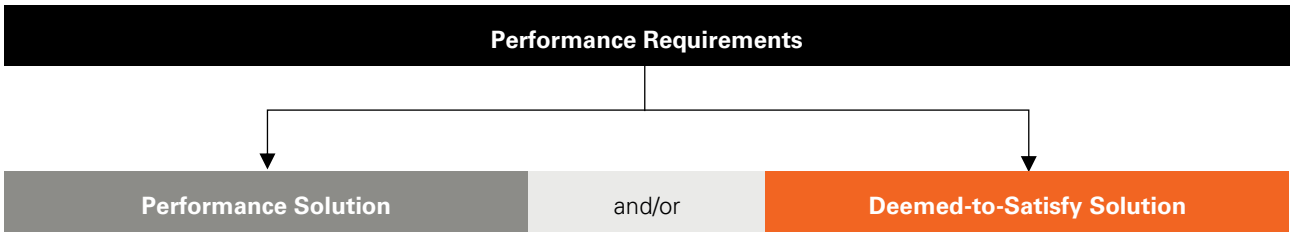
1.6 Relevant Version of the NCC Building Code of Australia

Pursuant to Section 19 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the day on which the application for the Construction Certificate is made. The current version of the BCA is BCA 2022, with the next revision of the BCA coming into effect 1 May 2025. As the Construction Certificate application will be lodged after 1 May 2023, this report assesses the design against compliance with the requirements of BCA 2022.

The following parts of the BCA are subject to transitional provisions:

- NCC 2022 Energy Efficiency provisions – 1 October 2023.
- NCC 2022 Condensation Management provisions under BCA Part F8 – 1 October 2023.

1.7 Compliance with the National Construction Code



Compliance with the NCC is achieved by complying with:

- the Governing Requirements of the NCC; and
- the Performance Requirements.

Performance Requirements are satisfied by one of the following, as shown in the Figure below:

- A Performance Solution.
- A Deemed-to-Satisfy Solution.
- A combination of the above two options.

1.8 Limitations and Exclusions

The limitations and exclusions of this report are as follows:

- This report is prepared in accordance with the Conflicts of Interest provisions of Part 4 of the Building and Development Certifiers Regulation 2020. bm+g confirm that this report is prepared specifically to address the requirements of Clause 25(5) and (9) of the Regulation with respect to the role of the Registered Certifier. This assessment report is not to be construed as extending any further into providing design advice, which would be contrary to the aims of this legislation.
- No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA). The building owner needs be satisfied that their obligations under the DDA have been addressed.
- Please note that whilst the BCA specifies a minimum standard of compliance with AS1428 (Parts 1-3) and Part D4 of the BCA for access and facilities for people with disabilities, compliance with such requirements may not necessarily preclude the possibility of a future complaint made under the DDA 1992. The DDA is a complaint based legislation and is presently not identified by the State Building Codes and Regulations. In this regard the building owner should be satisfied that their obligations under the DDA have been addressed.
- No assessment has been undertaken with respect to SEPP (Housing) 2021. It is understood that suitably qualified consultants will be engaged to determine the relevance of any Council planning requirements or SEPP requirements and provided detailed assessment reports where applicable.

  Where relevant to this development, it is assumed that these assessments will be undertaken by others.
- This report does not consider BCA Part G5 (Volume 1) which makes provision for construction of buildings in bushfire-prone areas, therefore no assessment has been undertaken in consideration of RFS, Planning for Bushfire Protection and AS 3959. Where Part G is applicable to the site, then it is required that assessment / due diligence is undertaken by a specialist consultant to verify compliance.
- This report does not constitute a detailed assessment of the architectural documentation against the requirements of Section J. It is understood that a suitably qualified consultant will be engaged to determine compliance in this regard.
- bm+g has not undertaken an assessment of any Performance Solution Reports at the time of the preparation of this report.
- The Report does not address matters in relation to the following Local Government Act and Regulations:
  - Work Health and Safety Act and Regulations.
  - Work Cover Authority requirements.
  - Water, drainage, gas, telecommunications and electricity supply authority requirements.
  - Disability Discrimination Act 1992.
- bm+g cannot guarantee acceptance of this report by Local Council, Fire & Rescue NSW or other approval authorities.
- No part of this document may be reproduced in any form or by any means without written permission from bm+g. This report is based solely on client instructions, and therefore should not be used by any third party without prior knowledge of such instructions.

1.9 Report Terminology

Building Code of Australia – Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in NSW under the provisions of the Environmental Planning & Assessment Act & Regulation.

Climatic Zone – Means an area defined in Figure 2 and in Table 2 (of BCA Schedule 3) for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Construction Certificate – Building Approval issued by the Certifying Authority pursuant to Part 6 of the EP&A Act 1979.

Construction Type – The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C2D2 and Specification 5, except as allowed for:

- certain Class 2, 3 or 9c buildings in C2D6; and
- a Class 4 part of a building located on the top storey in C2D4(2); and
- open spectator stands and indoor sports stadiums in C2D8.

Note: *Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.*

Deemed-to-Satisfy (DTS) Provisions of the BCA – Means the prescriptive provisions of the BCA which are deemed to satisfy the performance requirements.

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

Exit – Any, or any combination of the following if they provide egress to a road or open space:

+ An internal or external stairway.
+ A ramp.
+ A fire-isolated passageway.
+ A doorway opening to a road or open space.

Fire Compartment – The total space of the building; or when referred to in

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

Fire Resistance Level (FRL) – The grading periods in minutes for the following criteria:

- structural adequacy; and
- integrity; and
- insulation.

and expressed in that order.

Fire Source Feature (FSF) – The far boundary of a road adjoining the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

National Construction Code Series (NCC) – The NCC was introduced 1 May 2011 by the Council of Australian Governments (COAG). The BCA Volume One (Class 2 to 9 Buildings) is now referenced as the National Construction Code Series Volume One — BCA.

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

+ that is open to the sky; and
+ to which access is provided, other than access only for maintenance; and
+ that is not open space or directly connected with open space.

Occupation Certificate (OC) – Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 6 of the EPA Act 1979.

Open Space – Means a space on the allotment, or a roof or other part of the building suitably protected from fire, open to the sky and connected directly with a public road.

Performance-Based Design Brief – Means the process and the associated report that defines the scope of work for the performance-based analysis, the technical basis for analysis, and the criteria for acceptance of any relevant Performance Solution as agreed by stakeholders.

Performance Requirements of the BCA – A Building Solution will comply with the BCA if it satisfies the Performance Requirements. A Performance requirement states the level of performance that a Building Solution must meet.

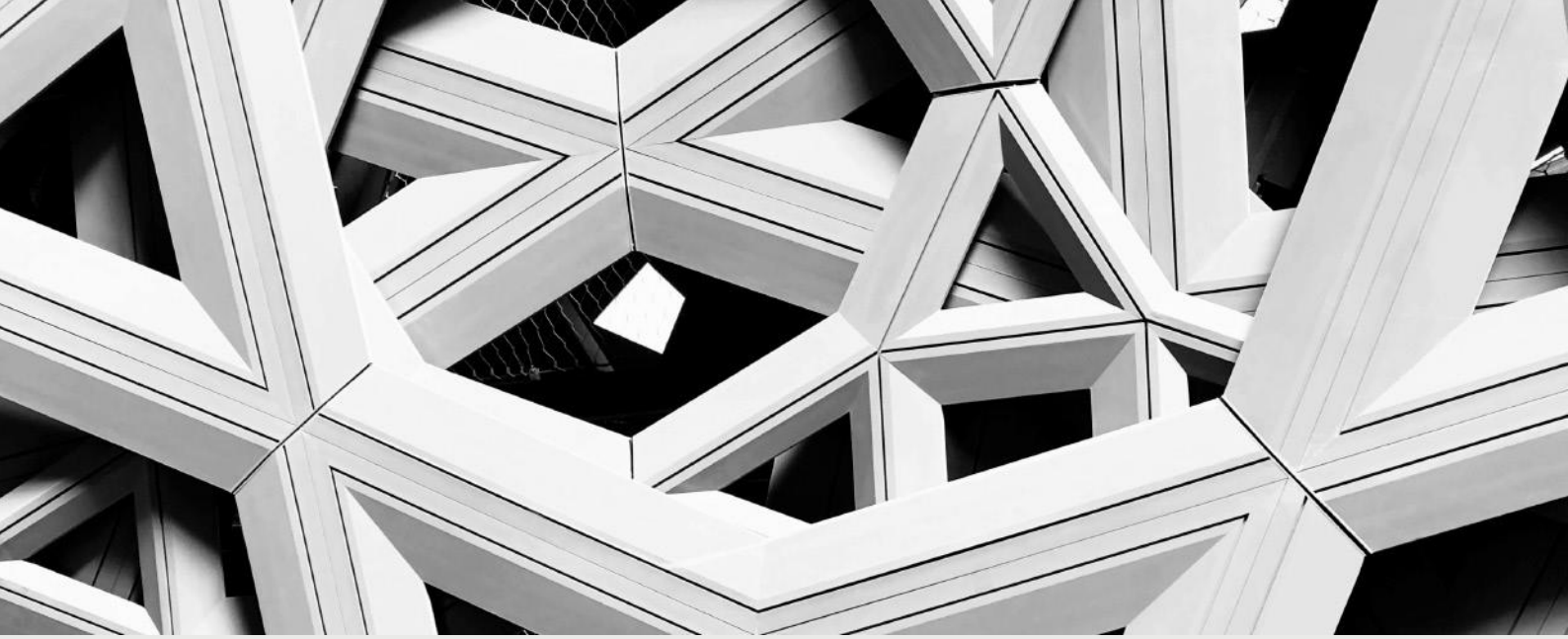
Compliance with the Performance Requirements can only be achieved by-

a. complying with the Deemed-to-Satisfy Provisions; or

b. formulating an Performance Solution which-
   - complies with the Performance Requirements; or
   - is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or

c. a combination of (a) and (b).

Performance Solution – Means a method of complying with the performance requirements other than by a Deemed-To-Satisfy Solution.



2.0 Building Characteristics

2.1 Proposed Development

The proposed development consists of the construction of Stage 1 Westlink Lot 4 including the construction of a Warehouse Facility, below ground carpark, office and dock office, recessed loading docks and associated hardstands, awnings and landscaping.

The building is classified as follows:

BCA Classifications:	Class 5 (Office) Class 7a (Carpark) Class 7b (Warehouse)
Rise in storeys:	3 (Three) – Refer to C2D4 below
Storeys Contained:	2 (Two)
Type of Construction:	Type B Construction
Importance Level (Structural)	2 (TBC)
Sprinkler Protected Throughout	Yes
Effective Height	5m (RL61 – RL66)
Floor Area	~20,760m^2
Volume	~330,000 m^3 (TBC by Architect)
Maximum C3D3 Fire Compartment Size	3,500m^2 & 21,000m^2 (Class 7a & 7b) & 5,500m^2 & 33,000m^3 (Class 5) – refer to Large Isolated Building provisions below
Climate Zone	Zone 6

2.2 Fire Compartment Floor Area Limitations

Maximum size of fire compartment/atria is:

+ Classification		+ Type A	+ Type B	+ Type C
7a, 7b	Max. floor area	5,000m^2	3,500m^2	2,000m^2
	Max. volume	30,000m^3	21,000m^3	12,000m^3
5	Max. floor area	8,000m^2	5,500m^2	3,000m^2
	Max. volume	48,000m^3	33,000m^3	18,000m^3

Note: Refer to Large Isolated Building provisions of Clause C3D4 below.

2.3 Distance to Fire Source Features

Based upon a review of the plans, it is noted that each elevation of the building is located within the following distances from fire source features on the site.

+ Elevation	+ Fire Source Feature	+ Distance
North	Front Boundary	>6m
East	Side Boundary	>6m
West	Side Boundary	>6m
South	Rear Boundary	>6m

Note: Fire Source Feature (FSF) – The far boundary of a road adjoining the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

3.0 BCA Assessment

We note the following BCA compliance matters with relation to proposed building works are capable of complying with the BCA. Please note that this is not a full list of BCA clauses, they are the key requirements that relate to the proposed work and the below should be read in conjunction with the BCA.

3.1 Section B – Structure

Part B1

- New building works are to comply with the structural provisions of the BCA 2022 and the following referenced standards including:
  - AS 1170.0 – 2002 General Principles
  - AS 1170.1 – 2002, including certification for balustrades (dead and live loads)
  - AS 1170.2 – 2021, Wind loads
  - AS 1170.4 – 2007, Earthquake loads
  - AS 3700 – 2018, Masonry Structures
  - AS 3600 – 2018, Concrete Structures
  - AS 4100 – 1998, Steel Structures and/or
  - AS 4600 – 2018, Cold formed steel Structures
  - AS 2159 – 2009, Piling Design &Installation
  - AS 1720 – 2010, Design of Timber Structure
  - AS/NZS 1664.1 & 2 – 1997, Aluminium Structures
  - AS 2047 – 2014, Windows and External Glazed Doors in buildings
  - AS 1288 – 2006, Glass in buildings
  - AS 3660.1 – 2014, Termite control (or confirmation no primary building elements are timber).
- Design certification will also be required from the Architect and Services Consultants to confirm compliance with Section 8 of AS1170.4-2007 with regard to the design of non-structural parts and components and their fastenings for horizontal and vertical earthquake forces and inter-storey drift.
- In accordance with B1D3(a)(iv) a notional additional load of not less than 0.15kPa to support the addition of solar photovoltaic panels is to be applied to the roof structure.
- The Importance Level provisions of BCA (Section B) are to be acknowledged by the Structural Engineer and addressed to the degree necessary.

Comment: Structural design details and certification will be required at CC application stage

3.2 Section C – Fire Resistance

C2D2 / Spec 5

Type of Construction Required: The building is required to comply with the requirements of Type B Construction as stated within Specification 5. Refer to Table 4 of Appendix 1 for the FRL requirements of Type B Construction.

Type B Construction:

- Load-bearing elements in the external walls and external columns require an FRL if <18m from a boundary / separate building.
- Load-bearing external walls and external columns need not achieve an FRL if >18m from a boundary / separate building.
- Non load-bearing external walls (and columns incorporated within) need not achieve an FRL if >3m from a boundary or separate building.
- Internal Columns require an FRL where they support a floor a
- Internal columns on the floor immediately below the roof need not achieve an FRL.

Comment: Type B Construction applies to the proposed development as it has a rise in storeys of three (3). Refer to comments under C2D3 below.

C2D3

Calculation of Rise in Storeys: The rise in storeys of a building is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space calculated in accordance with the requirements set out in this clause.

Comment: The proposed development has a rise in storeys of three (3) due to the average internal height of the warehouse building and the overhang of the warehouse above the undercroft carpark. As the warehouse has an average internal height of more than 6m and is not the only storey above ground (the underground carpark being considered 'ground level') the warehouse counts as 2 storeys as per C2D3(3)(b) – see Figure 2 below:

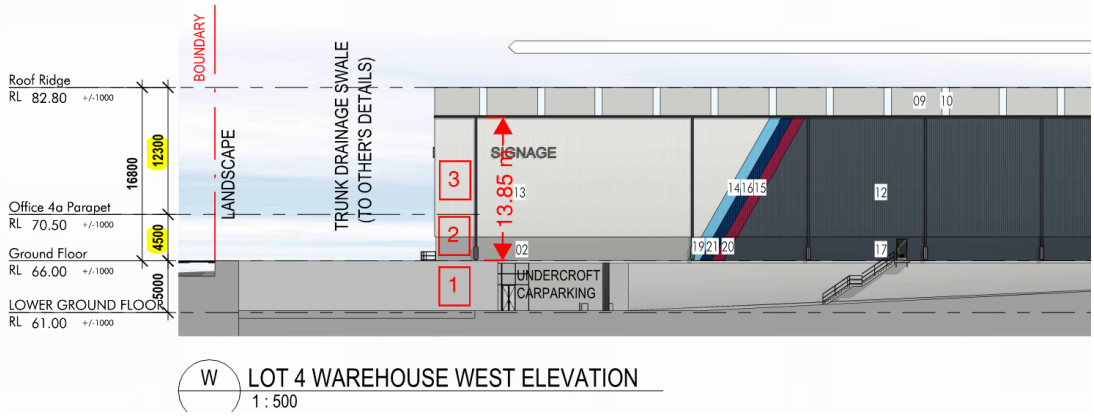


Figure 2: Rise in Storeys Assessment

C2D10

Non-Combustible Building Elements: All materials and or components incorporated in an external wall or fire-rated wall must be non-combustible. This includes but not limited to:

- Any external wall claddings.
- Any framing or integral formwork systems. I.e. timber framing, sacrificial formwork, etc.
- Any external linings or trims. I.e. external UPVC window linings, timber window blades, etc.
- Any sarking or insulation contained within the wall assembly.

This is not an exhaustive list, and any element incorporated within any external wall assembly must be identified and approved prior to the issue of a Construction Certificate.

Refer to Table 1 in Appendix 1 for the elements required to be non-combustible.

Comment: The external walls of the Type B Construction building (including all elements incorporated in the walls), the lift pits, the non-loadbearing internal walls that are required to be fire rated, any proposed fire walls and all services risers are required to be of non-combustible construction in accordance with C2D10 (1) & (2). See additional comments under C2D14 below regarding internal and external attachments to the external walls.

It is understood that there may be a proposed performance solution to rationalise the non-combustibility requirements of the external walls of the building and as such details of such performance solution will be required to be submitted with the CC Application for assessment.

C2D11 & Spec. 7	**Fire Hazard Properties:** A schedule of all wall, floor, and ceiling linings along with associated test reports are to be provided for review to ensure compliance with the fire hazard property requirements of the BCA. Noting: + Minimum Group Numbers apply to wall and ceiling linings. AS 5637 test reports must be provided to determine compliance. + Minimum Critical Radiant Flux values apply to floor linings. AS ISO 9239.1 test reports must be provided to determine compliance Refer to Table 2 and 3 in Appendix 1 below for the required fire hazard properties. **Comment**: Design certification is required at CC application stage, and installation certification (including relevant test reports) confirming the above will required at OC stage, in the form of a detailed schedule, along with associated test reports.
C2D14	**Ancillary Elements:** An ancillary combustible element must not be fixed, installed or attached to the internal or external parts of a non-combustible wall unless it is one of the concession items listed in items (a) to (p). **Comment**: The proposed elements of any facades on the Warehouse building will require review to confirm that the proposed internal & external attachments of the external walls achieve compliance with the non-combustibility requirements of this clause. Refer to comments under C2D11 above, regarding the possible performance solution.
C3D3	**General Floor Area and Volume Limitations:** The building is to achieve fire compartment sizes not in excess of the DtS requirements of this clause. **Comment**: The proposed building is a Class 7b Large Isolated Building and as such the provisions for maximum fire compartment size under Table C3D3 do not apply. Refer to comments under C3D4 & C3D5 below in relation to the Large Isolated Building provisions applicable to the proposed development.
C3D4	**Large Isolated Buildings:** A Large Isolated Building that contains Class 5, 6, 7, 8 or 9 parts, is required to be— + Protected throughout with a sprinkler system complying with Specification 17; and + Provided with a perimeter vehicular access complying with C3D5(2). **Comment**: The proposed warehouse building is required to be sprinkler protected and provided with a 6m wide perimeter vehicular accessway in accordance with Clause C3D5(2) throughout. Refer to comments under C3D5 below. **Note 1:** Any proposed gates are to achieve no less than 6m unobstructed width or the reduced width will need to be included in the above Performance Solution. **Note 2:** The driveways providing vehicular perimeter access must be designed with adequate loading capacities, gradients and swept paths to accommodate a fire truck, having regard to the FRNSW Fire Safety Guideline – Access for Fire Brigade Vehicles and Firefighters. **Note 3**: The Trial Design for the Fire Engineered Performance Solution must take into consideration and detail the proposed security access to the site and how this may impact on FRNSW vehicular access.
C3D5	**Requirements for Open Spaces and Vehicular Access:** Open space and vehicular access required by C3D4 must comply with the requirements of sub-clauses (a) & (b) of this Part whereby they must be 6m wide within 18m of the external walls of the building and of a suitable bearing capacity and unobstructed height to permit the operation and passage of FRNSW vehicles. **Comment**: The proposed warehouse building complies with the provisions of C3D5 except for the areas shown in red and orange on the mark-up overleaf. These non-compliances will be required to be addressed as a performance solution by the Fire Safety Engineer to demonstrate compliance with C1P9: + Perimeter Vehicular access is greater than 18m along the northern side of the building as well as around the main office and the recessed loading docs on the Eastern hardstand.

- Perimeter Vehicular Access is less than 6m wide around the proposed exit stairs on the Western side of the building.

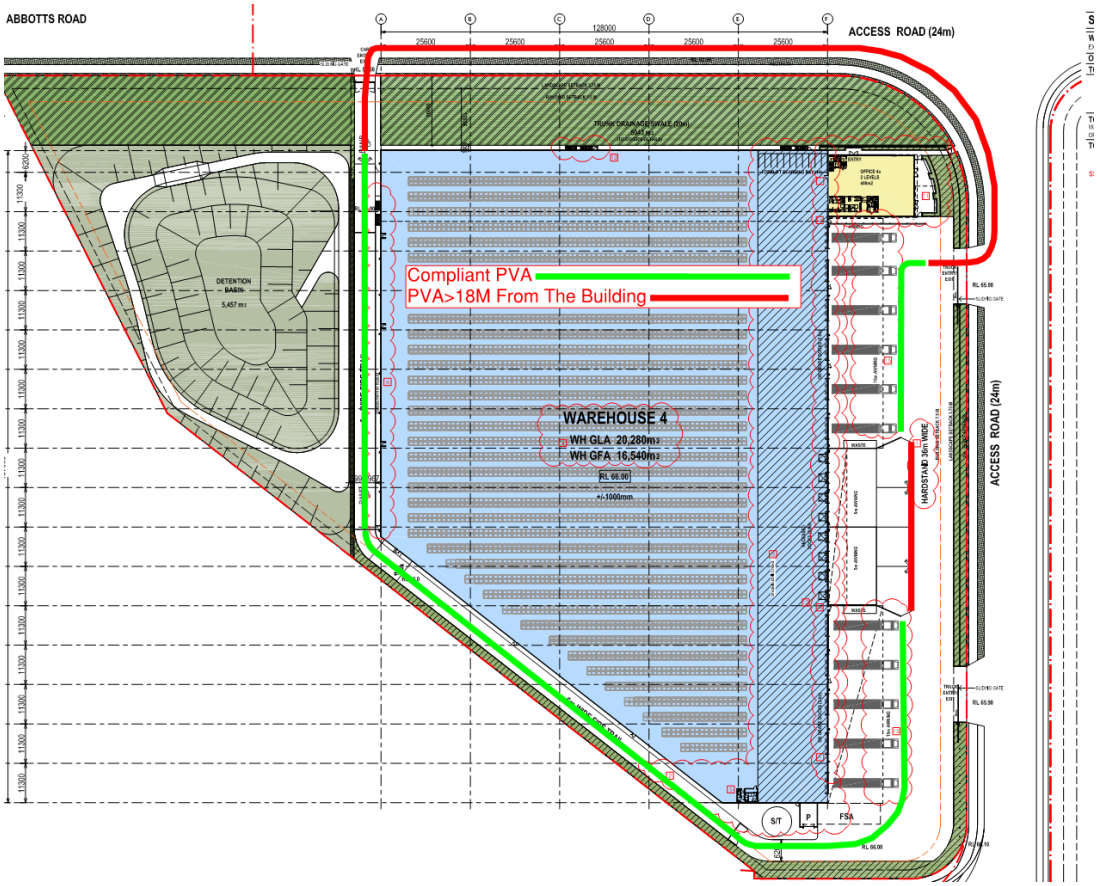


Figure 3: Perimeter Vehicular Access Markup

Note 1: Any proposed gates are to achieve no less than 6m unobstructed width or the reduced width will need to be included in the above Performance Solution.

Note 2: The driveways providing vehicular perimeter access must be designed with adequate loading capacities, gradients and swept paths to accommodate a fire truck, having regard to the FRNSW Fire Safety Guideline – Access for Fire Brigade Vehicles and Firefighters.

Note 3: The Trial Design for the Fire Engineered Performance Solution must take into consideration and detail the proposed security access to the site and how this may impact on FRNSW vehicular access.

C3D8

Separation by Fire Walls: Separation of Fire Compartments must be constructed in accordance with the following:

- FRL in accordance with Tables S5C11a – S5C11g of Spec. 5 and extend to the underside of a floor with the same FRL, or to the underside of a non-combustible roof covering.
- Any openings in a fire wall must not reduce the FRL, except where permitted by the Deemed-to-Satisfy Provisions of Part C3 (i.e. fire doors; protection of services).
- Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire resisting performance of the fire wall is maintained.

Comment: The proposed warehouse is permitted to comprise a single fire compartment, as to there being no limitations on the fire compartment size for a Large Isolated building. Where any fire walls are required as a result of Fire Engineered Performance Solutions, consideration is to be given to the requirements of this clause.

C3D9/ C3D10	**Separation of Classifications:** Separate classifications will either need to be separated by a fire wall achieving the higher FRL requirement between the two classes, or alternatively the higher FRL must apply to both areas subject to Spec 5. Note: Refer to C3D8 comments above in regards to structural elements crossing a fire wall at roof level. **Comment**: The entirety of the proposed building will comprise of a single fire compartment, due to there being no limitations on fire compartment size for large-isolated buildings. In this regard, the higher FRL's applicable to the Class 7b warehouse will apply to the adjoining Class 5 Office area and Class 7a undercroft carpark. See Spec. 5 details in Appendix 1 below for FRL requirements applicable to the building.
C3D13	**Separation of Equipment:** Equipment as listed below must be separated from the remainder of the building with construction that achieves an FRL of 120/120/120 (or that required by Spec 5, whichever is greater) and doorways being self-closing -/120/30 fire doors: + Lift motors and lift control panels; or + Emergency generators used to sustain emergency equipment operating in emergency mode; or + Central smoke control plant; or + Boilers; or + A battery or battery system installed in the building that has a voltage of 12 volts or more and a storage capacity of 200kWh or more. Confirmation is required as to whether any of the above will be applicable to this development. **Comment:** Any proposed plant areas/enclosures that contain the above equipment must be separated from the remainder of the building by construction achieving an FRL as required by Specification 5 but no less than 120/120/120, and doorways protected with a self-closing fire door having an FRL of not less than -120/30. Details demonstrating compliance are to be included in the CC Application plans.
C3D14	**Electricity Supply System:** An electricity substation, electrical conductors & main switchboards which sustain 'emergency equipment' operating in the emergency mode, located within a building must– + Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and + Having any doorway in that construction protected with a self-closing fire door having an FRL of not less then -/120/30 Electrical conductors which supply a substation or main switchboard sustaining emergency equipment operating in the emergency mode – + Have a classification in accordance with AS/NZS 3013 of not less than— o If located in a position that could be subject to damage by motor vehicles — WS53W; or o Otherwise — WS52W; or + Be enclosed or otherwise protected by construction having an FRL of not less than 120/120/120. Where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment switchgear must be separated from the non-emergency equipment switchgear by metal partitions designed to minimise the spread of fault from the non-emergency equipment switchgear. **Note:** For the purpose of this clause, 'emergency equipment' includes (but is not limited to) fire pumps, air handling systems for smoke control, emergency lifts, control & indicating equipment, EWIS. **Comment:** Any substations and/or switchboards located within the proposed warehouse which sustain emergency equipment operating in emergency mode are required to be separated from

	the remainder of the building by construction having an FRL of not less than 120/120/120 with a self-closing fire door having an FRL of not less than -/120/30. Fire compartmentation plans are to be provided demonstrating compliance with the above as part as submission of documentation for the relevant CC(s).
C4D15	**Openings for Services Installations:** All opening for services installations in building elements required to be fire-resisting with respect to integrity and insulation must be protected in accordance with the provisions of Spec. 13. **Comment:** Note – Fire Stopping of services penetrations will be required to fire rated enclosures and any other fire rated building elements per C3D13 & C3D14 above and Spec.5 below.
Spec. 5	**Fire Resisting Construction:** The new building works are required to comply with the requirements detailed under Specification 5. The below details the FRL requirements for building elements for each proposed warehouse. **Comment**: The proposed building will be subject to compliance with the Type B Construction provisions of tables S5C21a to S5C21g as summarized below: + All internal load-bearing columns, & walls (excluding those providing direct support to the roof only) are to achieve the required FRL per Table S5C21g: 240/-/- FRL. + The load-bearing elements in the western external wall of the warehouse are required to achieve an FRL per Table S5C21a where the wall is located within 18m of the side allotment boundary – see Figure 4 below:

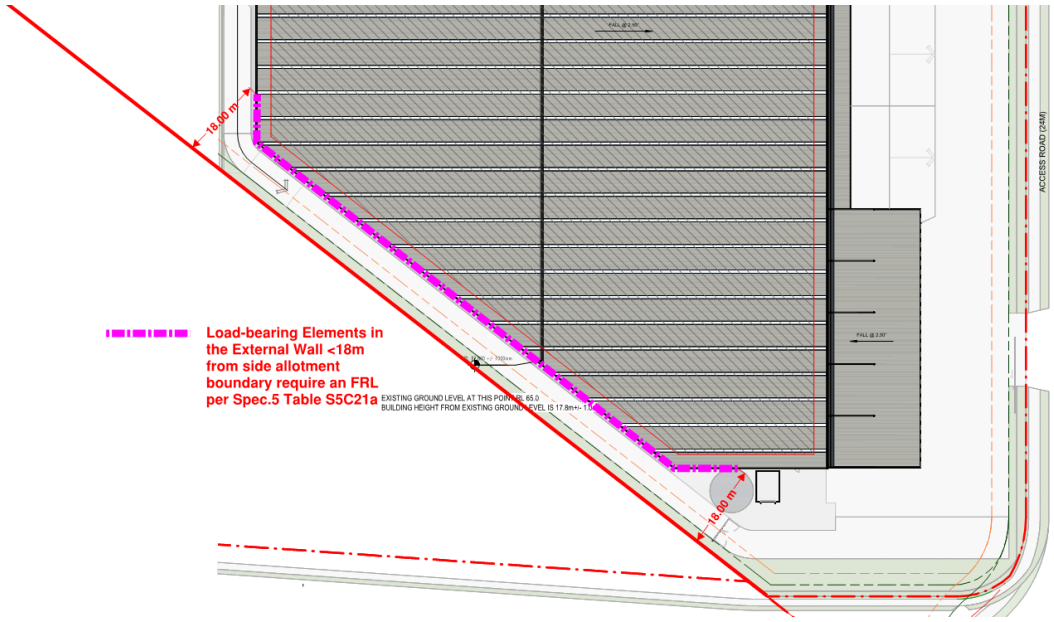


Figure 4: External Wall FRL requirement

	Note: Any proposal to reduce the FRLs of building elements that are required to be fire rated must be addressed as a Performance Solution from the Fire Engineer.
Spec. 7	**Fire Hazard Properties:** As noted above, this Specification sets out the requirements in relation to the fire hazard properties of linings, materials and assemblies in Class 2 to 9 buildings. Table S7C2 outlines the applicable requirements of Spec. 7 to the different types of Linings, Materials and Assemblies. **Comment:** Refer to comments under C2D11 above, certification will be required to be provided at both CC and OC application stage.
Spec. 8	**Performance of External Walls in Fire:** This specification contains measures to minimise in the event of fire the likelihood of external walls collapsing outwards as complete panels and the likelihood of panels separating from supporting members.

	Comment: Structural Design certification and details demonstrating compliance are required to be provided at CC Application Stage for the proposed warehouse.

3.3 Section D – Access and Egress

D2D3	**Number of Exits Required:** The building is required to be provided with 1 exit to each storey. **Comment:** Based on the most current design, the proposed building is compliant with the requirements of D2D3, that at least 1 exit has been provided to all parts of the building.
D2D5	**Exit Travel Distances:** This clause specifies the permitted travel distances allowable from Class 2 to Class 9 buildings. Sub-clauses (1) to (6) specify the maximum distances to be taken into account for the various uses in each Class of building. In a Class 5, 6, 7, 8 & 9 Buildings no point on a floor must be more than 20m for a single exit or to a point of choice to alternative exits; and no point on a floor must be more than 40m to an exit where 2 or more alternative exits are available for egress. **Comment:** The exit travel distances in the proposed building are non-compliant with the requirements of Clause D2D5. The extent of these non-compliances will require further assessment upon the confirmation of racking layouts however, a summary of the non-compliances are listed below. Noting these non-compliances will be required to be addressed as Performance Solutions by the Fire Safety Engineer to demonstrate compliance with Performance Requirements D1P4 & E2P2. Warehouse: + Up to 97m to an exit from the central warehouse areas. Undercroft Carpark: + Up to 66m to an exit
D2D6	**Distance Between Alternative Exits:** Exits required as alternative exits must be – + Distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and + not less than 9m apart; and + not more than – 60m apart. + Located so that the alternative paths of travel do not converge such that they become less than 6m apart. **Comment:** The distance between alternate exits are non-compliant within the warehouse and undercroft carpark. The extent of these non-compliance have been detailed below and as such will be required to be addressed as a Performance Solutions by the Fire Safety Engineer to demonstrate compliance with Performance Requirements D1P4 & E2P2. Undercroft Carpark: + Up to 125m between alternative exits from the warehouse area. Warehouse: + Up to 193m between alternative exits from the central mezzanine area.
D2D7/ D2D8/ D2D9/ D2D10/ D2D11	**Dimensions of Paths of Travel to an Exit:** The minimum clear height through all egress paths is required to be no less than 2m, and a minimum of 1m wide (this width dimension is measured clear of any obstructions such as handrails and joinery). Aggregate exit widths must be achieved which are driven by occupancy numbers of each floor. **Comment:** For the purposes of this assessment, population numbers for the proposed warehouse have been calculated as per table D2D18 and are detailed under clause D2D18. Final details showing compliant dimensions of all exits (including 1m wide clearances and minimum

	clear heights of 2.1m) are to be confirmed on the CC Application plans. In this regard however, given the number of exits proposed and the nature of the use of the facility it is considered that compliance with the provisions of D2D7 to D2D11 is readily achievable.
D2D14	**Travel Via Non Fire Isolated Required Stairways:** A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. The distance from any point on the floor to a point of road or open space must not exceed 80m. The stair must discharge at a point not more than 20m to a point of road or open space, or from a fire-isolated passage, or 40m from one of two such points. **Comment:** Details demonstrating compliance are to be included on the CC Application drawings -compliance is readily achievable.
D2D15	**Discharge From Exits:** Requires that an exit must not be blocked at the point of discharge. Barriers such as bollards must be installed to prevent vehicles from blocking the discharge from exits. This clause also provides the methods of construction, location and separation, at exit discharge points for all building Classes. **Comment:** All exit discharge points from the building are required to be protected in accordance with the requirements of this clause.
D2D18	**Number of Persons Accommodated:** Clause D2D18 and Table D2D18 are used to calculate the anticipated number of people in particular types of buildings so that minimum exit widths and the required number of sanitary and other facilities can be calculated. This clause and table are not to be used for non-BCA purposes. **Comment:** As indicated under D2D7 to D2D11 above, the population numbers for the proposed warehouse and office spaces have been calculated as per table D2D18 and are as follows. Noting that the office spaces have been calculated based on 10m^2 person and the warehouse has been calculated based on 30m^2 per person with 50% of the total warehouse floor area being allocated to racking and circulation space. Dock Office: 10 Persons Main Office: 68 Persons Warehouse: 319 Persons
D3D3	**Fire-isolated Stairways & Ramps:** A stairway or ramp, including landings that are required to be within a fire-resisting shaft must be constructed of non-combustible materials to protect the structural integrity of the shaft. **Comment:** Architect and structural engineer to note. Details to be provided with the Construction Certificate Documentation.
D3D4	**Non-Fire Isolated Stairways and Ramps:** In a building with a rise in storeys of more than 2, required non-fire-isolated stairways and ramps must be either constructed of + Reinforced or prestressed concrete; or + Steel at least 6mm thick at all points; or + Timber that has a finished thickness of at least 44mm, has an average density of at least 800 kg/m3 at a moisture content of 12% and has not been joined by means of glue unless it has been laminated and glued with resorcinol/phenol formaldehyde; or + Non-combustible materials, and such that if there is a structural failure it will not cause damage to or impair the fire-resistance of the shaft in which the stair is located. **Comment:** The requirements of D3D4 apply to any proposed non fire isolated exit stair within the proposed building. Further details of the stair design are to be provided at CC Application stage.

D3D8	**Installations in Exits and Paths of Travel:** This clause restricts the installation of certain services in fire-isolated exits, non-fire-isolated exits and certain paths of travel to exits. Sub-clauses (1) to (6) prescribe which services shall not be installed as well as the circumstances in which certain services may be installed in fire-isolated and non-fire-isolated exits. **Comment:** This requirement applies to all cupboards containing electrical distribution boards or comms equipment that are located in a path of travel to an exit. In this regard such cupboards are to be enclosed in non-combustible materials and are to be suitably sealed against the spread of smoke
D3D9	**Enclosure of Space under Stairs and Ramps:** The space below a required, non-fire isolated stairway/ramp must not be enclosed to form a cupboard or other enclosed space, unless the cupboard is bound by construction achieving an FRL of at least 60/60/60, with a self-closing -/60/30 door. **Comment:** Any enclosures under any non-fire isolated stairs are required to be fire separated as per the above requirements.
D3D14/ D3D15/	**Stairways, Goings & Risers / Landings:** Stairways: + Stairway dimensions must comply with Table D3D14. + A stairway must have no more than 18, nor less than 2, risers in each flight. + Landings must be not less than 750mm in length. + Slip Resistance of stair nosings and landings must comply with Table D3D15. + In a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30°. **Comment:** All stairs are to have dimensions that comply with Table D3D14, have solid risers, and are to have contrasting nosings and slip resistant surfaces throughout in accordance with clause 11 of AS 1428.1-2009. (See diagram in Part D4 below). Architect to note, details demonstrating compliance will be required to be included in the CC plans.
D3D17, D3D18, D3D19, D3D20, D3D21	**Balustrades or Other Barriers:** These clauses detail where balustrades are required to be provided and sets out in specific detail the construction requirements. Typically, the following will apply to this class of building: + Balustrades are required where the fall to the level below is more than 1m in height. The minimum height of a balustrade is 1m above the floor of the landing, walkway or the like; and 865mm above the floor of a stairway or a ramp. + For a fall of more than 4m to the surface level below, a window sill must be a minimum of 865mm in height above the height of the floor surface. + Where the floor is more than 4m above the surface beneath the balustrade any horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing. + Balustrades must be constructed so as to not permit a sphere of 125mm diameter to pass through. The exception to this is within fire isolated exits within the building, or internal stairs within a Class 7b or 8 building, where the rails can be positioned a maximum of 460mm apart, so long as a bottom rail is located so a sphere of 150mm cannot pass through the opening between the nosing of the stair treads and the rail or between the floor of the landing, balcony or the like. + Note: any wire barriers must be complaint with D3D21 and tables D3D21(a) to D3D21(c). **Comment:** Details demonstrating compliance are to be submitted with the CC Application drawings for assessment against the above criteria.
D3D22	**Handrails:** This Clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings.

	Comment: Architect to note, details demonstrating compliance will be required to be included in the CC plans. Handrails serving all stairs and ramps both internally and externally to the building are required to comply with the accessibility requirements of Clause D4D4 and AS 1428.1-2009.
D3D23	**Fixed Platforms, Walkways, Stairways and Ladders:** A fixed platform, walkway, stairway, ladder, any going and riser, landing, handrail or barrier attached thereto may comply with AS 1657 if it only serves a machinery room, boiler house, lift-machine rooms, plant rooms or the like. **Comments:** Details of where any AS 1657 compliant stairs or ladders are to be used for access/egress in the building are to be included on the CC Application plans. It is understood these provisions may be applied to any maintenance ladders or walkways used to access mechanical equipment in the warehouse areas.
D3D24	**Doorways and Doors:** This clause applies to all doorways that form an exit and refers to the types of doors that cannot be used in buildings of prescribed uses, the use of power operated doors and the force required to operate sliding doors. If an exit door is power operated, it must be opened manually under a force of not more than 110N if there is a malfunction or failure to the power source; and it must open automatically if there is a power failure to the door and upon the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. **Comment:** Architect to note compliance is readily achievable.
D3D25/ D3D26	**Doors and Latching:** All egress doorways must swing in the direction of egress and must be readily openable without a key from the side that faces a person seeking egress, by a single handed downward or pushing action on a single device which is located between 900mm and 1100mm from the floor. **Comment:** The proposed egress doors providing access through the external walls of the building are all required to swing in the direction of egress. The most current plans show that compliance is readily achievable.
D4D2 & D4D3	**General Building Access Requirements** The extent of access required depends on the classification of the building. Buildings and parts of building must be accessible as set out in sub-clauses (1)-(10) unless exempted by Clause D4D5. Access is required to and within all areas normally used by the occupants, for Class 5, 6, 7b & 9b buildings and any levels in a Class 7a building containing accessible carparking spaces. **Comment:** Access is required throughout all areas in the warehouse and office in accordance with AS 1428.1-2009 with the exception of those areas subject to a D4D5 concession. Details demonstrating that the main entrance to the building is compliant with AS 1428.1-2009 are to be provided at CC application stage. It is understood that an Access Consultant has been engaged for the development and as such reference should be made to any access consultant's report for further details.
D4D4	**Parts of the Building to be Accessible** This clause specifies the requirements for accessways within buildings which must be accessible. In accordance with Clause D4D4; ramps & stairways must comply with Clause 10 & 11 of AS 1428.1-2009 (respectively), whilst fire isolated stairs must comply with Clauses 11.1(f) & (g) of AS 1428.1-2009 only. In addition, any storey with a floor area more than 200m² must be served by a passenger lift that is designed to comply with Part E4, and all accessways must include passing & turning spaces per AS 1428.1-2009. Clause D4D4(g) and (h) requires that the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm. Moreover, the carpet pile height or pile thickness dimension shall not exceed 11mm, the carpet backing thickness dimension shall not exceed 4mm and their combined dimension shall not exceed 15mm. **Comment:** As indicated above, the proposed building is required to be accessible throughout in accordance with AS1428.1-2009 – Refer to Access Consultant Report for further details.

D4D5	**Exemptions:** This clause provides details on buildings or parts of buildings not required to be accessible under the BCA where providing access would be inappropriate because of the nature of the area/use or the tasks undertaken. **Comment:** Reference is to be made to the Access Consultant Report. Note: Consideration to an exemption to the Warehouse area may be appropriate on this project. Confirmation from ESR will be required at the CC Application stage that includes a request for concession, where this would be applied and the reasons why it would be inappropriate for access for people with disabilities within the facility.
D4D6	**Accessible Parking:** This clause provides details of the number of accessible carparking spaces required in a carpark depending on the classification of the building. **Comment:** In the case of Class 5 & 7b buildings 1 compliant accessible space is required for every 100 parking spaces or part thereof. Reference is to be made to the Access Consultant Reports in this regard however it is noted that there is currently 1 (one) accessible parking space detailed on the most current plans.
D4D7	**Signage:** Braille and tactile signage must be provided to required accessible sanitary facilities, spaces with hearing augmentation, ambulant sanitary facilities, pedestrian entrances that are not accessible, and to each door required by Clause E4D5 to be provided with an exit sign. The latter is to state EXIT and state the level e.g. LEVEL 1. **Comment:** Signage will be required to identify exits, accessible facilities, an ambulant accessible facility, and the paths to accessible pedestrian entries (where required) – Refer to Access Consultant Report.
D4D9	**Tactile Indicators:** This clause provides for the installation of tactile indicators in buildings required to be accessible and must be provided to warn people who are blind or have a vision impairment that they are approaching a stairway, escalator, passenger conveyor, ramp, overhead obstruction or an accessway meeting a vehicular way, except for areas exempted by D4D5. **Comment:** Subject to D4D5 above, stairways and ramps serving the proposed building, any overhead projections less than 2m in height and any paths leading directly to a driveway or roadway without a kerb will need to be provided with Tactile Ground Surface Indicators in accordance with AS1428.4. Details and design certification demonstrating compliance will be required to be included in the CC plans.
D4D12	**Ramps:** Ramps may be used as part of an accessway where there is a change of level and must comply with the requirements set out in AS1428.1. **Comment:** Architect to note, details and design certification demonstrating compliance will be required to be included in the CC plans – Refer to Access Consultants Report.
D4D13	**Glazing on an Accessway:** This part requires the provision of a contrasting strip, chair rail, handrail or transom across all frameless or fully glazed doorways and surrounding glazing capable of being mistaken for an opening. **Comment:** Architect to note.

3.4 Section E – Services and Equipment

E1D2	**Fire Hydrants:** + E1D2(1) – A fire hydrant system must be provided to serve a building having a total floor area greater than 500m² and where a fire brigade is available to attend a building fire. + E1D2(2) – Requires that the fire hydrant system must be installed in accordance with the provisions of AS2419.1-2021 and details where internal hydrants must be located.

	+ E1D2(3) – details concessions to AS 2419.1-2021 compliance associated with Class 8 Electricity Network Substations, and Hydrant Booster assembly locations where buildings are sprinkler protected. + E1D2(4) – states that internal fire hydrants must serve the level in which they are installed. **Comment:** The proposed warehouse building is required to be served by a fire hydrant system, designed in accordance with AS 2419.1-2021 Appendix C. Due to the volume of the Warehouse exceeding 108,000m^3, a Performance Solution is required to facilitate the design of the system. Detailed plans showing the hydrant system layout (incl. the booster assembly and pumps) are to be provided with the relevant CC application(s). The plans must also demonstrate how coverage is achieved to all areas of the building. Note: A performance solution may be required from the Fire Engineer for the lack of compliant hydrant coverage to any areas in the warehouse.
E1D3	**Fire Hose Reels:** A fire hose reel system must be provided to serve a building where one or more internal fire hydrants are installed or in a building with a floor area greater than 500m^2. This clause requires that the fire hose reel system must be installed in accordance with AS 2441 and sets out the detail for location and uses of fire hose reels. **Comment:** The proposed building is required to be served by a compliant fire hose reel system within the Class 7b areas only (excluding the Class 5 Office areas). Note: A performance solution may be required from the Fire Engineer for the lack of compliant hose reel coverage to any areas in the warehouse and the use of 50m hose reel lengths. Details demonstrating compliance are to be provided at the CC application Stage.
NSW E1D4, **E1D12, E1D13**	**Sprinklers:** A sprinkler system must be installed in a building or part of a building when required by Clauses E1D5 to E1D13 and comply with Specification 17 or 18. Specification 17 sets out requirements for the design and installation of sprinkler systems in Class 2-9 Buildings, and details the required design standards, including AS 2118.1-2017 and AS 2118.6-2012. **Comment:** The proposed Large Isolated Building is required to be sprinkler protected throughout in order to address the requirements of Clause C3D4, E1D12 and E1D13. Details demonstrating compliance are to be provided at the CC application stage. In accordance with Clause 4.14.1 of AS2118.1-2017, sprinkler boosters are required to comply with the requirements of AS2419.1-2021 for a hydrant booster – see comments under E1D2 above regarding potential booster Performance Solution. **Note:** the location of the sprinkler booster is likely to require a Performance Solution due to requirements for booster to comply with AS 2419.1-2021.
E1D14	**Portable Fire Extinguishers:** To be provided and designed in accordance with Sections 1, 2 and 3 of AS 2444-2001. **Comment:** Fire extinguishers will be required to be installed in the proposed building in accordance with sub-clauses (1), (3) & (5) and AS 2444-2001.
E1D15	**Fire Control Centre:** A fire control centre is to be provided based on the total building floor area comprising more than 18,000m^2. A fire control centre must: + Be located in a building so that egress from any part of its floor to a public road or open space does not involve changes in level which in aggregate exceed 300mm. + Provide an area from which fire-fighting operations or other emergency procedures can be controlled. Must not be used for any other purpose. **Comment:** The proposed Warehouse building is required to be provided with a Fire Control Centre designed in accordance with Spec. 19 (Clause S19C3 to S19C6). Details demonstrating compliance to be provided at CC Application stage.
E1D17	**Provisions for Special Hazards:** Suitable additional provisions must be made for fire-fighting if unique problems could arise due to; + The nature or quantity of materials stored, displayed or used in a building on the allotment; or + The location of the building in relation to a water supply for firefighting purposed.

	Comment: Details of any proposed additional firefighting systems are required to address any additional hazards resulting from the proposed storage or use of the building to be provided at CC Application Stage.
E2D3	**General Requirements:** Class 2 to 9 buildings must comply with the provisions of this Clause to remove smoke during a fire, to control the operation of air handling systems and to prevent the spread of smoke between compartments. Buildings must comply with the provisions of E2D4, as applicable to Class 2 to 9 buildings. It deals with the design and construction of air handling systems that are part of a smoke hazard management system and air handling system that are not part of a smoke hazard management system. The details relating to the installation and operation of the systems are set out in Specifications 20, 21, & 22. **Comment:** See notes under E2D10 below.
E2D10	**Buildings <25m Effective Height – Large Isolated Buildings:** This clause sets out the requirements for smoke hazard management systems for large isolated buildings with an effective height of less than 25m. **Comment:** As the floor volume of the proposed Large Isolated Building exceeds 108,000m^3 an automatic smoke exhaust system (incorporating a smoke detection system) is required to be provided, complying with Spec. 21. Consideration to a Performance Solution addressing the rationalisation of the required smoke hazard management system may be appropriate for the building. Such a Performance Solution will need to be prepared by the Fire Engineer, to demonstrate compliance with Performance Requirement E2P2. In addition, any air handling system which does not form part of a smoke hazard management system and which recycles air from one fire compartment to another fire compartment or operates in a way that may spread smoke between compartments must be designed to operate as a smoke control system in accordance with AS 1668.1-2015. Alternately this system may incorporate smoke dampers where the ducts penetrate separating elements in the fire compartments and the mechanical system shutdown and the smoke dampers activate to close automatically by smoke detectors complying with Clause 7.5 of AS 1670.1-2018.
E2D21	**Provisions for Special Hazards:** Additional smoke hazard management measures may be necessary due to the— + Special characteristics of the building; or + Special function or use of the building; or + Special type or quantity of material stored, displayed or used in a building; or + Special mix of classifications within a building or fire compartment, which are not addressed in E2D4 to E2D20. **Comment:** Details of any proposed additional firefighting systems are required to address any additional hazards resulting from the proposed storage or use of the building to be provided at CC Application Stage.
E3D4	**Warning Against use of Lifts in Fire:** Warning signs required be provided must be displayed where they can be readily seen and must comply with the details and dimensions of Figure E3D4. **Comment:** Lift Contractor to note.
E3D6	**Landings:** Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Parts D2 & D3. **Comment:** Compliance is readily achievable. Details to be confirmed with the documentation provided with the construction Certificate application.
E3D7	**Passenger Lift Types and Their Limitations:** In an accessible building, every passenger lift must be one of the types identified in sub-clause (1) and not rely on a constant pressure device for its operation if the lift car is fully enclosed.

	Comment: Compliance is readily achievable. Details to be confirmed with the documentation provided with the construction Certificate application.
E4D2 - E4D8	**Emergency Lighting and Exits Signs:** Emergency lighting and exit signage to be provided in accordance with E4D2 - E4D5 complying with AS 2293.1 – 2018. **Comments:** Emergency Lighting is required throughout the building in accordance with E4D2, E4D4 and AS/NZS 2293.1-2018.
E4D4	**Design & Operation of Emergency Lighting:** Every required emergency lighting system must comply with AS 2293.1-2018. **Comment:** Electrical Consultant to note. Design Certification required at CC Application stage.
E4D5	**Exit Signs:** An exit sign must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress from a building. Sub-clauses (a) to (d) set out the situations where exit signs are required to be installed. **Comment:** Electrical Consultant to note. Details demonstrating compliance will be required to be included in the CC plans.
E4D6	**Direction Signs:** If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit. **Comment:** Electrical Consultant to note. Details demonstrating compliance will be required to be included in the CC plans.
E4D8	**Design & Operation of Exit Signs:** Every required exit sign must comply with AS 2293.1-2018 and be clearly visible at all times when the building is occupied by any person having the legal right of entry into the building. **Comment:** Details demonstrating compliance will be required to be included in the CC plans.

3.5 Section F – Health and Amenity

F1D3	**Stormwater Drainage:** A roof balcony, podium or similar must have a system of stormwater drainage and the structural substrate must be graded with a minimum fall of 1:80 to a drainage outlet. **Comment:** Details of stormwater disposal are required to be prepared by a suitably qualified consultant and submitted with documentation for the CC.
F1D6	**Damp-Proofing:** + This sub-clause requires that moisture from the ground must be prevented from reaching certain parts of buildings as listed. + This sub-clause requires that all damp-proofing materials and termite shields used as damp-proofing must comply with AS/NZS 2904 and AS 3660.1. + This sub-clause lists the buildings and parts of a building that do not need to comply with (a). **Comment:** Note.
F1D7	**Damp Proofing of Floors on the Ground:** If the floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870. Damp-proofing need not be provided if weatherproofing is not required or the floor is the base of a stair, lift or similar shaft which is adequately drained by gravitation or mechanical means. **Comment:** Note.

F2D3 & F2D4	**Wet Area Construction:** These clauses set out the construction requirements for wet areas in Class 2-9 Building, in relation to floor and wall materials, surface grading, floor wastes and drainage. **Comment:** Note – Design Certification required at CC Application Stage.
F3D2	**Roof Coverings:** This clause details the materials and appropriate standards, with which roofs must be covered with. The roofing requirements are set out in sub-clauses (a) to (g) which identifies the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation. **Comment:** Note – Design Certification required at CC Application Stage.
F3D3	**Sarking:** Sarking-type materials used for weatherproofing of roofs must comply with AS/NZS 4200 parts 1 and 2 **Comment:** Note – Design Certification required at CC Application Stage.
F3D4	**Glazed Assemblies:** Glazed assemblies in an external wall must comply with AS2047 requirements for resistance to water penetration for windows, sliding doors with a frame, adjustable louvres, shop fronts and windows with one-piece framing **Comment:** Note – Design Certification required at CC Application Stage.
F3D5	**Wall Cladding:** The following wall cladding materials are deemed to satisfy Performance Requirement F3P1: + Masonry, including masonry veneer, unreinforced and reinforced masonry, complying with AS 3700, + Autoclaved aerated concrete, complying with AS 5146.3, + Metal wall cladding, complying with AS 1562.1. **Comment:** Note – Design Certification required at CC Application Stage.
F3P1	**Performance Requirement F3P1:** A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause + Unhealthy or dangerous conditions, or loss of amenity for occupants; and + Undue dampness or deterioration of building elements. Note 1: There are no Deemed-to-Satisfy provisions for this Performance Requirement in respect to External Walls. Note 2: Refer to Clause F3D2 for roof coverings. **Comment:** Design statement and a documented Performance Solution is to be provided with the Construction Certificate application for the development for any proposed façade or external wall systems not addressed by F3D5 above, either by using: + The Verification Methods in Clause F2V1; or + Other verification methods deemed acceptable by the Certifier; or + Evidence to support that the use of the material or product, form of construction or design meets the Performance Requirements or the DTS provisions, such as a Certificate of Conformity (eg. CodeMark); or By way of Expert Judgement.
F4D3	**Calculation Of Number Of Occupants And Facilities:** This clause sets out the requirements for the calculation of the number of occupants and the number of sanitary facilities required to be installed in Class 2 to 9 buildings. The parameters for the calculation are set out in sub-clauses (a) to (d). **Comment:** Noted – refer to D2D18, confirmation of population numbers required.

F4D4

Facilities in Class 3 to 9 Buildings: This clause provides the requirements for sanitary facilities to be installed in Class 3-9 buildings in accordance with Tables F4D4a – F4D4l. The requirements and variations are set out in sub-clauses (1)-(11).

Comment: Based on the population numbers provided under D2D18, the required sanitary facilities for the proposed development have been calculated as per Tables F4D4a and F4D4b and are as follows.

Required Sanitary Facilities

Occupancy Class as per F4D4

Tenancy		Closet Pans		Urinals		Washbasins		Complies
		Required	Proposed	Required	Proposed	Required	Proposed	Yes/No
Dock Office	5 Males	1	/	0	/	1	/	TBC
	5 Females	1	/	-	-	1	/	TBC
Main Office	34 Males	2	2	2	1	2	2	No
	34 Females	3	2	-	-	2	2	No
Warehouse	160 Males	8	2	5	3	8	1	No
	160 Females	11	2	-	-	8	2	No

Note 1: Where sanitary compartments are noted as Unisex on the floor plans they are required to be allocated as either Male or Female per Clause F2D4(1).

Note 2: Where individual stand-alone sanitary compartments are they must be allocated for use by Males or Females only unless they are designed as a unisex accessible compartment per Clause F2D4(1).

Note 3: As mentioned under D2D18 above, these population numbers may be considered excessive for the development and hence more accurate population numbers may be provided by ESR/the tenant.

Note 4: On the most current plans there are no sanitary facilities detailed in the dock office and as such further details showing the proposed sanitary facilities are to be provided for review. However, based on the calculated population for the dock office and the required sanitary facilities, it is considered that compliance can be readily achieved.

F4D5

Accessible Sanitary Facilities: Accessible unisex sanitary compartments must be provided, in accordance with F4D6 and unisex showers must be provided in accordance with Table F4D7, in buildings or parts that are required to be accessible. The details for the provision of disable facilities and the standard, AS 1428.1, are set out in sub-clauses (a) to (i).

Comments: The accessible sanitary facilities provided throughout the building are considered to adequately achieve compliance with the requirements of F4D6 and F4D7, subject to the provision of an even number of left- and right-handed mirror facilities per F4D5(g) (with particular attention drawn to the Office). Design certification confirming compliance with the requirements of AS1428.1-2009 shall be provided with the documentation submitted with the CC application.

F4D8

Construction of Sanitary Compartments: Other than in an early childhood centre, sanitary compartments must have doors and partitions that separate adjacent compartments and extend:

+ From floor level to the ceiling in the case of a unisex facility; or

	+ A height of not less than 1.5m above the floor if primary school children are the principal users; or + 1.8m above the floor in all other cases. The door to a fully enclosed sanitary compartment must open outwards; or slide: or be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2m, measured in accordance with Figure F4D8 between the closet pan within the sanitary compartment and the doorway. **Comment:** Details to be provided at CC Application stage confirming compliance with the above requirements.
F5D2	**Height of Rooms and Other Spaces:** The ceiling heights in Class 2 to 9 buildings must not be less than required in sub-clauses (1) to (8) of this clause. The minimum ceiling heights for a Class 5, 6 & 7 building are as follows: + Corridor or Passage, Bathroom, Storeroom, etc. – 2.1m + Remainder – 2.4m. The minimum ceiling heights for a Class 9b building are as follows: + A part (including a corridor serving the part) that accommodates not more than 100 persons – 2.4m; A part (including a corridor serving the part) that accommodates more than 100 persons – 2.7m. **Comment:** Architect to ensure compliance. Ceiling heights are to be reviewed at the Construction Certificate state with the detailed section drawings.
F6D5	**Artificial Lighting:** Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. Sub-clauses (1) - (3) sets out the places where artificial lighting is always required in all classes of buildings and the standard to which it must be installed. **Comment:** Design certification to be submitted at CC Application.

F6D6	**Ventilation of Rooms:** A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F6D7 or a mechanical or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1. **Comment:** Design certification to be submitted at CC Application.
F6D8	**Ventilation Borrowed from Adjoining Room:** Natural ventilation must consist of openings, windows, doors or other devices which can be opened— with a ventilating area not less than 5% of the floor area of the room required to be ventilated. Additionally, open to a suitably sized space open to the sky or an adjoining room in accordance with F6D8. **Comment:** Design certification to be submitted at CC Application.

3.6 Section J – Energy Efficiency

Part J4	**Building Fabric:** The provision of insulation of the building envelope will be required in the proposed Building, in accordance with Clauses J4D3 to J4D7, and the Tables therein, including Thermal Construction General, Roof and Ceiling Construction, Rooflights, Walls, and Floors. Design details and/or certification of design will be required to be provided in this regard. **Comment:** This section applies to the building envelope of any air-conditioned spaces proposed within the Warehouse building. Design details and/or certification of building envelope design will be required to be submitted with the application for a Construction Certificate.
Part J5	**Building Sealing:** The provision of a compliant building sealing is required to all chimneys & flues, roof lights, windows & doors, Exhaust Fans, Ceilings Walls, & floors in accordance with Clauses J5D3 to J5D7. **Comment:** This section applies to any air-conditioned spaces proposed within the Warehouse building. Design details and/or certification of building envelope design will be required to be submitted with the application for a Construction Certificate.
Part J6	**Airconditioning & Ventilation Systems:** Details and/or design certification which confirm that any proposed air-conditioning system or unit within the proposed building achieves compliance with the relevant requirements of Part J6 will be required to be provided from the mechanical engineer. **Comment:** Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.
Part J7	**Artificial Light & Power:** Details and/or design certification which confirm that all artificial lighting, power control, and boiling/chilled water units within the proposed building achieves compliance with the relevant requirements of Part J7 will be required to be provided from the electrical engineer **Comment:** Consultant certification required at CC Application Stage.
Part J8	**Hot Water Supply, & Swimming Pool & Spa Pool Plant:** Details and/or design certification which confirm that any proposed hot water supply system within the proposed building achieves compliance with the relevant requirements of Part J8 (Section 8 of AS 3500.4) will be required to be provided from the hydraulic engineer. **Comment:** Details and certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.
Part J9	**Facilities for Energy Monitoring:** Provision for monitoring of energy consumption must be provided to a building where the floor area exceeds 500m², and must be capable of recording the consumption of gas and electricity. In addition, where the floor area of the building exceeds 2,500m² the energy monitoring facilities must be capable of individually recording air-

conditioning, lighting, appliance power, central hot water supply, lifts/escalators, and other ancillary plant and being connected to a single interface monitoring system.

Comment: Details or certification demonstrating compliance with J9D3 for energy monitoring, J9D4 for provision for EV charging stations, and J9D5 for solar, will need to be submitted with the application for a Construction Certificate.

4.0 Conclusion

This report contains an assessment of the referenced architectural documentation for the proposed Warehouse development at Mamre Road, Kemps Creek against the Deemed-to-Satisfy provisions of the Building Code of Australia 2022.

Arising from the assessment, key compliance issues have been identified that require further resolution, either by way of fire engineered Performance Solutions or plan amendments prior to the Construction Certificate stage.

Notwithstanding the above, it is considered that the proposed development can readily achieve compliance with the BCA subject to resolution of the matters identified in this report.

Appendices

+ Appendix 1 – References Tables

Table 1: Non-Combustibility Requirements

+ Building Element	+ Type A or B Construction
External wall	Non-combustible
Common wall	Non-combustible
Floor and floor framing of lift pit	Non-combustible
All loadbearing internal walls (including those of shafts)	Concrete, masonry or fire-protected timber
Loadbearing fire walls	Concrete, masonry or fire-protected timber
Non-loadbearing internal walls required to be fire-resistant	Non-combustible
Non-loadbearing lift, ventilating, pipe, garbage and the like shafts which do not discharge hot products of combustion.	Non-combustible (subject to conditions outlined in C2D10)

Table 2: Fire Hazard Properties Requirements – Floor Linings

+ Table S7C3 of Specification 7 Critical Radiant Flux or Floor Linings and Floor Coverings			
+ Class of Building	**Building Not Fitted with a Sprinkler System**	**Building Fitted with a Sprinkler System** (other than a FPAA101D or FPAA10H System)	**Fire-isolated Exits and Fire Control Rooms**
Class 2, 3, 5, 6, 7, 8 or 9b, excluding: + Class 3 accommodation for the aged; and	2.2 kW/m2	1.2 kW/m2	2.2 kW/m2

Table 3: Fire Hazard Properties Requirements – Wall and Ceiling Linings

+ Table S7C4 of Specification 7 – Wall and Ceiling Lining Materials (Materials Groups Permitted)				
Class of Building	**Fire-isolated Exits and Fire Control Rooms**	**Public Corridors**	**Special Areas**	**Other Areas**
Class 5, 6, 7, 8 or 9b schools, Sprinklered	Walls: 1 Ceilings: 1	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3

Table 4: Fire-Resisting Construction – Type B Construction

+ Building Element	+ Class of Building - FRL: (in minutes) Structural adequacy/integrity/insulation			
	2, 3 or 4 part	**5, 7a or 9**	**6**	**7b or 8**
EXTERNAL WALL – (Including any column and other building element incorporated 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 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/30	120/90/60	180/120/90	240/180/120
3 to less than 9m	90/30/30	120/30/30	180/90/60	240/90/60
9 to less than 18m	90/30/-	120/30/-	180/60/-	240/60/-
18m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non-loadbearing parts:				
less than 1.5m	–/90/90	–/120/120	–/180/180	–/240/240
1.5 to less than 3m	–/60/30	–/90/60	–/180/90	–/180/120
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN - Not incorporated in an external wall				
For loadbearing columns:				
Less than 18m	90/–/–	120/–/–	180/–/–	240/–/–
18m or more	–/–/–	–/–/–	–/–/–	–/–/–
Non-loadbearing columns:	–/–/–	–/–/–	–/–/–	–/–/–
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	240/120/120s
Non-loadbearing	–/90/90	–/120/120	–/120/120	–/120/120
Bounding public corridors, public lobbies and the like:				
Loadbearing	60/60/60	120/–/–	180/–/–	240/–/–
Non-loadbearing	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units:				
Loadbearing	60/60/60	120/–/–	180/–/–	240/–/–
Non-loadbearing	–/60/60	–/–/–	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS AND COLUMNS	60/–/–	120/–/–	180/–/–	240/–/–
ROOFS	60/–/—	120/–/–	180/–/–	240/–/–

Notes:

1. Any wall required to have an FRL with respect to integrity and insulation must extend to the underside of the floor next above if that floor has an FRL of at least 30/30/30; or the underside of a ceiling with a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or the underside of a non-combustible roof covering; or 400mm above the roof covering if it is combustible.
2. Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must typically achieve the same FRL. Where that part is also required to be non-combustible, the supporting part must also be non-combustible.
3. The method of attaching or installing a finish, lining, ancillary element, or service installation to a building must not reduce the fire-resistance of that element to below that required.
4. A loadbearing internal wall and a loadbearing fire wall must be constructed from concrete, masonry, or a combination of the two.
5. In the storey immediately below the roof, internal columns and internal walls other than fire walls and shaft walls need not comply with S5C21.
6. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification 6.
7. Non-loadbearing parts of an external wall that are more than 18m from a fire source feature need not be fire rated.

+ Appendix 2 – Fire Safety Schedule

The following table is a list of the required fire safety measures within the building. These measures may be subject to further change pending the outcomes of the final Fire Safety Engineering Review to confirm the works are permissible.

Table 5: Fire Safety Schedule

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Proposed
Alarm Signalling Equipment	AS 1670.3 – 2018	✓
Automatic Fire Detection System	BCA 2022 Spec. 20 & 21 AS 1670.1 – 2018	✓
Automatic Fire Suppression Systems	BCA 2022 Spec. 17 & BCA Spec 18 AS 2118.1 – 2017 or AS 2118.4, 6 – 2012	✓
Building Occupant Warning System activated by the Sprinkler System	BCA 2022 Spec. 17 Clause 8 and / or Clause 3.22 of AS 1670.1 – 2018	✓
Emergency Lighting	BCA 2022 Clause E4D2 & E4D4 AS 2293.1 – 2018	✓
Exit Signs	BCA 2022 Clauses E4D5, NSW E4D6 & E4D8 AS 2293.1 – 2018	✓
Fire Control Centre	BCA 2022 Spec 19	✓
Fire Doors (TBC)	BCA 2022 Clauses C3D13, C3D14, C4D3, C4D5, C4D6, C4D7, C4D8 & C4D12 AS 1905.1 – 2015 and Manufacturer's Specification	✓
Fire Hose Reels	BCA 2022 Clause E1D3 AS 2441 – 2005	✓
Fire Hydrant Systems	BCA 2022 Clause E1D2 AS 2419.1 – 2021 Appendix C	✓
Fire Seals (TBC)	BCA 2022 Clause C4D15, AS 1530.4 – 2014 & AS 4072.1 – 2014 and Manufacturer's Specification	✓
Lightweight Construction (TBC)	BCA 2022 Clause C2D9 AS 1530.4 – 2014 and Manufacturer's Specification	✓
Perimeter Vehicular Access	BCA 2022 Clause C3D5	✓
Portable Fire Extinguishers	BCA 2022 Clause E1D14 AS 2444 – 2001	✓
Smoke Hazard Management Systems + Smoke Exhaust (Large Isolated Building)	BCA 2022 Part E2 Spec.21 AS/NZS 1668.1 –2015	✓
Warning & Operational Signs	BCA 2022 Clause D4D7 AS 1905.1 – 2015	✓