

NATIONAL CONSTRUCTION CODE REPORT

INDUSTRIAL WAREHOUSE BUILDINGS

LOT 26, 38 HILL END ROAD CAERLEON

PREPARED FOR ED CROSSKILL

15 NOVEMBER 2022



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EXECUTIVE SUMMARY

This report has been prepared to identify the extent of compliance achieved by the assessment of the architectural documentation for the proposed development against the relevant provisions of the National Construction Code, Building Code of Australia 2019 (Amendment 1) (BCA) and its adopted standards.

The proposed development consists of the construction of two new two storey industrial warehouse buildings with external carpark located at Lot 26, 38 Hill End Road Caerleon.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

REPORT DETAILS

PROPOSED DEVELOPMENT

The proposed development consists of the construction of two new two storey industrial warehouse buildings with external carpark located at Lot 26, 38 Hill End Road Caerleon.

LOCATION

The subject building works is proposed to be located at Lot 26, 38 Hill End Road Caerleon.

The site is within the jurisdiction of Mid-Western Regional Council for the purposes of development approvals.

REFERENCED DOCUMENTS

The following documents have been reviewed, referenced and/or relied upon in the preparation of this report.

- National Construction Code, Building Code of Australia 2019 (Amendment 1) (BCA)
- Architectural Plans as prepared ES Design (Appendix 1)
- Environmental Planning and Assessment Act 1979

CURRENT LEGISLATION

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA. However, the existing features of an existing building need not to comply with the BCA unless an upgrade is required by other clauses of the legislation

The version of the BCA applicable to the development, is the version that in place at the time of the application of the Construction Certificate.

REPORT PURPOSE

This report has been prepared to identify aspects of the proposed design that require further consideration and to identify aspects of the design that may be altered subsequent to the issue of a Development Consent

This report has been prepared on the basis of an assessment of compliance only and should not be construed as being design advice. Further detailed assessment and design documentation will need to be provided prior to the issue of a Construction Certificate

EXCLUSIONS AND LIMITATIONS

Except as mentioned in the report, the limitations and exclusions of this report are as follows -

- Structural adequacy;
- Fire resistance of primary structural elements;
- Design basis or operating capability of the installed electrical, fire, hydraulic or mechanical services;
- Compliance with the *Disability Discrimination Act 1992*;
- Local Government Act and Regulations
- Performance Solution Reports

NATIONAL CONSTRUCTION CODE ASSESSMENT

BUILDING DESCRIPTION

Use/Classification	Class 7b - Warehouse
Rise in Storeys	RIS of 2
Floor Area	The total floor area for the proposed buildings is less than the maximum permitted of for Type C construction
Volume	The total floor volume for the proposed buildings are less than the maximum permitted of for Type C construction
Effective Height	The building will have an effective height less than 12m.
Type of Construction (BCA)	Type C Construction required
Climate zone	For the purpose of Section J the climate zone is 4

STRUCTURE (SECTION B, BCA)

STRUCTURAL PROVISIONS

The development is to be designed so the structure will resist loads determined:

- AS 1170.0/1–2002, AS 1170.2–2011,
- AS 1170.3 – 2011, AS 1170.4 – 2007
- AS 2159-2009 - Piling — Design and installation
- AS 2870-2011 - Residential slabs and footings — Construction
- AS 3700-2011 - Masonry structures
- AS 4100-1998 - Steel structures
- AS/NZS 4600 - 2005 - Cold-formed steel structures.

Structural engineer's certification is to be provided confirming that their design meets all the relevant provisions of the BCA as well as all relevant structural standards at the Construction Certificate stage.

FIRE RESISTANCE AND STABILITY (SECTION C, BCA)

FIRE RESISTANCE

The building is to comply with Clause C1.1 and Clause 2 & 3 of Specification C1.1, for a building required to have Type C construction. Refer to Table 5 of Specification C1.1 for the specific Fire Resistance Levels [FRL's].

Structural: the ability to maintain stability and adequate load-bearing capacity as determined by AS 1530.4.

Integrity: the ability to resist the passage of flames and hot gases specified in AS 1530.4.

Insulation: The ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4.

Class	FRL
Class 7b	90/90/90

Where lightweight fire rated construction is proposed for walls, the system must comply with Specification C1.8 of BCA and the manufactures tested specification. Furthermore, the system proposed must be consistent with sound and energy efficiency requirements with Part F5 and Part J of BCA.

Columns protected with lightweight fire rated construction that are subject to mechanical damage must be protected and/or internally filled in accordance with Clause C1.8(b) of BCA.

Any proposed Aluminium Composite Panels or any external wall cladding must comply with the D1.9 BCA with a complying CodeMark Certificate and its required Standards and is to be reviewed and certified by the registered Certifier at Construction Certificate stage.

COMPARTMENTATIONS AND SEPERATIONS

The building construction will require to achieving an FRL of not less than Type B Construction and Class 7b: 90 minutes Type C Construction.

Construction of firewalls and openings must comply with Part C2.7, C2.8 and Specification C1.1 of BCA.

The required FRL's are to be confirmed by the structural engineer at the Construction Certificate phase.

PROTECTION OF OPENINGS

The openings within 3m of the western boundary (fire source feature) are to be protected in accordance with C3.4 or via an performance solution which is to be prepared and addressed at the Construction Certificate stage.

FIRE HAZARD PROPERTIES

The wall and floor linings must achieve the fire hazard properties stipulated in BCA Specifications C1.10 of the BCA.

PROTECTION OF EQUIPMENT

The following equipment is to be fire separated with construction complying with Clause C2.12(d) of BCA.

- (i) lift motors and lift control panels; or
- (ii) (ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or
- (iii) central smoke control plant; or
- (iv) boilers; or
- (v) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.

Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.

ELECTRICAL SUPPLY SYSTEM

Electrical equipment is to be separated from the building in accordance with Clause C2.13 of BCA

FIRE SEALING OF PENETRATIONS

All service penetrations must be sealed to the requirements of Clause C3.12 and C3.15 of BCA

ACCESS & EGRESS (SECTION D, BCA)

NUMBER OF EXITS REQUIRED

The number of exits proposed comply with clause D1.2 of the BCA.

EXIT TRAVEL DISTANCE

Exit travel distances to a required exit or a point of choice between exits does generally comply with BCA Clause D1.4.

DISTANCE BETWEEN ALTERNATIVE EXITS

The distance between alternative exits generally comply with clause D1.5 of BCA.

TRAVEL VIA NON FIRE ISOLATED EXITS

The non fire-isolated stairway 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.

DIMENSIONS OF EXITS

Exits and paths of travel to exits are to comply with D1.6 of BCA. Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657 in which case a 600mm clear width is required).

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e minimum 870 mm doors).

ELECTRICAL DISTRIBUTION BOARDS

If provided, and electrical distribution boards located in the path of travel to an exit must be enclosed in a non-combustible enclosure and sealed to prevent the escape of smoke.

CONSTRUCTION OF STAIRWAYS

Goings and Risers

Goings and risers are to be designed to comply with the provisions of Clause D2.13 of BCA.

Landings

Landings are to be designed to comply with the provisions of Clause D2.14 of BCA.

Thresholds

Thresholds are to be designed to comply with the provisions of Clause D2.15 of BCA. Please note D2.15(c) which requires a threshold ramp complying with AS 1428.1-2009.

EGRESS DOORS

All required exit doorways are either swinging or automatic doors complying with the provisions of BCA Clause D2.19.

All doors acting as exits are required to swing in the direction of egress and are also required to be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA.

BALUSTRADES

Balustrades must be provided for all areas where it is possible to fall more than 1m. Balustrades are to be designed in accordance with Clauses D2.16 of the BCA.

Balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm of the floor that facilitate climbing.

HANDRAILS

Handrails are to be provided to stairways as required by Clause D2.17 of the BCA.

SIGNAGE

Signage must be provided to all fire safety doors (except those doorways providing access to sole occupancy units) and to doors leading from enclosed stairways as required Clause D2.23 and D3.6 of the BCA.

ACCESS FOR PEOPLE WITH DISABILITIES.

The building will be capable of providing disabled access compliant with Part D3 of the BCA and Access to Premises Standards.

The proposed building is required to comply with the following:

- The Disability Discrimination Act 1992 (Commonwealth);
- The Disability (Access to Premises — Buildings), Standards 2010;
- Part D3 of BCA;
- Australian Standard AS 1428.1-2009.

Buildings and parts of buildings must be accessible as required by Table D3.1, unless exempted by D3.4, which requires access as follows:

Class 7b –

To and within all areas normally used by the occupants.

Separate Access Report has been provided for this project.

SERVICES AND EQUIPMENT (SECTION E, BCA)

HYDRANT SYSTEMS

The building will be provided with a hydrant system in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1.

No details on the hydrant system is provided at this stage.

The design of the service will be subject to review by a fire service (hydraulic) consultant and confirmed compliance prior to the issue of the Construction Certificate stage.

HOSE REEL SYSTEMS

The basement car parking levels will be provided with a fire hose reel system in accordance with the provisions of Clause E1.4 of the BCA and AS 2441-2005.

Locations of fire hose reels are required to be located 4m from an exit.

The design of the service will be subject to review by the fire service consultant.

PORTABLE FIRE EXTINGUISHERS

Fire extinguishers will be provided in accordance the provisions of Clause E1.6 of the BCA and AS2444 - 2001.

EMERGENCY LIGHTING.

Emergency lighting will be provided throughout the building in accordance with Clauses E4.2 & E4.4 of the BCA and AS2293.1 - 2005.

The design of the service will be subject to review by the Fire (electrical) services consultant.

EXIT SIGNS.

Exit signs will be provided throughout the building in accordance with Clauses E4.5, E4.6 & E4.8 of the BCA and AS2293.1- 2005.

The design of the service will be subject to review by the Fire (electrical) services consultant.

HEALTH AND AMENITY (SECTION F, BCA)

DAMP & WEATHERPROOFING.

Adequate measures will be employed to ensure compliance Part F1 of the BCA is achieved in terms of damp and weatherproofing.

Compliance is required with FP1.4 via an approved Codemark Certificate or addressed via a performance solution for the building façade and roof prepared by a suitably qualified façade engineer or registered architect and to demonstrate compliance with the performance requirement FP1.4 of the BCA.

SANITARY & OTHER FACILITIES.

The development is to be provided with sanitary facilities in accordance with Table F2.3 of the BCA.

The development will be provided with accessible sanitary facilities accordance with AS1428.1-2009.

All sanitary compartments that have proposed in-swinging doors are required to be 1.2m from the WC pan, or lift off hinges are provided as per F2.5 of the BCA.

CEILING HEIGHT

The following minimum building ceiling heights must be maintained.

- Common kitchen, laundry or the like – 2.1m
- Corridor, passageway or the like – 2.1m
- Bathroom, shower, sanitary compartment or the like – 2.1m
- Habitable rooms including common areas – 2.4m
- Stairways – 2.0m
- Car parking areas – 2.2m
- Disabled car parks – 2.5m including a 2.3m path of travel height

VENTILATION

The building is required to be provided with ventilation in accordance with the provisions of Clause F4.5 of the BCA. Ventilation may be provided by a natural means or a mechanical system complying with AS 1668.2.

LIGHTING

Artificial lighting may be provided throughout the remained of the building in accordance with the provisions of Clause F4.4 of the BCA and AS1680.1.

ENERGY EFFICIENCY CONSTRUCTION (SECTION J, BCA)

Please be advised that the development requires to comply with of Part J of the BCA 2019 Amendment 1. It is recommended at the time of obtaining a Construction Certificate that a separate report is provided by an Energy Efficiency Consultant.

RECOMMENDATIONS

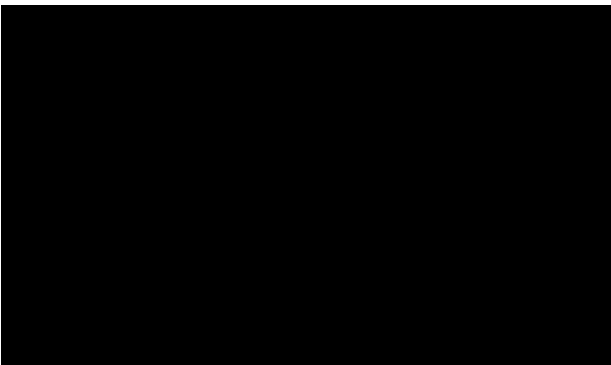
After our assessment of the proposed development, it is recommended that the following matters are to be addressed to comply with the BCA utilising either as the 'deemed to satisfy' provisions or via an alternate solution under the performance requirements (as advised by the client):

- The openings within 3m of the western boundary (fire source feature) are to be protected in accordance with C3.4 or via an performance solution which is to be prepared and addressed at the Construction Certificate stage.
- The building will be provided with a hydrant system in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1.
- Compliance is required with FP1.4 via an approved Codemark Certificate or addressed via a performance solution for the building façade and roof prepared by a suitably qualified façade engineer or registered architect and to demonstrate compliance with the performance requirement FP1.4 of the BCA.

CONCLUSION

It is the opinion of this office that, on satisfaction of the above recommendation, the proposed building is capable of achieving compliance with the requirements of the National Construction Code (BCA) 2019 (Amendment 1) Volume 1, and relevant adopted standards without undue modification to the design or appearance of the building.

Whilst the above recommendation have been made as a means of achieving compliance with the various provisions of BCA Performance Requirements their acceptability has not been verified at this time. It will be necessary for the design to be reviewed by an appropriately qualified person prior to the issue of a Construction Certificate for the works.



ALEKS STOJCEVIC
DIRECTOR

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15 November 2022

APPENDIX A – DOCUMENTATION

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

DRAWING SCHEDULE		ISSUE DETAILS	
TBP	00DA	A 24.08.22	ISSUED FOR CLIENT APPROVAL
PROPOSED SITE PLAN	01	B 02.09.22	ISSUED FOR CLIENT APPROVAL
PROPOSED GROUND FLOOR PLAN	02	C 05.09.22	ISSUED FOR CLIENT APPROVAL
PROPOSED MEZZANINE FLOOR PLAN	03	D 23.09.22	ISSUED FOR CLIENT APPROVAL
PROPOSED ROOF PLAN	04	E 30.09.22	ISSUED FOR CLIENT APPROVAL
EAST AND WEST ELEVATIONS	05	F 11.10.2022	COORDINATION
BLOCK A NORTH AND SOUTH ELEVATIONS	06		
BLOCK B NORTH AND SOUTH ELEVATIONS	07		
SECTION VIEWS	08		
3D VIEWS	09		

APPENDIX B – DRAFT PROPOSED FIRE SAFETY SCHEDULE

BCA 2019 Amendment 1*

ESSENTIAL FIRE SAFETY MEASURES	STANDARD OF PERFORMANCE
Emergency lighting	BCA 2019* Clause E4.2 & E4.4, AS 2293.1-2018
Exit signs	BCA 2019* Clause E4.5 & E4.8, AS 2293.1-2018
Fire dampers	AS 1668.1- 2015
Fire Engineering	Fire Engineer Guidelines (TBA)
Fire hose reel systems	BCA 2019* Clause E1.4, AS 2441-2005
Fire hydrant systems	BCA 2019* Clause E1.3, AS 2419.1-2005
Portable fire extinguishers	BCA 2019* Clause E1.6, AS 2444-2001

APPENDIX C - FIRE RESISTANCE LEVELS

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

Table 4 Type B construction: FRL of building elements

Building element	Class of building—FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	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 <i>fire-source feature</i> to which it is exposed is—				
For <i>loadbearing</i> parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/–	120/ 30/–	180/ 60/–	240/ 60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non- <i>loadbearing</i> parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 30	–/ 90/ 60	–/120/ 90	–/180/120
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
For <i>loadbearing</i> columns—				
less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non- <i>loadbearing</i> columns—				
For non- <i>loadbearing</i> columns—	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
<i>Fire-resisting</i> lift and stair <i>shafts</i> —				
<i>Loadbearing</i>	90/ 90/ 90	120/120/120	180/120/120	240/120/120
<i>Fire-resisting</i> stair <i>shafts</i> —				
Non- <i>loadbearing</i>	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding <i>public corridors</i> , public lobbies and the like—				
<i>Loadbearing</i>	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non- <i>loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding <i>sole-occupancy units</i> —				
<i>Loadbearing</i>	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non- <i>loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	60/–/–	120/–/–	180/–/–	240/–/–
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

Table 5 Type C construction: FRL of building elements

Building element	Class of building—FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	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 <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	—/—/—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
3 m or more	—/—/—	—/—/—	—/—/—	—/—/—
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/—/—	90/—/—	90/—/—	90/—/—
1.5 to less than 3 m	—/—/—	60/—/—	60/—/—	60/—/—
3 m or more	—/—/—	—/—/—	—/—/—	—/—/—
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS—				
Bounding <i>public corridors</i> , public lobbies and the like—	60/ 60/ 60	—/—/—	—/—/—	—/—/—
Between or bounding <i>sole-occupancy units</i> —	60/ 60/ 60	—/—/—	—/—/—	—/—/—
Bounding a stair if <i>required</i> to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
ROOFS	—/—/—	—/—/—	—/—/—	—/—/—