Appendix FF

Building Code of Australia and access assessment

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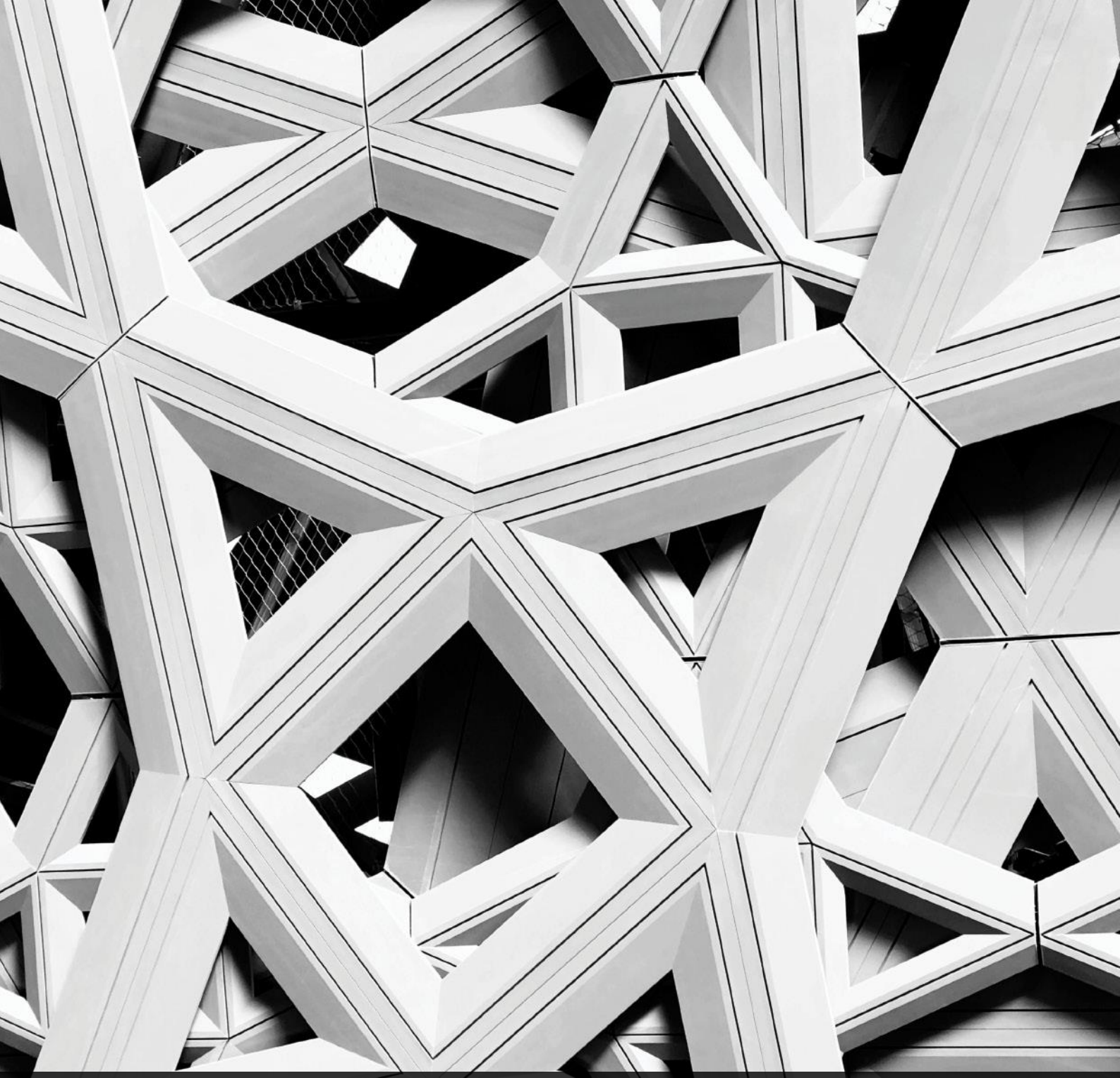

BCA & Access Assessment Report

200 Aldington Road, Kemps Creek
Proposed Warehouse - Lot K

Prepared for:
Stockland & Fife Capital

Revision 0
11 April 2025
Reference: S250154

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 Construction Certificate for the project.

A. Matters requiring redesign or additional information at CC stage:

+	BCA (DtS) Clause	+ Description
1.	**C2D11 & Spec. 7**	Provide a schedule of floor, wall & ceiling linings for review by BM+G. Further, insulation & sarking materials are to be submitted for review.
2.	**C3D13, C3D14 & D3D8**	Provide fire & smoke separation plans, depicting the fire & smoke separation of all equipment, as applicable.
3.	**D2D7 & F5D2**	Ensure areas beneath stairs are blocked off, so as not to provide a trafficable space with insufficient head-height.
4.	**D2D5**	Additional exits to be provided to the eastern and northern parts of the building and from the undercover carpark towards Road 02
5.	**D2D8**	Equipment and fitout plans are to be provided, depicting a clear width of 1m is provided throughout all egress paths, specifically to the conveyor system to the northern part of the warehouse
6.	**D3D14-D3D22, D4D4 & D4D9**	Provide stair & balustrade details for review as part of the Construction Certificate documentation
7.	**D4D12**	Provide detailed plans showing the gradients of external accessways including the egress pathways from the required exits
8.	**D4D13**	Provide details of the proposed glazing decals, for review.
9.	**E1D2 & E1D4**	Provide fire services plans, including information such as, location of the hydrant & sprinkler boosters, locations of internal & external hydrants, and sprinkler design to the ASRS area.
10.	**E1D3**	Confirm if any 50m length hose reels are proposed to be utilised for coverage
11.	**E1D17/E2D21**	Provision of additional fire services & smoke hazard management requirements to address additional hazard resulting from any proposed storage/use. Particular consideration may be given to any ASRS area, depending on the nature of the system and the materials carried.
12.	**F3D2**	Confirm that the weatherproofing of the roof will achieve compliance with the DtS provisions set out in this clause. Otherwise, this will be required to be considered in the weatherproofing Performance Solution report.
13.	**F4D5 & F4D8 & D2D18**	Provide detailed sanitary facilities plans for review including the proposed population numbers.

B. Matters requiring fire safety engineered performance solutions:

+ BCA (DtS) Clause		+ Description
1.	**C3D4 / C3D5**	+ Perimeter vehicular access is, in part, greater than 18m for the building and <6m in width. + The FER must also discuss the access provisions for FRNSW through entry gates and the like.
2.	**D2D5 & D2D6**	+ Excessive travel distances to an exit, and between alternative exits are proposed within the carpark. + Excessive travel distances to an exit, to a point of choice, and between alternative exits are proposed within the warehouse.
3.	**E1D2/E1D12**	+ Design of Hydrant System per AS 2419.1-2021 Appendix C. + External hydrants located under awnings. + Rationalisation of the scale of block plans. + Provision of internal hydrants remote from exits. + Sprinkler Booster location
4.	**NSW E2D10**	It is understood that the required Automatic Smoke Exhaust System will be rationalised within the warehouse

C. Other matters requiring performance solutions:

+ BCA (DtS) Clause		+ Description
1.	**F4D5**	Potential Performance Solution to permit shower floors to be graded steeper than 1:80, as a result of conflicting requirements for drainage.
2.	**F3D5**	Where the external walls and/or roof of each building does not comply with BCA Cl. F3D5, a Performance Solution report is to be provided by the Architect / Façade Engineer to demonstrate how the external walls are designed to prevent the penetration of water into the building.
3.	**Parts J4 & J5**	Confirm if any Section J Performance Solutions are proposed.

+ Contents

+ Report Status

+ Date	11 April 2025
+ Revision	0
+ Status	Issued for stakeholder comments
+ Author	Bradley Holmes
+ Reviewed	Dean Goldsmith

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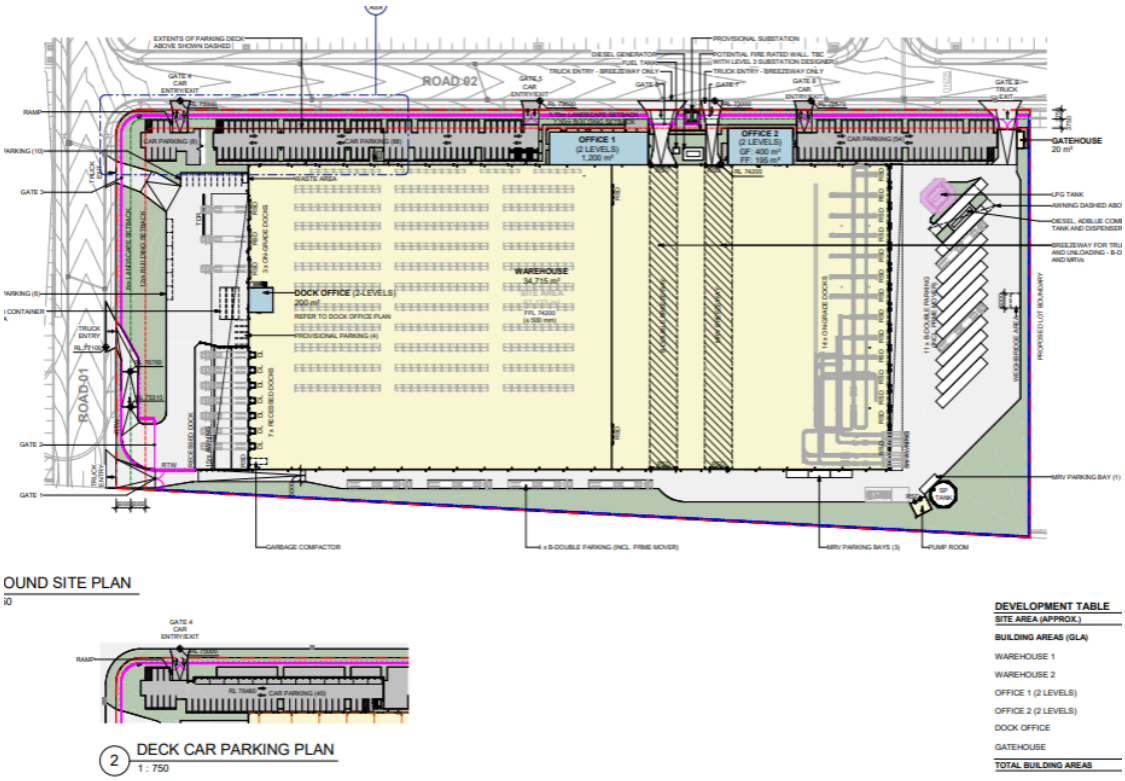
+ Revision History

+ Revision		**+ Date**	
+ Status			

1.0 Description of Project

1.1 Proposal

bm+g have been commissioned by Stockland & Fife Capital to undertake an assessment of the proposed warehouse at 200 Aldington Road (Lot K), Kemps Creek against the relevant provisions of the Building Code of Australia 2022 (BCA).



1.2 Aim

The aim of this report is to:

- Undertake an assessment of the proposed development against the Deemed-to-Satisfy (DtS) 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 Section 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:

- **Bradley Holmes** – Report Preparation (Senior Building Surveyor) | Building Surveyor-Unrestricted
- **Dean Goldsmith** – Peer Review (Director) | Building Surveyor-Unrestricted

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).
- The Guide to the Building Code of Australia 2022.
- Architectural Plans prepared by Reid Campbell numbered

+ Drawing No.	+ Revision	+ Date
A004	D	26.03.2025
A202	A	28.03.2025

+ Drawing No.	+ Revision	+ Date
A201	A	28.03.2025
A301	A	28.03.2025

+

1.5 Regulatory Framework

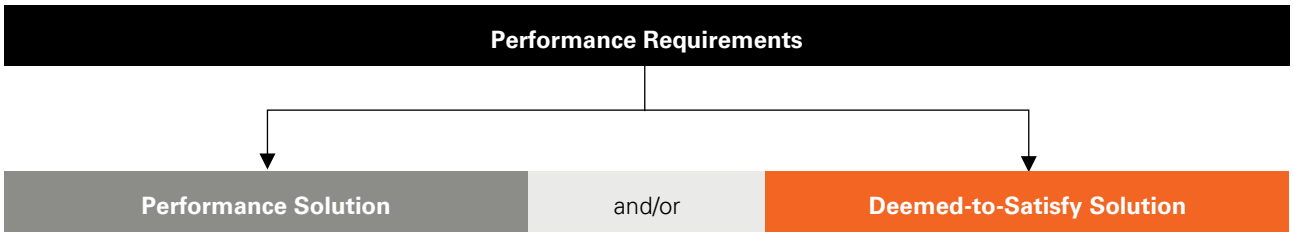
- Pursuant to Section 19(1) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 all new building work must comply with the current BCA however the existing features of an existing building need not comply with the BCA unless upgrade is required by other clauses of the legislation.

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 post 1 May 2025. As the Construction Certificate application is understood to be sought to be lodged after to 1 May 2025, this report assesses the design against compliance with the requirements of BCA 2022 Amendment 1.

Where a CC application for the first above ground storey is not lodged prior to 1 May 2025, a reassessment against the provisions of BCA 2022 Amendment 1 will be required.

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:

- No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA), except to the extent that the DDA requires compliance with the BCA. 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 AS 1428 (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.
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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 – 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 – 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 – 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.

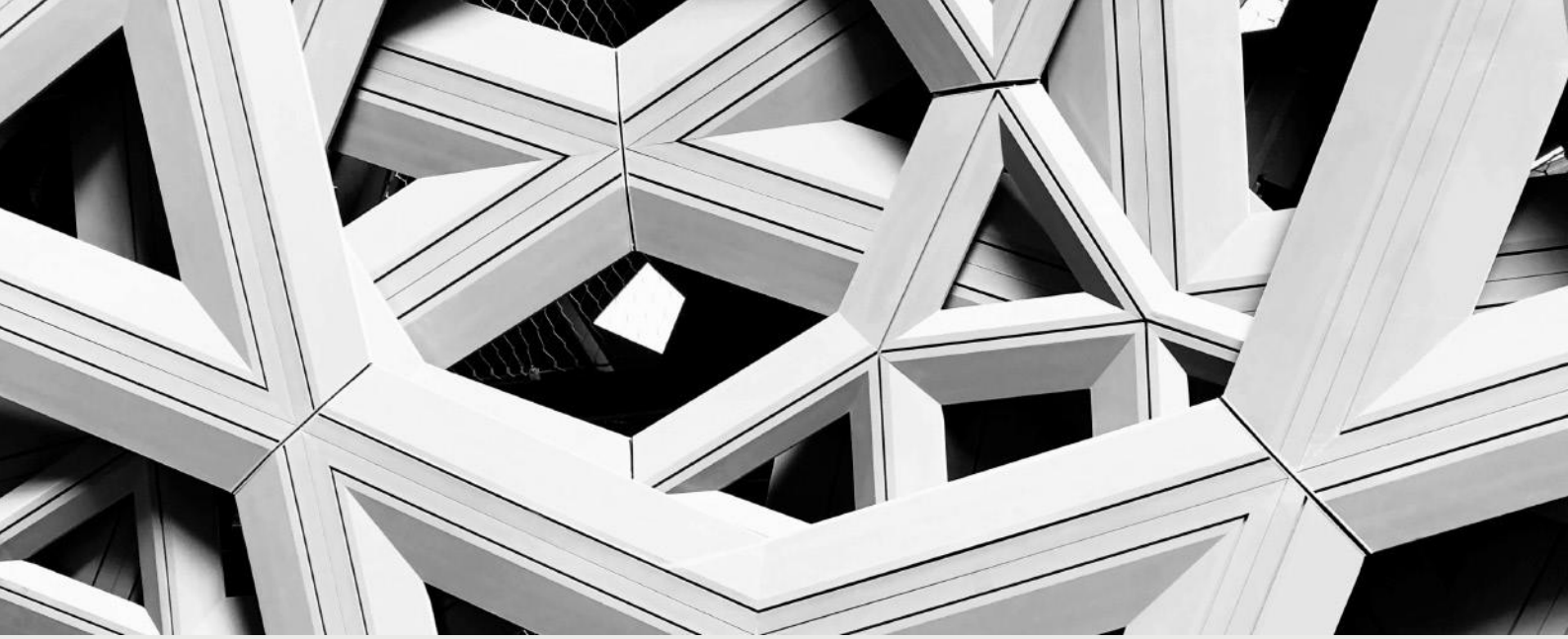
Performance-Based Design Brief – The process and the associated report that defines the scope of work for the performance-based analysis, the technical basis for analysis, and the criteria for acceptance of any relevant Performance Solution as agreed by stakeholders.

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-

+ complying with the Deemed-to-Satisfy Provisions; or
+ 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
+ a combination of (a) and (b).

Performance Solution – 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 a single warehouse building, proposed to be located on Lot K of the FIFE/Stockland industrial estate, situated at 200 Aldington Road, Kemps Creek.

The building is classified as follows:

BCA Classifications:	Class 5 (Offices and Gatehouse) Class 7a (Carpark) Class 7b (Warehouse) Class 8 (Manufacturing) Class 10b (On-grade carparking & ancillary structures)
Rise in Storeys:	Two (2)
Storeys Contained:	Two (2)
Type of Construction:	Type C Construction
Importance Level (Structural)	2 (TBC by Structural Engineer)
Sprinkler Protected Throughout	Yes (Large Isolated Building)
Effective Height	3.6m (RL77.80 – RL74.20)
Floor Area	Approx. 35,500m^2
Volume	Approx. 500,000m^3
Largest Fire Compartment Size	N/A (Large Isolated Building)
Climate Zone	Zone 6

Note 1: *The on-grade car parking facilities, i.e. those areas which are not under cover attract a Class 10b classification and not a Class 7b classification. The provisions of BCA Vol.1 do not apply to such Class 10b structures, unless expressly stated otherwise in this report.*

Note 2: *Refer to comments under cl. C2D3 regarding the calculation of rise in storeys.*

2.2 Fire Compartment Floor Area Limitations

Maximum size of fire compartment/atria is:

+ Classification		+ Type A	+ Type B	+ Type C
7 & 8	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: *Limitations on fire compartment sizes do not apply to large isolated buildings.*

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	Side or rear boundary	2.4m (Gatehouse)
East	Side or rear boundary	>3m
West	Far allotment boundary	>3m
South	Far allotment 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 within the Structural Engineering design.

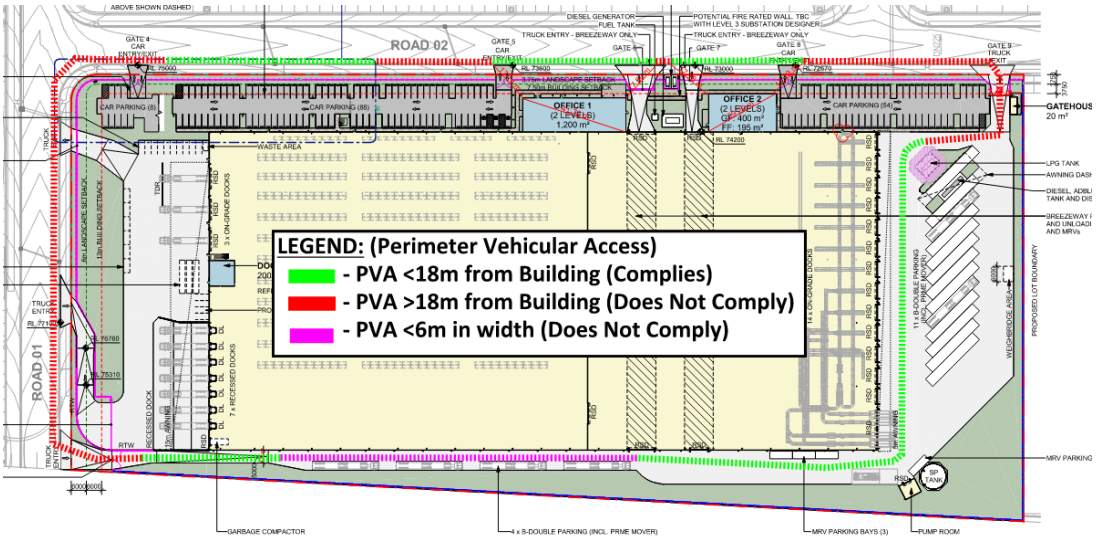
Comment: Structural design details and certification will be required at CC application stage

3.2 Section C – Fire Resistance

C2D2 & Spec 5

Type of Construction Required: The building is required to comply with the requirements of Type C Construction as stated within Specification 5. The table below provides an overview of the requirements of each. Refer to Table 4 of Appendix 1 for the FRL requirements of Type C Construction.

	Type C Construction: + External walls (and columns incorporated within) need not achieve an FRL if >3m from a boundary or separate building. Where required, external walls of Type C Construction only require an FRL from the outside and not in both directions. + Floors need not achieve an FRL, subject to Cl. S5C3. + Roofs need not achieve an FRL. + Internal columns need not achieve an FRL. **Comment:** Plans identifying all proposed fire ratings are to be provided to BM+G for review.
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:** It is noted that the cover carpark is not an "*undercroft*" to the warehouse and therefore not considered as an additional storey. Based on the above, the building has a rise in storeys of 2, and Type C construction applies.
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:** Being of Type C Construction, the subject building does not require construction of the external walls from non-combustible materials. This has been provided as compliance commentary only – no action is required in this respect.
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:** Provide a schedule of floor, wall & ceiling linings for review by BM+G. Further, insulation & sarking materials are to be submitted for review.
C2D12 & Spec. 8	**Performance of External Walls in Fire:** Concrete, pre-cast/tilt-up wall panels in buildings with a rise in storeys of 1 or 2 are required to comply with the requirements of Spec. 8. **Comment:** Certification is to be provided to the Principal Certifier, from the Structural Engineer, confirming compliance, where pre-cast/tilt-up wall panels are proposed.
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 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 building is required to be sprinkler protected and provided with a 6m wide perimeter vehicular accessway in accordance with Clause C3D5(2) throughout (see notes 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:** It is understood that a Fire Engineered Performance Solution is proposed to address the perimeter vehicular access, as it is, in parts, greater than 18m from the external walls and less than 6m in parts, as shown below. 
C3D8	**Separation by Fire Walls:** Separation of Fire Compartments must be constructed in accordance with the following: + FRL in accordance with Tables S5C24 of Spec. 5 and extend to the underside of a floor with the same FRL, or to the underside of the 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:** It is understood that no fire compartmentation walls are proposed within the subject building. Notwithstanding, it is noted that further comments are provided under cl. C3D13 & C3D14 for requirements relating to the separation of individual rooms.

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:** It is understood that fire separation of different classifications (e.g. offices vs warehouse areas) is not proposed, as there is no difference in the FRLs required for these classifications, when constructed of Type C Construction. As such, there is no cause for separation of classifications in this instance.
C3D11	**Separation of Lift Shafts:** Certain lift shaft/s are required to achieve an FRL in buildings of Type A or B construction. **Comment:** As the building is proposed to be constructed of Type C construction, there is no requirement to fire rate lift shafts. This has been provided as compliance commentary only - no action is required in this regard.
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:** Compliance is readily achievable. Confirmation is required as to whether any rooms are proposed within the building containing equipment referenced above, thus requiring fire separation.
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: Provide fire rating plans showing the MSB located in a fire rated enclosure complying with the above. Confirmation is required as to whether any other rooms are proposed within the building containing equipment referenced above, thus requiring fire separation.
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:** Penetrations through fire-rated building elements required by Spec. 5, and Clauses C3D13 & C3D14 are required to be protected in accordance with the requirements of this clause.
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 subject building will be subject to compliance with the Type C Construction provisions of tables S5C24a to S5C24e as summarised below: + All external walls & loadbearing elements incorporated in or attached to an external wall are to achieve the required FRL per Table S5C24a. + All loadbearing external columns are to achieve the required FRL per Table S5C24b. + Any Fire Walls that are proposed to separate different classifications per C3D9 above are to achieve the required FRL per Table S5C24c. + All internal stair shaft walls and walls bounding SOUs, as well as any associated columns, walls, beams and trusses throughout are to achieve the required FRL per Table S5C21d. 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. 12	**Fire Doors, Smoke Doors, Fire Windows and Shutters:** Fire doors and smoke doors must comply with the requirements of this specification. **Comment:** The fire rated doors within the proposed warehouse building are subject to the requirements of this specification. Certification verifying compliance will be required to be provided to the Principal Certifier with the application for the Occupation Certificate.

3.3 Section D – Access and Egress

D2D3	**Number of Exits Required:** The building is required to be provided with 2 exits to each storey. **Comment:** No less than 1 exit is required to be provided from each part of a storey. The provided plans demonstrate compliance in this respect.
D2D4	**When Fire-Isolated Stairways and Ramps are Required:** This clause specifies the requirements for when fire isolated stairs or ramps are required in buildings based upon the number of storeys that they interconnect and the classification of the building. **Comment:** The egress stairs serving the subject building connect no more than 2 storeys and thus are not required to be fire isolated. All egress stairs in the proposed building are assessed as non-fire isolated stairs in this respect.
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:** Excessive travel distances within the proposed building are as listed below. We understand these are proposed to be addressed via a Fire Engineered Performance Solution.

	Offices: + Compliance readily achievable. Further details to be provided of the internal fitout with the next revision of the architectural plans. + 2 Exits from Level 1 are required to be provided Carpark: + Ground level (under cover) – Compliance readily achievable. Egress to be provided to the west towards Road 02 from the carpark Warehouse: + There are currently no exits from the warehouse from the eastern and northern sides of the warehouse or through the inter-tenancy wall (excluding the rapid roller doors). + As a result of the currently identified fitout and equipment within the warehouse, travel distances do not comply with the DtS provisions of this clause. However, minor reconfiguration and provision of walkthroughs/crossovers is understood to be readily adopted, resulting in a travel distance to a point of choice up of to 30m, and distance to the nearest of two exits of up to 90m (50m in excess of DtS). It is understood that additional exits to the perimeter of the building will be provided to reduce the travel distances within to distances that the Fire Safety Engineer is able to justify as part of a Performance Solution.
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:** Excessive travel distances between alternative exits within the warehouse are proposed and will be in the order of 130m within the warehouse areas. We understand these are proposed to be addressed via a Fire Engineered Performance Solution.
D2D7 – 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:** Generally, the architectural plans demonstrate compliance with the above. Though confirmation is required regarding the below instances: + Any space underneath stairways must be blocked off (e.g. via a handrail) where it is less than 2m. Refer to further comments under cl. F5D2 regarding further ceiling height requirements relating to amenity. + Egress paths in and around the conveyor system to the northern part of the warehouse.
D2D15	**Discharge from Exits:** The path of travel to the road from a required exit leading to open space must have an unobstructed exit width of that of the required exit, or if larger, 1m. If the discharge point of the exit is at a different level from the road, a stairway or ramp achieving no more than 1:10 must be provided, or, if the area is accessible, 1:14. **Comment:** The provided plans demonstrate that compliance is readily achievable, though we request a copy of the landscaping plans identifying the gradients of the external pathways to ensure compliance.
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. The total travel distance to the final exit must also not exceed 80m. **Comment:** The provided plans demonstrate compliance with respect to the above.
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:** BM+G are to be provided with the proposed occupant numbers to allow for further assessment
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/m^3 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:** Provide a design statement from the Architect confirming compliance with respect to the above.
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:** Any Comms or server rooms in the main offices that contain equipment described in the above clause. These rooms must be separated from the corridors by non-combustible, smoke sealed construction.
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:** The provided plans do not indicate that any spaces under stairs are proposed to be enclosed. Compliance is achieved in this respect.
D3D14 – D3D16	**Stairways, Landings, and Thresholds:** + 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. + A step is not permitted on either side of a doorway, closer than the width of the door swing. Doorways leading to external areas are exempted if the step down is ≤190mm, though an accessible threshold ramp is required in accessible areas (refer to Part D4). **Comment:** The provided architectural plans indicate compliance is readily achievable, though detailed stair plans are to be provided for review by BM+G. Attention is also drawn to any proposed crossovers in the warehouse.
D3D17 – 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:** The provided architectural plans indicate compliance is readily achievable, though detailed stair plans are to be provided for review by BM+G.
D2D22	**Handrails:** This Clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings. **Comment:** The provided architectural plans indicate compliance is readily achievable, though detailed stair plans are to be provided for review by BM+G.
D2D23	**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:** AS 1657 steps/ladders mustn't be used along any egress paths, except where permitted by this clause.
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:** The provided plans demonstrate compliance, though a door schedule identifying any doors on an electric strike will be required to be provided for review by BM+G.
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:** Provide a door schedule demonstrating compliance with the above.
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 for persons with a disability is required throughout the entirety of the building, excluding areas exempted under cl. D4D5. Further, it is noted that access to the principal pedestrian entry via an accessway from Road 02 is provided.
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 E3, and all accessways must include passing & turning spaces per AS 1428.1-2009. **Comment:** The following is a summary of the key matters to be considered from Clause D4D4 and AS 1428.1-2009. + An accessible path of travel complying with AS 1428.1 is to be provided from the allotment boundary and from the accessible car spaces and is to be detailed on the CC plans. Refer to comments under cl D4D12 in this respect. + Accessways must have passing spaces complying with AS 1428.1 at a maximum 20m intervals on those parts of the accessway where a direct line of sight is not available and turning spaces complying with AS 1428.1 within 2m of the end of accessways and at a maximum 20m intervals along the accessway. The provided plans demonstrate compliance in this respect, as the external walkways provide a direct line of sight. + 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. To be noted by the Architect. + The minimum width of an accessible doorway must have a clear opening width of not less than 850mm in accordance with AS 1428.1. Provide a door schedule for review. + All doorways on a continuous path of travel shall have a minimum luminance contrast of 30% provided between: door leaf and door jamb; or door leaf and adjacent wall; or architrave and wall; or door leaf and architrave; or door jamb and adjacent wall. The minimum width of the area of luminance contrast shall be 50mm. Provide a door schedule for review. + Circulation space to the doorways that are required to be accessible are to comply with Section 13 of AS1428.1-2009, as detailed below. With respect to the above, it is understood the external pathway to the north of the staff outdoor area is for egress purposes only and thus is not along an accessible path of travel. + Turning Spaces and Passing Spaces in all areas are required to be provided on each level of the building in accordance with Clauses 6.4 & 6.5 of AS 1428.1-2009.
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:** Due to the nature of use of the warehouse, BM+G are advised that access for persons with a disability will be required only within the main offices, and to/from the accessible car parking spaces. The remainder of the warehouse is associated with the industrial use, understood to be unsafe for persons with a disability. Further, access to the store rooms, cleaners cupboards and comms room is exempted under this clause also.
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:** For carparks serving class 5, 7b & 8 buildings accessible parking must be provided at a minimum rate of 1 accessible space per 100 spaces. With 210 spaces across the site, a minimum of 3 accessible spaces are required. The provided plans show 3 spaces, thus compliance is achieved.
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:** It is requested that a detailed signage plan be provided for review by BM+G prior to installation. The architectural specification demonstrates compliance is readily achievable.
D4D8	**Hearing Augmentation:** A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed— + in any room in a Class 9b building; or + in an auditorium, conference room, meeting room or room for judicatory purposes; or + at any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider. **Comment:** Details of the proposed hearing augmentation system in the meeting rooms must be provided at CC stage, as it is understood that the meeting rooms are proposed to be provided with inbuilt amplification systems, e.g. televisions.
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:** TGSIs are to be provided to all stairs and ramps along the accessible paths of travel. It is noted that a number of stairs are not shown as being provided with TGSIs on the architectural plans. Documentation demonstrating compliance is required to be provided.
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:** Plans are to be provided to BM+G so that we may review the gradients of the external accessways.
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:** Provide details of the proposed decals to glazing, for review by BM+G.

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 warehouse is required to be served by a fire hydrant system. Certification and design documentation confirming compliance with the provisions of E1D2 and AS 2419.1 – 2021 are required to be provided by the Hydraulic Engineer. Where a large isolated building exceeds 108,000m³, or includes an automated racking system, a Performance Solution is required for the design of the Hydrant System per Appendix C of AS 2419.1-2021. As the building is both over 108,000m³, and may include an ASRS system, a Fire Engineered Performance Solution will be required in this respect.

	Hydrant booster assemblies are required to be accessible to the brigade; located within sight of the main entry of the building; at least 10m from any proposed substation and EV charging stations; and adjacent to the main vehicular and pedestrian entry into the site. The location of the booster is not identified on the provided plans, however, if installed at the southern vehicular entry, we understand this will be readily visible from the main pedestrian entry to the main office, thus achieving compliance. It is understood that consideration may also be given to a Fire Engineered Performance Solution to assess hydrants that are located outside the building which are not open to the sky (e.g. located under an awning or the like) as external hydrants and to omit the requirement for radiant heat shields to such external hydrants (note that DtS provisions exist only for hydrants under awnings <3m deep & not comprising any fire load, per AS 2419.1 cl. 2.2.2(d)). Consideration may be given to the rationalisation of the size of the hydrant & sprinkler block plans via a Fire Engineered Performance Solution, noting that the requirements of AS 2419.1-2021 specify the maximum scale of block plans at 1:250. Bollards are required to all external hydrants installed on the hardstand areas where it is possible for vehicles to be within 1m of the hydrant. It is also noted that external fire hydrants are required to be located >10m from EV charging stations & LPG tanks. Hydrant plans are to be provided demonstrating compliance with these requirements. In order to achieve coverage, it is understood that internal hydrants will be required to be installed remote from exits. The 2021 hydrant standard does not permit the provision of internal hydrants remote from exits without a Fire Engineered Performance Solution. Attention is drawn to the FRNSW policy to allow progressive movement through the building such that an internal hydrant is within 50m of an external hydrant and 25m of an internal hydrant. Any additional deviations from the requirements of AS 2419.1 proposed by the Hydraulic Engineer are required to be itemised for BM+G and the Fire Engineer to review.
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 500m². 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:** Hose reels are required to provide coverage throughout the warehouse & car park. A Fire Engineered Performance Solution will be required where extended coverage (50m) hose reels are proposed to be utilised.
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 building is required to be sprinkler protected throughout, in order to address the requirements of Clause C3D4. Details demonstrating compliance are to be provided to the Principal Certifier with the CC application. In accordance with Clause 4.14.1 of AS 2118.1-2017, sprinkler boosters are required to comply with the requirements of AS 2419.1-2021 for a hydrant booster. We request confirmation of the location of the sprinkler booster. If the booster is located in an area other than that permitted by AS 2419.1, this will be required to be addressed via a Fire Engineered Performance Solution. Any additional deviations from the requirements of AS 2118.1 proposed by the fire services designer are also required to be itemised for BM+G & the Fire Engineer to review. Specific attention is drawn to the ASRS in the High bay area, noting that the design of the sprinkler system to a standard other than AS 2118.1 (e.g. FM Global Data Sheets) will be required to be addressed via a Fire Engineered Performance Solution.
E1D14	**Portable Fire Extinguishers:** To be provided and designed in accordance with Sections 1, 2 and 3 of AS 2444-2001. **Comment:** PFEs are required to be provided throughout the proposed development, as appropriate to the classes of fire risk.

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:** A fire control centre is required as the building exceeds 18,000m^2 in floor area. The dry fire designer is to confirm that the location of the fire indicator panel (FIP) at the main office achieves compliance with the above.
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 the proposed use within the warehouse is required to be provided. Any proposed automatic storage & retrieval system (ASRS) and the associated risks will need to be addressed in the Fire Engineered Performance Solution Report. Whether this requires a standalone Performance Solution addressing this clause, or simply a discussion in the Trial Design will be understood following further review of the configuration & extent of the system, along with further information on the type and quantity of materials conveyed. Further information is to be provided to BM+G to confirm whether hazardous/dangerous goods are proposed to be stored/utilised in significant quantities. If so, details will be required from both the fire services designer and the Fire Engineer confirming that the proposed fire services achieve the required capability to address the additional hazard resulting from the hazardous/dangerous goods storage in the buildings. The extent of hazardous/dangerous goods storage remains unknown at the time of writing of this report. In this regard, no consideration has been given to additional fire services to account for special hazards.
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:** Provided as compliance commentary only. No action is required in this respect.
E2D9	**Buildings <25m Effective Height – Class 5, 6, 7b, 8 & 9b Buildings:** This clause sets out the requirements for smoke hazard management systems for large Class 5, 6, 7b, 8 & 9b buildings with an effective height of less than 25m. **Comment:** This clause does not require a smoke detection & alarm system to be provided to the building, however the smoke detection & alarm system must be provided to activate the smoke exhaust system required by NSW E2D10.
NSW 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. Additional smoke hazard management systems are required for buildings exceeding 18,000m^2 or 108,000m^3. **Comment:** As per clauses C3D4 and E1D4 above, a sprinkler system complying with AS 2118.1 – 2017 is proposed to be provided to the building. Further, as the ceiling height of the fire compartment is >12m, and the total floor area exceeds 18,000m^2/108,000m^3, a smoke exhaust system is required to be provided in accordance with

	Spec. 22. Note that a smoke detection & alarm system is required to be installed to activate the smoke exhaust system. Any rationalisation of the smoke exhaust system will be required to be addressed via a Fire Engineered Performance Solution.
E2D12	**Class 7a Buildings:** A Class 7a building, including a basement, provided with a mechanical ventilation system in accordance with AS 1668.2, must comply with clause 5.5 of AS 1668.1. **Comment:** The Mechanical Engineer is to confirm compliance with the above.
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:** Refer to comments under E1D17. Consideration may be required with respect to the design of the smoke hazard management systems in response to special hazards also.
E3D2	**Lift Installations:** Passenger lifts must comply with Specification 24. **Comment:** The Vertical Transport designer is to confirm compliance with the above.
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:** The Vertical Transport designer is to confirm compliance with the above.
E3D6	**Landings:** Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Parts D2 & D3. **Comment:** The provided plans demonstrate compliance with respect to the above.
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:** The Vertical Transport designer is to confirm compliance with the above.
E3D8	**Accessible features required for passenger lifts:** The following provisions apply to the accessible lift servicing the subject building: + Lift floor dimensions of not less than 1100mm wide x 1400mm deep + Passenger protection system complying with AS 1735.12 for all lifts with power-operated doors + Lift landing doors at the upper landing + Lift car and landing control buttons complying with AS 1735.12 + Lighting in accordance with AS 1735.12 + Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received **Comment:** The Vertical Transport designer is to confirm compliance with the above.
E3D9, E3D11, E3D12	**Fire Service Controls and Recall Switches:** These clauses set out requirements for fire service control and recall switches for lifts serving storeys above an effective height of 12m. **Comment:** The Vertical Transport designer is to confirm compliance with the above.
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. **Comment:** Provided as compliance commentary only. No action is required in this respect.

E4D4	**Design & Operation of Emergency Lighting:** Every required emergency lighting system must comply with AS 2293.1-2018. **Comment:** Electrical Consultant to note. Details and design documentation demonstrating compliance are required to be provided 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 and design documentation demonstrating compliance are required to be provided at CC Application Stage. Where any exit signs are proposed to be installed at a height above 2.7m, this must be reviewed & approved by the Principal Certifier, in accordance with AS 2293.1 – 2018.
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 and design documentation demonstrating compliance are required to be provided at CC Application Stage.
E4D9	**Emergency Warning and Intercom Systems (EWIS):** Where required, an Emergency Warning and Intercom System is required to be provided in accordance with AS 1670.4 – 2018. **Comment:** The DtS requirements of the BCA do not require an EWIS system to the subject building. Notwithstanding, a Building Occupant Warning System (BOWS) is required to be provided as part of the smoke detection & alarm system complying with AS 1670.1.

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 to the Principal Certifier with documentation for the CC.
F1D4	**Exposed Joints:** Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must— + Be protected in accordance with Section 2.9 of AS 4654.2; and + Not be located beneath or run through a planter box, water feature or similar part of the building **Comment:** Details of compliance with the above are to be prepared by a suitably qualified consultant and submitted to the Principal Certifier with documentation for the CC.
F1D5	**External Waterproofing Membranes:** External waterproofing membranes are required to comply with AS 4654.1 & 2. **Comment:** Waterproofing sub-contractor(s) to note. Certification will be required to be submitted to the Principal Certifier at OC stage.
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: Waterproofing sub-contractor(s) to note. Certification will be required to be submitted to the Principal Certifier at OC stage.
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:** Waterproofing sub-contractor(s) to note. Certification will be required to be submitted to the Principal Certifier at OC stage.
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:** Waterproofing sub-contractor(s) to note. Certification will be required to be submitted to the Principal Certifier at OC stage.
F2D4	**Floor Wastes:** Where a floor waste is provided, the fall of the floor plane to the floor waste is required to be between 1:80–1:50. **Comment:** Hydraulic Engineer to note. Design details & certification will be required with to be submitted to the Principal Certifier with the CC application.
F3P1	**Weatherproofing:** 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 limited Deemed-to-Satisfy provisions for this Performance Requirement in respect to External Walls. DtS wall types include; masonry; autoclaved aerated concrete; and metal wall cladding only. Note 2: Refer to Clause F3D2 for roof coverings. **Comment:** Refer to comments under F3D2 & F3D5 regarding roofs & walls, respectively.
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:** Structural Engineer & roofing sub-contractor to note. Certification will be required to be submitted to the Principal Certifier at CC & OC stage. Where compliance with the DtS provisions of this clause are not achieved, a Performance Solution will be required.
F3D3	**Sarking:** Sarking-type materials used for weatherproofing of roofs must comply with AS/NZS 4200 parts 1 and 2 **Comment:** Façade installer to note. Certification will be required to be submitted to the Principal Certifier at OC 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:** Glazing sub-contractors to note. Certification will be required to be submitted to the Principal Certifier at OC 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:** A Performance Solution will be required to address the above, noting that the proposed design does not comprise of wholly DtS materials.
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:** Refer to comments under cl D2D18.
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:** BM+G are required to be provided with the proposed population numbers for the proposed warehouse and associated office space. Additionally the architectural plans are required to provide the internal floor plans of the office and warehouse areas identifying the proposed sanitary facilities to be provided. Further assessment is required on this basis, however compliance is readily achievable. Note 1: Sanitary compartments must be allocated for use by males or females only unless they are designed as a unisex accessible compartment per Clause F2D4(1). Note 2: Specific attention is drawn to any proposed drivers WCs. If both are male or female, the proposed arrangement can be retained. Where 1x male & 1x female WC is proposed, the cubicles must be full height, and the basins must be installed within the cubicles.
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:** Accessible and ambulant WCs are provided at each bank of WCs in the main office, as required. Circulation spaces to and within the WCs demonstrates compliance. The distribution of left vs. right-handed orientations is as even as possible (one each), as is required by this clause also. Provide details demonstrating the construction of the accessible & ambulant sanitary facilities achieves compliance with the requirements of AS 1428.1. It is understood that an Access Performance Solution may be proposed where an accessible shower is to be provided, as the maximum fall of 1:80 prescribed by AS 1428.1 conflicts with the minimum fall of 1:80 required for drainage.
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 of the proposed sanitary facilities are to be provided for review, to confirm compliance with the above. Refer to comments under cl. F4D4 in this regard.
F5D2	**Height of Rooms and Other Spaces:** The minimum ceiling heights for a Class 5, 6, 7 & 8 building are as follows: + Corridor or Passage, Bathroom, Storeroom, etc. – 2.1m, + Above stairways, ramps & landings – 2.0m,

	+ Remainder – 2.4m. **Comment:** Provide RCPs demonstrating compliance with the above. Ceiling heights are to be reviewed at the Construction Certificate state with the detailed section drawings. Specific attention is drawn to the spaces beneath stairs with respect to the above. Access to any areas beneath stairs which do not achieve compliant ceiling heights must be blocked off, e.g. through providing a balustrade under the stair.
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 to the Principal Certifier with the 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 to the Principal Certifier with the 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 to the Principal Certifier with the 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 to the Principal Certifier 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 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 to the Principal Certifier 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 to the Principal Certifier 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:** Details or certification demonstrating compliance will need to be submitted to the Principal Certifier with the application for a Construction Certificate.
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 or certification demonstrating compliance will need to be submitted to the Principal Certifier 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 to the Principal Certifier with the application for a Construction Certificate. Notwithstanding, it is noted that 13 EV charging bays have been provided, though "provision for" up to 49 EV charging spaces is required, based on the requirements of cl. J9D4.

4.0 Conclusion

This report contains an assessment of the referenced architectural documentation for the proposed Warehouse on Lot K at 200 Aldington 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 of 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 5, 7 & 8	2.2 kW/m^2	1.2 kW/m^2	2.2 kW/m^2

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, 7 & 8 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

Note 1: *"Sprinkler protected" relates to buildings provided with a sprinkler system, other than an FPAA101D or FPAA101H system.*

Note 2: *"Special areas" are as follows:*

+ *Class 5: Open plan offices with a minimum floor dimension/floor to ceiling height ratio > 5.*

Table 4: Fire-Resisting Construction – Type C 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	90/90/90	90/90/90	90/90/90
1.5 to less than 3m	–/–/–	60/60/60	60/60/60	60/60/60
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN - Not incorporated in an external wall				
Less than 1.5m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3m	–/–/–	60/–/–	60/–/–	60/–/–
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS	90/90/90	90/90/90	90/90/90	90/90/90
INTERNAL WALLS				
Bounding public corridors, public lobbies and the like:	60/60/60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units:	60/60/60	–/–/–	–/–/–	–/–/–
Bounding a stair if required to be rated:	60/60/60	60/60/60	60/60/60	60/60/60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

Notes:

1. New external walls that are located 1.5m or more from an allotment boundary/fire source feature require no FRLs.
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. An external wall required to have an FRL is only required from the outside.
4. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification 6.
5. 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.
6. No structural elements are permitted to pass through fire-rated walls.

+ 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 strategy.

Table 5: Fire Safety Schedule

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Proposed
Alarm Signalling Equipment	AS 1670.3 – 2018	✓
Automatic Fail Safe Devices	BCA 2022 Clause D3D26	✓
Automatic Fire Detection & Alarm System	BCA 2022 Spec. 20 AS 1670.1 – 2018 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
Automatic Fire Suppression Systems	BCA 2022 Spec. 17 AS 2118.1 – 2017 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
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	✓
Emergency Evacuation Plan	AS 3745 – 2010 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
Exit Signs	BCA 2022 Clauses E4D5, NSW E4D6 & E4D8 AS 2293.1 – 2018	✓
Fire Control Centres	BCA 2022 Spec 19	✓
Fire Blankets	BCA 2022 Clause E1D14 AS 3504 – 1995 & AS 2444 – 2001	✓
Fire Dampers	BCA 2022 Clause C4D15 AS 1668.1 – 2015 & AS 1682.1 & 2 – 2015 Manufacturer's Specification	✓
Fire Doors	BCA 2022 Clauses C3D13, C3D14 AS 1905.1 – 2015 Manufacturer's Specification	✓
Fire Hose Reels	BCA 2022 Clause E1D3 AS 2441 – 2005 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
Fire Hydrant Systems	BCA 2022 Clause E1D2 AS 2419.1 – 2021	✓

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Proposed
	Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	
Fire Seals	BCA 2022 Clause C4D15 AS 1530.4 – 2014 & AS 4072.1 – 2014 Manufacturer's Specification	✓
Lightweight Construction	BCA 2022 Clause C2D9 AS 1530.4 – 2014 Manufacturer's Specification	✓
Mechanical Air Handling Systems (Automatic Shutdown)	BCA 2022 Clause E2D3 AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012	✓
Perimeter Vehicular Access	BCA 2022 Clause C3D5 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
Portable Fire Extinguishers	BCA 2022 Clause E1D14 AS 2444 – 2001	✓
Required Exit Doors (Power Operated)	BCA 2022 Clause D3D24(2)	✓
Smoke Hazard Management Systems + Smoke Exhaust	BCA 2022 Part E2 AS/NZS 1668.1 –2015 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
Warning & Operational Signs	BCA 2022 Clauses D3D26, D4D7, E4D4 AS 1905.1 – 2015 Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓
Fire Engineered Performance Solutions relating to: 1.	BCA 2022 Performance Requirements … Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...	✓

Please note that the above schedule will need to be revised prior to issue of the Construction Certificate to reference any proposed Fire Engineering Report and incorporate any additional measures required by the proposed Performance Solutions.