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BCA / ACCESS REPORT

84 Links Road St Marys NSW

Prepared for: Full Tilt Constructions Pty Ltd **Project No.:** 180591

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CONCISE CERTIFICATION

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1. INTRODUCTION

1.1 REPORT BACKGROUND

Concise Certification Pty Ltd has been commissioned by Full Tilt Constructions Pty Ltd to provide professional Building Code Consultancy Services for the proposed alterations and additions to the existing warehouse building located at 84 Links Road St Marys NSW 2760.

Our engagement involved a detailed desktop assessment of the architectural design documentation against the provisions of the National Construction Code Series (Volume 1/Amendment 1) Building Code of Australia 2016 (BCA).

1.2 REPORT PURPOSE

The key objectives of the report are as follows:

- Undertake an assessment of the proposed development against the deemed to satisfy provisions of the National Construction Code Series – Volume 1/Amendment 1 – Building Code of Australia 2016.
- Identify any BCA compliance issues that require resolution/attention for the proposed development by way of design changes or Fire Engineered Performance Solutions.
- Identify the relevant essential fire safety measures that are applicable to the proposed development.
- Identify matters that require consideration in order to achieve compliance with the BCA or requiring attention under Performance Based Alternative Solutions.
- Identify any BCA compliance issues that require resolution at the Construction Certificate stage.
- Verify that the referenced documentation has been reviewed by an appropriately qualified Building Surveyor and A1 Accredited Certifier and compliance with the BCA / Access to Premises – Building Standard 2010 is readily achievable.
- Enable the certifying authority to satisfy its statutory obligations under Clause 145 of the Environmental Planning and Assessment Regulation, 2000.
- Enable the certifying authority to satisfy its statutory obligations under Clauses 17 & 18 of the Building Professionals Regulation 2007.
- Accompany the submission of the DA Application to the Penrith City Council to enable the Consent Authority to be satisfied that the building design is capable of complying with the BCA and that subsequent compliance with the fire & life safety, health & amenity and energy efficiency requirements of the BCA, will not give rise to design changes to the building which may necessitate the submission of further applications under Section 4.55 of the Environmental Planning and Assessment Act, 1979.

1.3 REPORT DOCUMENTATION RELIED UPON

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

- National Construction Code Series – Volume 1 / Amendment 1 – Building Code of Australia 2016 (BCA)
- National Construction Code Series – Guide to the Building Code of Australia 2016
- Environmental Planning & Assessment Act 1979
- Environmental Planning & Assessment Regulation 2000
- Access to Premises - Building Standards 2010
- Site Survey Plan No. 20042-01 (Sheets 2) prepared by Bee and Lethbridge Pty Ltd dated 08/05/2016.
- Architectural Drawing Nos DA-100 (P5), DA101 (P6), DA-200 (P3), DA-201 & DA-300 (P2), prepared by SBA Architects dated 1st, 2nd and 3rd August 2018.

1.4 REPORT LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

- This report is based on a review of the referenced documentation in the report above.
- This Report does not address issues in relation to the following:
  i. The design, maintenance or operation electrical, mechanical, hydraulic or fire protection services.
  ii. Utility Services Provider Requirements (Water, Gas, Telecommunications and Electricity supply authorities).
  iii. Local Government Act and Regulations.
  iv. Work Health and Safety Act and Regulations.
  v. Work Cover Authority requirements.
  vi. Requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, RTA, Council and the like.
  vii. Construction Safety Act.
  viii. Disability Discrimination Act 1992 (DDA) other than matters covered by the Disability (Access to Premises – Buildings) Standards 2010.
- This assessment does not incorporate the detailed requirements of the BCA Referenced Australian Standards and it's the responsibility of design and installation contractors to demonstrate and achieve compliance for all new works.
- The findings of this BCA Report do not relieve the PCA of their statutory obligations under the EP&A Act & BPB Act and they are to be satisfied that the proposal meets their requirements prior to approval.
- Concise Certification Pty Limited cannot guarantee acceptance of this report by the Local Council, NSW Fire Brigades or other approval authorities.
- It is important to note that without the written permission from Concise Certification Pty Ltd, no part of this report may be reproduced in any form or by any means.
- This report is based solely on client instructions and therefore should not be relied upon or used by any third party without prior knowledge and instructions from Concise Certification Pty Ltd.

1.3 EXISTING & PROPOSED DEVELOPMENT

The subject development site is located at 84 Links Road St Marys NSW 2760 and is legally described as Lot 44 in DP 1185482.

Figure 1 – Satellite Image (Source Six Maps)

The site is irregular in shape and it is understood to have an approximately site area of 10,158m^2. The site is currently occupied by a 2 storey warehouse building with ancillary office and external hardstand and carparking areas.

Pedestrian and vehicular access is via Links road which is on the Northern side of the site and the Eastern, Southern and Western sides of the site adjoin other industrial allotments.

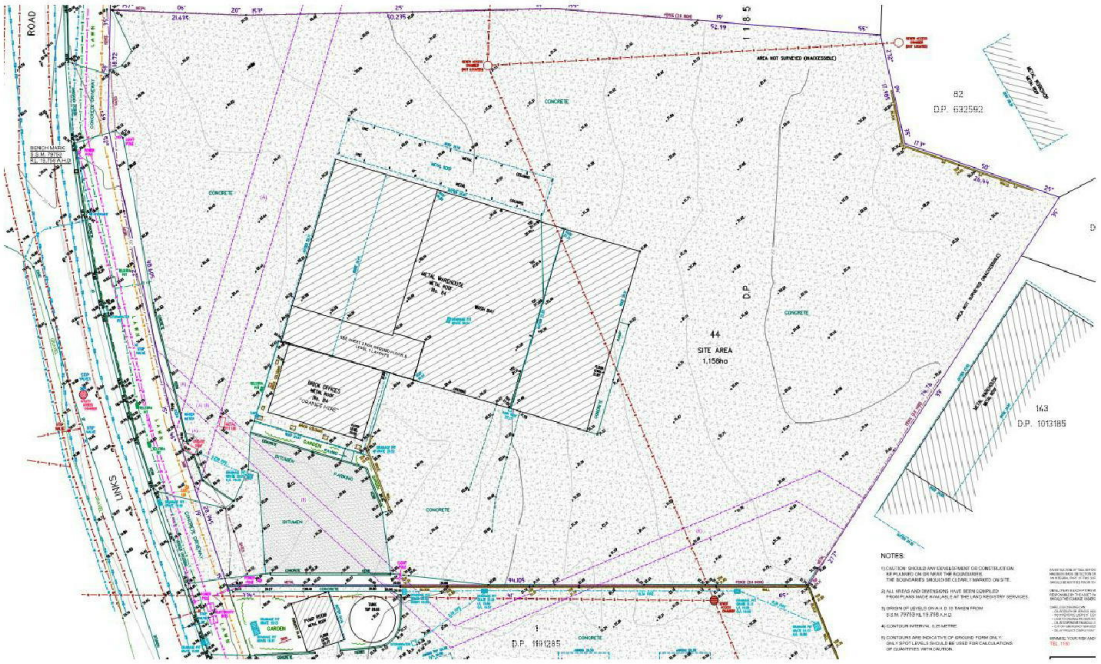


Figure 2 – Site Subdivision Plan (Source: Bee and Lethbridge)

The proposed development, the subject of this report, generally consists of the partial demolition of the existing awning structure and alterations & additions which include the extension of the ground floor warehouse.

Figure 3 – Site Plan (Source: SBA Architects)

The proposed works that are subject to the DA application can be further summarised as follows;

- Alterations and additions which include the demolition of the existing rear awning structure and the construction of a new single storey warehouse addition;
- Construction of a new 240/240/240 min Fire Wall between the existing & proposed building parts;
- New Internal high bay racking installations;
- New external hardstand, off-street car parking spaces and loading facilities carparking and landscape works;
- New building identification signage;
- Associated services and utilities upgrades.

Note 1: *The building will be structural steel portal frame building with external precast panels, metal cladding and metal roof sheets. There will be a fire wall constructed to separate the buildings and limit the fire compartment sizes.*

Note 2: *The existing warehouse remains unaffected and the proposed works will not lessen the levels of compliance within this building.*

Note 3: *The building will be assessed as a single warehouse building with a fire wall separating each part accordingly.*

1.4 BUILDING CODE OF AUSTRALIA 2016 (BCA)

Pursuant to Clause 98 & 145 of the Environmental Planning and Assessment Regulation 2000 (EP&AR) all new building work must comply with the current provisions of the National Construction Code Series (Volume 1) Building Code of Australia (BCA). At the date of this assessment it was understood that a Part 4a Construction Certificate Application for the development would be made with a PCA prior to the 1st May 2019 and as such the relevant rendition of the BCA is BCA2016 Amendment 1.

1.5 REPORT STRUCTURE

The report consists of a Summary of Compliance Departures provided in the table under **Section 2** below, which is for the reader's ease of reference and most urgent attention.

Notwithstanding the summary of issues within **Section 2** must also be read in conjunction with the body of the assessment provided under **Section 3** of the report which further details compliance matters needing consideration in design development and during construction.

It is also the responsibility of all design consultants to ensure compliance with relevant BCA requirements, Australian Standards and Manufacturers Specifications. This report does not relieve design consultants from their obligations in designing to achieve compliance with the BCA.

Furthermore, this report does not relieve the PCA from their statutory obligations required to assess the drawings in detail prior to the issue of a Construction Certificate.

2. SUMMARY OF KEY COMPLIANCE DEPARTURES

The following comprises a summary of the key compliance issues identified under the BCA Assessment in Section 3. The following comments are to be read in conjunction with the body of the report.

Relevant BCA Clauses	Description of Compliance Matter Requiring Resolution
BCA Parts B1.1- B1.4 (Structural Performance	*BCA Part B specifies the key structural requirements for buildings.* *Structural engineering drawings and design certification is required for the new works. Certification and details are to also address FRL's as specified under BCA Spec C1.1 (for Type A Construction). Structural engineering details are to consider the proposed Fire Walls and ensure wall, floor and roof members do not pass through the fire walls.* ***Note 1:** The structural engineer is to review the structural adequacy of the existing building and provide certification attesting to the building being cable of accommodating the additional proposed loads and confirming that the building is fit for purposes and addresses the provisions of Clause 143 of the Environmental Planning and Assessment Regulation 2000.* ***Note 2:** Where the concessions of BCA Spec C1.1 - subclause 2.2 (b)(v) are adopted, detailed design details and certification is required in this regard.*
BCA Clause C1.9 & C1.14 (External Walls / Ancillary Elements)	*BCA Clause C1.9 requires external walls and all elements associated elements to be non-combustible or meet the concessions of this clause. This includes cladding, insulations, plasterboard linings etc.* *BCA Clause C1.14 requires ancillary elements to meet the criteria of this clause and permits combustible materials on the premise that compliance is achieved.* *In this regard, the following areas have been identified as matters which may be requiring consideration;* - *There are Aluminium Composite panels proposed to the facade. As such, these will need to be supported by Codemark Certification attesting to compliance with AS1530.1 or otherwise addressed under Performance Based Solutions.* - *All insulation and sarking used in the external walls must also be non-combustible and supported by AS1530.1 test. Please note may insulations and sarkings do not achieve compliance in this regard.* ***Note:** The Supporting Fire Test and/or Design Certification to the satisfaction of the Accredited Certifier are to be provided with the CC application.*
BCA Clauses C2.2 (Fire Compartment) *+ BCA Clause C2.7* *(Fire Walls)*	*BCA Clause C2.2 requires fire compartments to be within the maximum limitations of Table C2.2.* *BCA Clause C2.7 requires fire wall separation and nominates the method of construction.* ***In this regard** it is noted that the awning does not appear to have been included in the Floor Area and Volume calculations and where the awning exacerbates the fire compartment limitations, there may be a need to address these encroachments under a performance-based solution. Awnings must be considered where they contribute to the buildings fire loads due to storage of goods and/or stationary vehicles are proposed in loading docks.* ***Fire Engineered Performance Solution:** Notwithstanding the above, it is understood that the design team may obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the oversized volume due to the awning structure. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement CP2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.* ***Note 1:** Fire Compartmentation plans detailing accurate floor areas and volumes – including awning structures where combustible goods and/or vehicles will be stationary under the awnings, together with details of the Fire Resisting Levels and method of support for the fire walls must accompany the Construction Certificate application, to the satisfaction of the Accredited Certifier.*

	Note 2: *Where the maximum 30,000m³ volume limitation is encroached due to the need to include the external awning structures, the encroachments may need to be addressed via performance- based solutions.* ***Note 3:*** *The awnings need to be included in the buildings fire loads where the areas re used for storage or loading docks where trucks will be parked.* ***Note 4:*** *Refer to Table 3 of BCA Spec C1.1 for applicable Fire Resistance Levels (FRL's) and ensure details are noted on the construction drawings.*
BCA Clause C3.3 (Protection of Openings/Walls in Different Fire Compartments)	*BCA Clause C3.3 requires external walls and openings in the external walls located within certain distances to another fire compartment to be protected accordingly.* ***In this regard****, there are external walls, openings and awning structures of the existing building that will be located within the minimum distances above and which are not proposed to be protected.* ***Fire Engineered Performance Solution:*** *Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the extent of fire separation required accordingly by relying on the new 240/240/240 min fire wall as the separating barrier. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements CP1 & CP2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*
Spec C1.1 & C1.11 *(Structural Performance + FRL's)*	*Spec C1.1/C1.11 specify the key structural requirements and FRL's for buildings.* ***In this regard,*** *it noted that the fire wall must be designed in a manner which is continuous from the Ground slab – through to the underside of the roof covering. Furthermore, the structural engineer is to detail how it is proposed to address the lateral support provisions of BCA Spec C1,1 sub-clause 2.2.* *Where external columns are required to support the new fire wall, these external columns will need to be fire rated or subject of a performance-based solution to remove FRL's.* ***Fire Engineered Performance Solution:*** *Notwithstanding the above, it is understood that the design team may obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the extent of fire protection required to external columns supporting the fire walls. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements CP1 & CP2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.* ***Note:*** *Structural and Architectural details, design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application*
BCA Clause D1.4 & D1.5 (Exit Travel Distances & distances Between Alternative Exits)	*BCA Clause D1.4 specifies the maximum egress travel distances permissible from a point on the floor to a point of choice where alternative exits are available or from a point on the floor to the nearest exits.* *BCA Clause D1.5 specifies the maximum distances of travel permitted between alternative exits.* ***In this regard,*** *the following areas have been identified as matters which may be requiring consideration by the project Fire Safety Engineer;* ▪ *Egress distances between alternative exits when measured back through the point of choice through the racking installations is up to 80m in lieu of 60m.* ***Fire Engineered Performance Solution:*** *Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the extended distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements DP4 & EP2.2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.* ***Note:*** *Egress distances from the furthest point of the floor to the nearest exit is readily compliant however, there is minimal consideration for construction tolerance and the design team may wish to include additional exits.* *Furthermore, egress from the existing building requires an additional exit from the rear of the existing wash bays that does not include travel through the roller shutters.*

BCA Part D3 & E3.6 and, AS1428.1 (Accessibility requirements)	*BCA Part D3 requires the building, carpark facility, access ways and general circulation provisions are required to comply with the accessibility provisions of this Clause and Australian Standard.* ***In this regard,*** *the following areas have been identified as matters which may be requiring consideration by the project Accessibility Consultant;* *a) Site access – Details demonstrating compliant grades are to be noted on the drawings for the review and comment of the access consultant. Circulation space to be achieved at the entry gates near the sliding gates on the driveways.* *b) Accessible parking facilities – Accessible spaces have not been noted on the plans.* *c) Accessible Facilities – It is understood there will be no more than 10 occupants working at the facility at any given time and as such the single unisex facility is considered adequate in this regard.* *d) Access between building – There is no vertical access between the existing and proposed building to gain access to the new offices. An external ramp is therefore required to be considered.* *e) Stairways/Tactiles – Stairways will need to be AS1428.1 compliant and have details to be provided at the Construction Certificate stages.* ***Note:*** *Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application. It is also recommended that the detailed Accessibility Compliance/Performance Solution Report accompanies the CC application where departures are proposed.* ***Accessibility Performance Solution:*** *Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a suitably qualified Accessibility Consultant to address certain accessibility departures accordingly. This will include a management in use plan and allocation of certain storage units for persons with a disability. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP1 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*
BCA Clause E1.3 (Fire Hydrants)	*BCA Clause E1.3 requires hydrants to be provided in the building. Fire Hydrants are to be shown on the architectural drawings at the Construction Certificate stage and design certification form a consultant is required against AS2419.1-2005.* ***In this regard,*** *the following matters have been identified as DTS departures that may be requiring further consideration and justification from the fire services design and fire safety engineering consultants accordingly;* *a) Fire hydrant booster assembly should be installed adjacent to the main driveway and consideration to the proximity of the round-about is to be considered as FRNSW generally request these to be away from the roundabout.* *b) The location of the fire hydrant booster assembly may not be possible to be located within sight of the main entrance and as such this may need to be address in the fire safety engineering report.* *c) External hydrants are to be installed 10m away from the building or in a position that has suitable radiant heat protection.* ***Fire Engineered Performance Solution:*** *Notwithstanding the above, it is understood that the design team may obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the hydrant system departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement EP1.3 and be prepared to the satisfaction of the Accredited Certifier at the Construction stage.* ***Note:*** *The fire services engineers are to identify any other shortfalls or departures associated with either the BCA or the relevant Australian Standards. Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.*

BCA Clause E1.5 (Sprinklers)	*BCA Clause E1.5 requires Fire Sprinklers to be installed throughout a warehouse building that is either a large isolated building or has storage commodities which exceed 4m in height and 1,000mcb.* ***In this regard,** we note the building is being designed to be Type A Construction (not a large isolated building) and that the building will require sprinklers installed as there will be high bay storage installations proposed which will exceed 4m in height and 10000m³ in volume..* ***Note 1:** The fire services engineers are to identify any other shortfalls or departures associated with either the BCA or the relevant Australian Standards. Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.* ***Note 2:** Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.*
BCA Part J (Energy Efficiency)	*Detailed Section J compliance report to be provided at the Construction Certificate stage.* ***Note:** Architectural & ESD Reports and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

It is important to note that the above is not an exhaustive list of the matters requiring attention and the summary is to be read in conjunction with the remainder of the report in Section 3 below.

3. BCA ASSESSMENT

The following is a summary of relevant areas of BCA Compliance that will need to be considered & addressed for the proposed residential development prior to the issue of a Construction Certificate.

Section A – General Provisions:

The key building characteristics and classifications for the proposed development as determined by Volume 1 of the Building Code of Australia are as follows:

CHARACTERISTICS	EXISTING BUILDING PARTS	NEW BUILDING ADDITION
– **BCA CLASSIFICATION:**	Class 5 (Office), Class 6 (Retail), Class 7b (Warehouse) & Class 8 (Workshop)	Class 5 (Office), Class 7b (Warehouse) & Class 8 (Workshop)
– **RISE IN STOREYS:**	Two (2)	One (1)
– **STOREYS CONTAINED:**	Two (2)	One (1)
– **TYPE OF CONSTRUCTION:**	Mixed Types of Construction Type C Construction (Table 5 of BCA Spec C1.1	Mixed Types of Construction Type A Construction (Table 3 of BCA Spec C1.1)
– **EFFECTIVE HEIGHT:**	Less than 12m	Less than 12m
– **FIRE COMPARTMENTATION:**	Complies with C2.2 for the classifications concerned (BCA cl. C2.2) Type C Construction - Less than 2,000m^2 and 12,000m^3	Complies with C2.2 for the classifications concerned (BCA cl. C2.2) Type A Construction - Less than 5,000m^2 and 30,000m^3
– **CLIMATE ZONE:**	Climate Zone 6	Climate Zone 6

Note 1: *The Existing Building Parts and New Building additions will form one (1) single building with Mixed Types of Construction in accordance with BCA Clause C1.4. The existing and new parts will be separated by a Fire Wall complying with BCA Clause C2.7b and Spec. C1.1 sub-clause 2.2(b)(v).*

Note 2: *The offices within the new warehouse do not require fire separation as the higher FRL's of the warehouse have been adopted.*

Fire Source Features:

The subject site has one (1) street frontage being Links Roads which is located along the Northern side of the site. The Eastern, Western and Southern sides of the site adjoin industrial occupied allotments.

In this regard, the following fire source features apply;

FIRE SOURCE FEATURE	DISTANCE TO FIRE SOURCE FEATURE
– **NORTH SIDE**	>3m from the far boundary of Links Road - (Approx. 33m)
– **SOUTH SIDE**	≤3m from the side allotment boundary - (Approx. 2.9m)
– **EAST SIDE**	>3m from the side boundary - (Approx. 9.1m)
– **WEST SIDE**	>3m from the side boundary - (Approx. 6.5m)

Note: *The Existing Building Parts and New Building additions will form one (1) single building with Mixed Types of Construction in accordance with BCA Clause C1.4. The existing and new parts will be separated by a Fire Wall complying with BCA Clause C2.7b and Spec. C1.1 sub-clause 2.2(b)(v).*

Fire Compartments:

The building will be assessed as one (1) building which is separated by a fire wall. The provisions of BCA Clause C1.4 Mixed Type of Construction will be adopted in order to retain Type C Construction for the existing parts and Type A Construction for the new parts accordingly. This will ensure the existing levels of compliance within the existing warehouse building are not lessened or compromised by the new works.

The maximum permissible fire compartment sizes for the different classification in the development comply with the maximum limitations of Table C2.2 and as detailed in the Tables below:

Existing Building Parts Type C Construction:

CLASSIFICATIONS	FIRE COMPARTMENT SIZES	PROPOSED	COMPLIES
– **CLASS 5**	Maximum 3,000m² and 18,000m³	1,360m² and 10,900m³	Yes
– **CLASS 6/7b/8**	Maximum 2,000m² and 12,000m³	1,360m² and 10,900m³	Yes

Proposed Building Parts Type A Construction:

CLASSIFICATIONS	FIRE COMPARTMENT SIZES	PROPOSED	COMPLIES
– **CLASS 5**	Maximum 3,000m² and 18,000m³	3,300m² and 29,500m³	**TBC**
– **CLASS 7b**	Maximum 2,000m² and 12,000m³	2,939m² and 29,500m³	**TBC**

Note 1: *The Existing Building Parts and New Building additions will form one (1) single building with Mixed Types of Construction in accordance with BCA Clause C1.4. The existing and new parts will be separated by a Fire Wall complying with BCA Clause C2.7b and Spec. C1.1 sub-clause 2.2(b)(v).*

Note 2: *Fire Compartmentation plans detailing accurate floor areas and volumes – including awning structures where combustible goods and/or vehicles will be stationary under the awnings, together with details of the Fire Resisting Levels and method of support for the fire walls must accompany the Construction Certificate application, to the satisfaction of the Accredited Certifier.*

Section B – Structural Provisions:

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section B of the BCA subject to compliance with the following:

1. BCA cl's. B1 – B3 Structural provisions: Structural engineering documentation for structural works must comply with the structural provisions of BCA Clauses B1.1, B1.2 & B1.3. Table B1.2 identifies the Importance Levels of Building & Structures that must be considered by the structural engineer.

   Structural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

2. BCA cl. B1.4 – Materials and Forms of Construction: Structural resistance of materials and forms of construction must comply with BCA clause B1.4. Structural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application. The design must consider (but not be limited to) the following Australian Standards and any other appropriate standards accordingly:

   - *AS 1170.0 – 2002 General Principles*
   - *AS 1170.1 – 2002, including certification for balustrades (dead and live loads)*
   - *AS 1170.2 – 2002, Wind loads*
   - *AS 3700 – 2011, Masonry code*
   - *AS 3600 – 2009, Concrete code*
   - *AS 4100 – 1998, Steel Structures and/or AS 4600 – 2005, Cold formed steel*
   - *AS 2159 – 2009, Piling*
   - *AS/NZS 1664.1 and 2 – 1997, Aluminium construction*
   - *AS/NZS 1684.1, 2 and 3 – 2010*
   - *AS 2047 – 2014, Windows in buildings*
   - *AS 1288 – 2006, Glass in buildings + B1.4(h)(iii) – To protect against nickel sulphide inclusions.*

   Note 1: *The structural engineer is to review the structural adequacy of the existing building and provide certification attesting to the building being cable of accommodating the additional proposed loads and confirming that the building is fit for purposes and addresses the provisions of Clause 143 of the Environmental Planning and Assessment Regulation 2000.*

   Note 2: *Where the concessions of BCA Spec C1.1 - subclause 2.2 (b)(v) are adopted, detailed design details and certification is required in this regard.*

Section C – Fire Resistance and Compartmentation:

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section C of the BCA subject to compliance with the following:

3. BCA cl. C1.4 Mixed Types of Construction: A building may be of Mixed Types of Construction where it is separated in accordance with BCA Clause C2.7 (a) and (b).

   In this regard, the existing building complies with the limitations for Type C Construction by virtue of the number of storeys and size of the as-built fire compartment. Notwithstanding, the new additions will have over sized fire compartments which are commensurate to Type A Construction and as such the existing/proposed building parts will need fire separation and be treated as Mixed Types of Construction accordingly.

   Note 1: *Fire Compartmentation plans detailing accurate floor areas and volumes of each building part, together with details of the Fire Resisting Levels and method of support for the fire walls must accompany the Construction Certificate application, to the satisfaction of the Accredited Certifier.*

   Note 2: *Refer to BCA Clause C2.7 and Spec C1.1 subclause 2.2(b)(v) below for further commentary regarding fire wall compliance.*

4. BCA cl. C1.9 Non-combustible building elements: Changes to BCA 2016 – Amendment 1 has amended the provisions under Spec C1.1 and C1.12 and included a new C1.9 clause accordingly.

   The provisions of this clause are intended to combine a series of requirements and concessions for the use of non-combustible building elements and these new provisions are specified below;

   a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:

      (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.

      (ii) The flooring and floor framing of lift pits.

      (iii) Non-loadbearing internal walls where they are required to be fire-resisting.

   b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in—

      (i) a building required to be of Type A construction; and

      (ii) a building required to be of Type B construction, subject to C2.10, in—

         A. a Class 2, 3 or 9 building; and

         B. a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.

   c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1.

   d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants and damp-proof courses.

   e) The following materials may be used wherever a non-combustible material is required:

      (i) Plasterboard.

      (ii) Perforated gypsum lath with a normal paper finish.

      (iii) Fibrous-plaster sheet.

      (iv) Fibre-reinforced cement sheeting.

      (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.

      (vi) Bonded laminated materials where—

         A. each lamina, including any core, is non-combustible; and

B. each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and

C. the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

Note 1: *External architectural wall feature cladding and materials will need to be supported with fire test data to demonstrate compliance with the provisions of BCA C1.9.*

Note 2: *The use of any Aluminium Composite Panels (ACP's) will need to comply with the combustibility provisions under AS1530.1 and/or AS5113-2016 and be 'attached to external fire rated or non-combustible walls – i.e. the ACP's must under no circumstance form part of the external walls system and they are to be decorative finishes only – unless otherwise supported by Codemark Certification or fire safety engineering'. Furthermore, the use of cladding and ACP's will only be supported if they have AS1530.1 tests, are endorsed by the ABCB under Codemark Certification, they are installed in strict accordance with manufactures specifications/Codemark conditions and/or they are subject to review and justification via a performance-based solution.*

5. BCA cl. C1.10 – Early Fire Hazard Properties: Floor, wall & ceiling linings, sarking, and any other linings and attachments are required to comply with the requirements under Clause & Specification C1.10. in this regard we provide the following notes which are to be read in conjunction with the tables in the BCA:
   - All reflective foils such as sarking/insulations need to achieve compliance and have a flammability index of not greater than 5.
   - All insulation materials (including sarking, mineral wool and other fabricated batt, poly or the like products) located in external walls and other walls required to be non-combustible, must be tested to comply with AS1530.1 or be addressed under Performance Solutions (in line with recent ABCB Practice Notes and Amendment 1).
   - Ceiling and wall linings are to have a Material Group Number of 1 or 2 (not 3).
   - Timber feature wall or ceiling linings (or the like) are to comply with the Material Group Ratings under Table C1.10 and are also to have a Material Group Number of 1 or 2 (not 3).
   - Flooring such as carpets, vinyls, floating floors etc need to achieve a Critical Radiant Flux of not less than 2.2 (in non-sprinkler protected parts) and not less than 1.2 (where sprinklers are installed).

   Note: *Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

6. BCA cl. C1.14 – Ancillary Elements: Changes to BCA 2016 – Amendment 1 has amended the provisions under Spec C1.1 and C1.12 and included a new C1.14 clause accordingly.

   The provisions of this clause are intended to clarify that the Ancillary Elements listed under this clause may be applied to an external wall that is required to be non-combustible. The provisions of this clause are specified below;

   An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following:

   a) An ancillary element that is non-combustible.
   b) A gutter, downpipe or other plumbing fixture or fitting.
   c) A flashing.
   d) A grate or grille not more than 2 m² in area associated with a building service.
   e) An electrical switch, socket-outlet, cover plate or the like.
   f) A light fitting.
   g) A required sign.
   h) A sign other than one provided under (a) or (g) that—
      (i) achieves a group number of 1 or 2; and
      (ii) does not extend beyond one storey; and
      (iii) does not extend beyond one fire compartment; and

(iv) is separated vertically from other signs permitted under (h) by at least 2 storeys.

i) An awning, sunshade, canopy, blind or shading hood other one provided under (a) that—
   (i) meets the requirements of Table 4 of Specification C1.10 as for an internal element; &
   (ii) serves a storey—
      A. at ground level; or
      B. immediately above a storey at ground level; and
   (iii) does not serve an exit, where it would render the exit unusable in a fire.

j) A part of a security, intercom or announcement system.

k) Wiring.

l) A paint, lacquer or a similar finish.

m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).

Note 1: *In this regard all materials need to demonstrate compliance with the above or be supported by other fire test data. BCA Clause C1.10 relates to internal linings only and not external walls.*

Note 2: *Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

7. BCA cl. C2.2 – General Floor Area and Volume Limitations: The total proposed floor area and volume sizes of the fire compartments must comply with the limitations of C2.2 (excerpt below) for the classifications concerned.

Table C2.2 MAXIMUM SIZE OF FIRE COMPARTMENTS OR ATRIA

Classification		Type of construction of building		
		Type A	Type B	Type C
5, 9b or 9c *aged care building*	max *floor area*—	8 000 m^2	5 500 m^2	3 000 m^2
	max volume—	48 000 m^3	33 000 m^3	18 000 m^3
6, 7, 8 or 9a (except for *patient care areas*)	max *floor area*—	5 000 m^2	3 500 m^2	2 000 m^2
	max volume—	30 000 m^3	21 000 m^3	12 000 m^3
Note: See **C2.5** for maximum size of compartments in *patient care areas* in Class 9a *health care buildings*.				

In this regard *it is noted that the awning does not appear to have been included in the Floor Area and Volume calculations and where the awning exacerbates the fire compartment limitations, there may be need to address these encroachments under a performance-based solution. Awnings must be considered where they contribute to the buildings fire loads due to storage of goods and/or stationary vehicles are proposed in loading docks.*

Fire Engineered Performance Solution: *Notwithstanding the above, it is understood that the design team may obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the oversized volume due to the awning structure. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement CP2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*

Note 1: *Fire Compartmentation plans detailing accurate floor areas and volumes – including awning structures where combustible goods and/or vehicles will be stationary under the awnings, together with details of the Fire Resisting Levels and method of support for the fire walls must accompany the Construction Certificate application, to the satisfaction of the Accredited Certifier.*

Note 2: *Where the maximum 30,000m3 volume limitation is encroached due to the need to include the external awning structures, the encroachments may need to be addressed via performance-based solutions.*

Note 3: *The awnings need to be included in the buildings fire loads where the areas are used for storage or loading docks where trucks will be stationary and are unloading.*

Note 1: *Additional Architectural Details including 'Type of Construction – Fire Compartment Plans' are to be provided to demonstrate compliance with the Type of Construction Limitations detailed above.*

Note 2*: Refer to Table 3 of BCA Spec C1.1 for applicable Fire Resistance Levels (FRL's) for all new building elements in this regard.*

8. BCA cl. C2.7 – Separation by Fire Walls: A fire wall must be constructed in accordance with the provisions of this clause and achieve the respective FRL's under BCA Specification C1.1 (240/240/240 min FRL's).

   Due to the building being assessed as building of Mixed Types of Construction, the following provisions apply;

   - The Fire Wall must achieve an FRL of 240/240/240 due to the higher type of Construction applicable.
   - No building elements other than sarking and battens with dimensions of 75mm x 50mm are permitted to pass through the fire wall, unless the other building elements can be determined to not reduce the fire resisting performance of the wall.
   - Openings and services in a fire walls must be protected in accordance with Part C3 of the BCA.
   - The fire wall must project from the base of the footings to the underside of the higher roof covering.
   - The fire wall must be laterally supported to ensure it remains upright for a minimum of 240 mins. This will entail fire rating of the internal columns and/or the adoption of the concessions under Spec C1.1 sub-clause 2.2 (b)(v) – (Refer to comments under BCA Spec C1.1 below).

   In this regard, *it noted that the fire wall must be designed in a manner which is continuous from the Ground slab – through to the underside of the roof covering. Furthermore, the structural engineer is to detail how it is proposed to address the lateral support provisions of BCA Spec C1,1 sub-clause 2.2.*

   Note: *Structural and Architectural details, design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

9. BCA cl. C2.8 – Separation of classifications in the same storey: There is no need for fire separation between the Class 5 and Class 7b parts within the new building additions as the building will adopt the higher classifications in the parts concerned. The existing parts are of Type C Construction which require no fire separation accordingly either.

10. BCA cl. C2.12 Separation of Equipment: Any emergency generators, boilers or battery storage enclosures are required to be fire separated from the remainder of the building by construction having a minimum FRL of 120/120/120. Doors to the enclosure are to be self-closing --/120/30 fire doors.

    Note: *Consideration for the need for fire separation of any server/comms room may be required where it is proposed to have Batteries/UPS's a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours. Electrical/IT contractor to advise further in this regard.*

11. BCA cl. C2.13 Electricity Supply Systems: Any electrical substations, electrical conductors, or main switchboards that sustain emergency equipment operating in emergency mode are required to be fire separated from the remainder of the building by construction having a minimum FRL of 120/120/120. Doors to the enclosure are to be self-closing --/120/30 fire doors.

    Note: *Additionally, there is to be a suitable portable fire extinguisher located between 2m and 10m of the room. Fire rating details are to be noted on the Construction Certificate drawings.*

12. BCA cl. C3.2 – Protection of Openings in External Walls: Any openings within the external walls that are located within 3m of a side or rear allotment boundary or 6m from the far boundary of an adjoining roadway are required to be protected externally in accordance with Clause C3.4. Openings may also be protected by shielded construction.

In this regard, it is noted that all new external walls including the new awning is located 3m zone away from the boundary and as such there are no openings in the proposed development which require protection pursuant to the provisions of this clause.

13. BCA cl. C3.3 – Protection of Openings in Different Fire Compartments: The distance between parts of *external walls* and any openings within them in different *fire compartments* separated by a *fire wall* must not be less than that set out in Table C3.3, unless—

    (a) those parts of each wall have an FRL not less than 60/60/60; and
    (b) any openings protected in accordance with C3.4.

Angle between walls	Min. Distance
0° (walls opposite)	6m
more than 0° to 45°	5m
more than 45° to 90°	4m
more than 90° to 135°	3m
more than 135° to less than 180°	2m
180° or more	Nil

***In this regard**, there are external walls, openings and awning structures of the existing building that will be located within the minimum distances above and which are not proposed to be protected.*

***Fire Engineered Performance Solution:** Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the extent of fire separation required accordingly by relying on the new 240/240/240 min fire wall as the separating barrier. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements CP1 & CP2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*

14. BCA cl. C3.4 – Acceptable Methods of Protection: Where protection of openings is required, doorways, windows and other openings must be protected externally as follows:

    - Doorways – External wall- wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or -/60/30 fire doors that are self-closing or automatic closing.
    - Windows – Internal or external wall-wetting sprinklers (as the case may require) and as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or -/60/- automatic closing fire shutters.
    - Other openings – Excluding voids – internal or external wall-wetting sprinklers, as appropriate; or Construction having FRL not less than -/60/-.

    ***Note:** Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

15. BCA cl. C3.5 – Openings in Fire Walls: Any doors proposed in fire walls must achieve the necessary FRL's of the fire wall concerned e.g. a 240 mins fire wall requires –/240/30 self-closing fire doors installed.

16. BCA cl. C3.15 – Openings for Service Installations: Where service installations penetrate the walls or floors required to have an FRL with respect to integrity and insulation they are to be protected by fire seals having an FRL of the building element concerned. Fire seals are required to comply with Specification C3.15 and Manufacturers Specifications.

17. BCA Spec. C1.1 – Fire Resisting Construction: The building is of **Mixed Types of Construction** with the existing parts retaining their Type C Construction and the new additions adopting the provisions for Type A Construction.

    The building will be fire separated in accordance with BCA Clauses C1.4, C2.7 and Spec C1.1(b)v) accordingly.

    The proposed building must comply with the requirements under Specification C1.1 for Type A Construction.

In this regard, the following FRL's apply to the proposed buildings:

BUILDING ELEMENT	Class 7b & 8
EXTERNAL WALL (including any column and other building element incorporated within) or other external building element, where the distance from any fire-source feature to which it is exposed is –	
For load bearing parts-	
Less than 1.5m	240/240/240
1.5 to less than 3m	240/240/180
3m or more	240/180/90
For non-load bearing parts-	
Less than 1.5m	--/240/240
1.5 to less than 3m	--/240/180
3m or more	--/--/--
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire source feature to which it is exposed is –	
Less than 3m	240/--/--
3m or more	--/--/--
COMMON WALLS & FIRE WALLS	240/240/240
INTERNAL WALLS	
Fire Resisting lift and stair shafts –	
Loadbearing	240/120/120
Non-loadbearing	--/120/120
Bounding public corridors, public hallways and	
the like –	
Loadbearing	240/--/--
Non-loadbearing	--/--/--
Between or bounding SOU's –	
Loadbearing	240/--/--
Non-loadbearing	--/--/--
Ventilating, pipe, garbage, and the like shafts not used for the discharge of hot products of combustion –	
Loadbearing	180/120/120
Non-loadbearing	--/120/120
OTHER LOADBEARING INTERNAL WALLS & COLUMNS	240/--/--
FLOORS	240/240/240
ROOFS	N/A

Additional Notes / Requirements

Note 1: *All external wall systems including insulations and sarking materials must be non-combustible construction and where required to be fire resisting, they must achieve an FRL in line with Table 3 above – refer to BCA Clause C1.9 & C1.14 for further commentary in this regard.*

Note 2: *All fire resisting wall systems including insulations are also to be non-combustible and achieve an FRL in both directions. (Generally, all external load bearing walls irrespective of distance and non-load bearing walls and columns within 3m of the fire source features must achieve 240 mins). In this regard, we note that the building is a portal frame and as such the external walls are generally non-load bearing. Therefore, external walls need to be non-combustible construction.*

Note 3: *We understand there are no internal load bearing walls and only internal load bearing columns are proposed. In this regard these columns do not require fire ratings as we understand the architect is adopting the concessions under BCA Spec C1.1 – subclause 2.2 and 2.5 to negate the need for fire ratings to all structural steel columns associated with the portal frame structure. In this regard all columns are non-fire rated.*

Note 4: *The roof of the warehouse needs to be non-combustible.*

Note 5: *Where a sign, finish, lining or ancillary element or service installation is attached to a building element, it must not reduce the fire resistance of that element below that required by the specification. Refer to BCA Clause C1.9 and C1.14 for external walls and ancillary attachments.*

The use of any Aluminium Composite Panels (ACP's) will need to comply with the combustibility provisions under AS1530.1 and/or AS5113-2016 *and be 'attached to external walls – not form part of the external walls' or be subject to a Performance Solution – Refer to BCA Spec C1.1 Sub-clause 2.4. similarly, for all other external cladding products utilised.*

Note 6: *The fire wall must be laterally supported to ensure it remains upright for a minimum of 240 mins. This will entail fire rating of the internal columns and/or the adoption of the concessions under Spec C1.1 sub-clause 2.2 (b)(v) which in part state;*

(a) 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, ***subject to (b)****, must—*

(i) have an FRL not less than that required by other provisions of this Specification; and

(ii) if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required—

(A) for the supporting part itself; and

(B) for the part it supports; and

(iii) be non-combustible—

(A) if required by other provisions of this Specification; or

(B) if the part it supports is required to be non-combustible.

(b) The following building elements need not comply with (a)(ii) and (a)(iii)(B):

(i) An element providing lateral support to an external wall complying with Clause 5.1(b) or C1.11.

(ii) An element providing support within a carpark and complying with Clause 3.9, 4.2 or 5.2.

(iii) A roof providing lateral support in a building—

(A) of Type A construction if it complies with Clause 3.5(a), (b) or (d);and

(B) of Type B and C construction

(iv)

(iv) A column providing lateral support to a wall where the column complies with Clause 2.5(a) & (b).

(v) An element providing lateral support to a fire wall or fire-resisting wall, provided the wall is supported on both sides and failure.

Note 7: *The new building parts will adopt the higher FRL's throughout and as such no fire separation is required between the office and warehouses parts.*

Note 8: *All designers are to review BCA Specification C1.1 for further clarifications regarding required Fire Resistance Levels. Departures are to be addressed under Performance Based Alternative Solutions.*

In this regard, *it noted that the fire wall must be designed in a manner which is continuous from the Ground slab – through to the underside of the roof covering. Furthermore, the structural engineer is to detail how it is proposed to address the lateral support provisions of BCA Spec C1.1 sub-clause 2.2. Additionally, where external columns are required to support the new fire wall, these external columns will need to be fire rated or subject of a performance-based solution to remove FRL's.*

Fire Engineered Performance Solution: *Notwithstanding the above, it is understood that the design team may obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the extent of fire protection required to external columns supporting the fire walls. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements CP1 & CP2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*

18. BCA Spec. C1.11 – Performance of External Walls in Fire: This specification contains measures to minimise the likelihood of external walls collapsing outwards as complete panels and the likelihood of panels separating from supporting members in the event of fire.

    Note: *The Structural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

Section D – Access and Egress:

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section D of the BCA subject to the compliance with the following:

19. BCA cl. D1.2 – Number of Exits Required: The building is required to be provided with a minimum of one (1) exit. Additional exits are required to achieve compliance with the egress travel distances listed under D1.4 and D1.5 below. In this regard, we note that there are multiple exits proposed and compliance is readily achieved.

20. BCA cl. D1.4 – Exit Travel Distances: In accordance with the provisions of this clause, no point on the floor must be more than 20 metres from a single exit or a point of choice where travel in different directions is available. Where alternative exits are available the total distance may be increased to 40m accordingly.

    In this regard, *compliance is readily achievable however there is minimal consideration for construction tolerance and the design team may wish to include additional exits.*

    Furthermore, *egress from the existing building requires an additional exit from the rear of the existing wash bays that does not include travel through the roller shutters.*

21. BCA cl. D1.5 – Distances Between Alternative Exits: The distance between alternative exits within the building must not exceed 60 metres and/or be located less than 9m apart. In this regard, we note that there are multiple exits proposed and compliance is readily achieved.

    In this regard, *the following areas have been identified as matters which may be requiring consideration by the project Fire Safety Engineer;*

    a) *Egress distances between alternative exits when measured back through the point of choice through the racking installations is up to 80m in lieu of 60m.*

    Fire Engineered Performance Solution: *Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the extended distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements DP4 & EP2.2 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*

    Note: *Egress from the existing building has not been compromised by the new works.*

22. BCA cl. D1.6 – Dimensions of Exits and Paths of Travel to Exits: The unobstructed height throughout an exit or a path of travel to an exit must be not less than 2 metres, except for doorways which may be reduced to not less than 1980mm. In addition, the unobstructed width of an exit or a path of travel to an exit must be not less than 1 metre or the required exit width determined under D1.6.

    It is considered that the proposed design of the base building complies with the egress width provisions of D1.6. Furthermore, there are ample exits to permit future internal configurations which will not compromise compliance.

23. BCA cl. D1.10 – Discharge from Exits: Upon egress occupants must have suitable paths of travel including compliant stairways and ramps (where required) between the building and the Roadway. Graded surfaces must not be steeper than 1:8 and pedestrian egress ramps require handrails.

24. BCA cl. D1.13 – Number of Persons Accommodated: Clause D1.13 and Table D1.13 provide a method which may be 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.

    In this regard, we note that the building has ample exits to accommodate the expected population numbers proposed within the building.

25. BCA Part D2 Construction of Exits: The stair treads and risers, stair landings, door thresholds, balustrades and handrails are to comply with the provisions of these clauses. Further details will be required prior to issue of the Construction Certificate.

26. BCA cl. D2.7 – Installations in Exits and Paths of Travel: Services or equipment comprising electricity meters, distribution boards, central telecommunication distribution boards/equipment, electrical motors or other motors serving equipment in the building, can be installed in a corridor or the like, leading to a required exit if the services or equipment are enclosed with non-combustible construction or appropriate fire-protection covering and doorways suitably sealed against smoke spread from the enclosure.

27. BCA cl. D2.13 – Treads and Risers: The stairs must comply with the tread, riser and going dimensions of this clause and the nosing of the stairs must be provided with a non-slip treads and meet the provisions of AS1428.1-2009.

    The following will apply in relation to the construction of all stairways:

    - Stairway must have not more than 18 and not less than 2 risers in each flight.
    - Goings and risers within the stair flights must be constant throughout each flight.
    - Goings and risers are to be in accordance with BCA Table D2.13 i.e.:

	Riser (R)	Going (G)	Quantity (2R+G)
Maximum	190	355	700
Minimum	115	250	550

    - Risers must be solid construction with no gaps and treads must have non-slip finishes and stair nosing's in accordance with BCA Part D3 and AS4586-2013 and AS1428.1-2009.

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

    Note: *Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

28. BCA cl. D2.14 – Landings: A review of the plans has confirmed that landings are compliant throughout. Notwithstanding the above, compliance is to be ensured when introducing the smoke barriers and doors to address the compliance departures referenced under D2.4 above.

29. BCA cl. D2.15 – Thresholds: Doors must not have a ramp or step closer to the door that the width of the door leaf except where opening to open space, where the change in level may be a maximum of 190mm.

30. BCA cl. D2.16 - Balustrades or other barriers: Balustrades throughout are to comply with the provisions of this clause. The following summary is provided for your ease of reference;

    - For the non-fire isolated stairs in the building, where the fall exceeds 1m the balustrading must be a minimum of 865mm above the line of the nosing's of the treads, 1m at the floors and landings and there must be no gaps greater than 125mm throughout.
    - Glass balustrades are to comply with AS1170 & AS1288-2006 requiring interlinking rails and end point fixtures. NB: No frameless glass balustrades are permitted.

    Note: *The Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

31. BCA cl. D2.17 – Handrails: A handrail is required along both sides of all proposed stairways located a minimum of 865-mm above the stair nosing and 1.0m above landings greater than 500mm. The handrail must also be continuous between flights. **Please note the additional handrail requirements for stairs required to be accessible under AS1428.1-2009.**

32. BCA cl D2.20 - Swinging Door: All hinged exit doors are required to swing in the direction of egress. Doors serving compartments less than 200msq may swing inwards if they are provided with hold open devices.

33. BCA cl. D2.21 - Operation of Latch: A door in a required exit or in a path of travel to an exit must be readily openable from the side facing a person seeking egress, by a single hand downward action or pushing action on a device located between 900mm and 1100mm above finished floor level. The hardware is to also comply with Section 13 of AS1428.1-2009 (as applicable to the use).

34. BCA Part D3 - Access for People with a Disability: Access and facilities for people with disabilities will need to be provided to satisfy the requirements of Part D3 of the BCA & AS1428.1-2009, and the Access to Premises – Buildings Standards 2010 satisfying the client's obligations under the DDA. Under Table D3.1, the subject building must be accessible as follows:

Class of Building	Access Requirements
Class 5 & 7b	To and within all areas normally used by the occupants.

In this regard, the above and below details are to be noted on the Construction Certificate documentation and complied with during construction of the development;

- Access from the street to the principal pedestrian entrance of the building is to be provided in accordance with AS1428.1-2009. External accessible paths / thoroughfares providing access to the building are to be noted with compliant gradients and landings at entry doors etc. This includes accessible paths of travel between the accessible carparking space and the building.
- Access is required to not less than 50% of all pedestrian entrances to the building. Notwithstanding, where entrances are not accessible the accessible entrance must be less than 50m travel. In this regard we note compliance is readily achieved.
- The door to the main entrances and to doors in areas required to be accessible within the building are required to have a clear width of not less than 850mm and satisfy the circulation space requirements under AS 1428.1 – 2009.

  Note: *Where an entry door is proposed to have multiple door leaves (except an automatic opening door)* ***one of the door leaves*** *must have a clear width of not less than 850mm.*

- The circulation space around all accessible swinging and sliding doors is required to comply with Clause 13.3 and Figure 31 of AS 1428.1-2009. Circulation space requirements are to be detailed on the CC drawings – refer to Section 13 of AS1428.1-2009.
- All door handles and related hardware to swinging doorways are required to be a type 'D' handle which allows the door to be unlocked and opened with one hand in accordance with Clause 13.5.2.

- 30% luminance contrasts are to be provided to all new doorways e.g. contrasting between door leaf & jamb; or door leaf & wall; or architrave & wall; or door leaf & architrave and/or door jamb & adjacent wall. Please ensure the office components comply in this regard.
- All frameless glass panels or fully glazed doors on an accessway are to be clearly marking in accordance with AS 1428.1. In this instance, all frameless glass panel or fully glazed doors, including glazing capable of being mistaken for a doorway or opening, shall be marked with a full width solid non transparent contrast line not less than 75mm wide is required to be located between 900mm and 1000mm above floor level.
- All the stairs are to be provided with contrast stair nosing's between 50 and 75mm deep across the full width of the path of travel. The strip may be set back 15mm from the front of the nosing and must possess a minimum luminance contrast of 30% to the background. The strip must not extend down the riser more than 10mm.
- Egress Stairs need to comply with BCA Clause D2.17& Clause D3.3 which require compliance with AS1428.1-2009 i.e. nosings, handrail design, tatiles etc.
- Stair treads in the fire stairs will need to be off-set as per the diagrams in AS1428.1-2009.
- Accessways must have passing spaces complying with AS 1428.1 at maximum 20 metre intervals on those paths of travel where a direct line of sight is not available, and turning spaces within 2 metres of the end of a path of travel and at maximum 20 metre intervals (corridor width of 1540mm x 1800mm required).
- External and internal surfaces are to comply with Section 7 of AS1428.1-2009.
    - Walking surfaces to be slip resistant and certification in respect to the slip resistance of any tiles and vinyl will be required at the Occupation Certificate stage to verify compliance with AS/NZS 4586.
    - Any proposed carpets within the building are to have a pile height or pile thickness not exceeding 11mm and the carpet backing thickness shall not exceed 4mm (total thickness shall not exceed 15mm).
- Braille tactile signage is to be provided to all sanitary facilities and ambulant facilities. In addition, the signage to the accessible facilities is to also identify the facility for left & right handed use.
- Braille signage is also required in accordance with the new BCA 2013 provisions at every designated exit door provided with an Exit sign required under E4.5 and state "Exit – Ground".
- Tactile indicators are to be provided to all stairs and ramps in the site. In addition, tactile indicators or another type of barrier will need to be provided around the stair obstruction where the stair is less than 2 metre above floor level. Tactiles are also required between the shared zone and vehicular driveway.
- Accessible sanitary facility to comply with Section 15 of AS1428.1-2009.
- Ambulant facilities (where required) are to comply with Section 16 of AS1428.1-2009
- The carparking areas and the accessible car spaces are required to satisfy the requirements of AS/NZS2890.6. In this regard, one space for every 100 car spaces is required and compliance is achieved.
- Areas that would be considered inappropriate because of the particular purpose for which the area is used or where it would pose a health or safety risk for people with a disability access is not required to be provided and written confirmation will be required by the client e.g. plant / storage areas.

In this regard, the following areas *have been identified as matters which may be requiring consideration by the project Accessibility Consultant;*

a) *Site access – Details demonstrating compliant grades are to be noted on the drawings for the review and comment of the access consultant. Circulation space to be achieved at the entry gates near the sliding gates on the driveways.*

b) *Accessible parking facilities – Accessible spaces have not been noted on the plans.*

c) *Accessible Facilities – It is understood there will be no more than 10 occupants working at the facility at any given time and as such the single unisex facility is considered adequate in this regard.*

d) *Access between building – There is no vertical access between the existing and proposed building to gain access to the new offices. An external ramp is therefore required to be considered.*

e) *Stairways/Tactiles – Stairways will need to be AS1428.1 compliant and have details to be provided at the Construction Certificate stages.*

Note: *Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application. It is also recommended that the detailed Accessibility Compliance/Performance Solution Report accompanies the CC application where departures are proposed.*

Accessibility Performance Solution: *Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a suitably qualified Accessibility Consultant to address certain accessibility departures accordingly. This will include a management in use plan and allocation of certain storage units for persons with a disability. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP1 and be prepared to the satisfaction of the Accredited Certifier at the Construction Certificate stage.*

Section E – Essential Fire Safety Measures:

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section E of the BCA subject to the compliance with the following:

Refer to **Appendix 1** for a table of the relevant Essential Fire and Other Safety Measures applicable which is to be read in conjunction with the following;

25. BCA cl. E1.3 – Fire Hydrants: A fire Hydrant system is required to be provided to all buildings with a total floor area greater than 500m^2 and the system is to be designed to comply with AS2419.1-2005 and Fire & Rescue NSW operational requirements.

    The location of the hydrant booster is required to be in sight of the main entrance of the new building/s and adjacent to the vehicular entrance as such as per the provisions of AS 2419.1-2005. The fire booster must also be located greater than 10m from the building (including awnings), any substation/kiosk, gas storage/meters and other hazardous materials. This includes gas metres and regulators.

    Fire Brigades prefer external hydrants in larger buildings where possible and external hydrants must be affixed to a radiant heat shield or alternatively located at least 10m from the external walls of the building.

    Any Internal Hydrants are to be located within the fire isolated stairways at the landing of the storey they serve or within 4m of the top riser of any non-fire isolated exits. In addition, if floor coverage cannot be achieved supplementary fire hydrants (daisy-chain arrangements) may be provided to suit the operational requirements of the NSW Fire Brigades.

    Any required fire hydrant pump room will need to be accessed directly from open space.

    Open yard protection is to also be considered to the hardstand areas in accordance with AS2419.1- 2005.

A fire hydrant ring main should also be considered for future Large Isolated Building provisions should further development be proposed at a later date.

In this regard, *the following matters have been identified as DTS departures that may be requiring further consideration and justification from the fire services design and fire safety engineering consultants accordingly;*

a) *Fire hydrant booster assembly should be installed adjacent to the main driveway and consideration to the proximity of the round-about is to be considered as FRNSW generally request these to be away from the roundabout.*

b) *The location of the fire hydrant booster assembly may not be possible to be located within sight of the main entrances and as such this may need to be address in the fire safety engineering report.*

c) *External hydrants are to be installed 10m away from the building or in a position that has suitable radiant heat protection.*

Fire Engineered Performance Solution: *Notwithstanding the above, it is understood that the design team may obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the hydrant system departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement EP1.3 and be prepared to the satisfaction of the Accredited Certifier at the Construction stage.*

Note 1: *The fire services engineers are to identify any other shortfalls or departures associated with either the BCA or the relevant Australian Standards. Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.*

Note 2: *Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.*

26. BCA cl. E1.4 – Hose Reels: Fire Hose Reels are required to be provided in a building with a total floor area of any Fire Compartment greater than 500m^2. For the purpose of this calculation, the total floor area for fire compartments is measured within the finished surfaces of the building.

    Hose reels are required to be located within 4 metres of an exit or adjacent to internal Hydrants. Hose reel enclosures are to be sign posted and they must not obstruct egress paths required by BCA cl. D1.6 above. In addition, Fire Hose Reels must be located so that the hose will not pass through doorways fitted with a fire door, other than a door associated with Clauses C2.12 & C2.13.

    In this regard it noted that new fire Hose reels will be installed to provide compliant coverage in the proposed building and the existing building parts will be audited and upgraded where required in accordance with the above.

    Note: *Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

27. BCA Clause E1.5 – Sprinklers: A sprinkler system is required to be installed in a building or part of a building when required by Table E1.5 and comply with Specification E1.5. Table E1.5 sets out which types of building occupancies and Classes which require having sprinkler systems installed in them.

    This clause requires "occupancies of excessive hazard" to be sprinkler protected where storage quantities exceed 4m in height and volumes exceed 1,000mcb in any fire compartment with a floor area greater than 2,000m^2 or 12,000m^3.

    In this regard, it is noted that the new additions propose to have high bay racking installations in a compartment which exceeds the limitations above (2,000m^2 and 12,000m^3). As such, sprinklers are required in the new additions accordingly.

    Note: *Architectural details, Fire Compartmentation plans, schedules and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

28. BCA cl. E1.6 – Portable Fire Extinguishers: Portable fire extinguishers are to be installed in accordance with clause E1.6 and AS 2444-2001 and also to protect buildings that don't have fire hose reel coverage.

    Note: *Architectural details and Design Certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

29. BCA cl. E2.2 – Smoke Hazard Management: Class 2 to 9 buildings must comply with the provisions of the Clause / Specification and Tables within to manage smoke during a fire. Smoke hazard provisions apply to buildings and are to be installed in accordance with Table E2.2a & E2.2b as applicable.

    In this regard*, the building does not require any smoke hazard management (smoke detection) due to the size of the fire compartment and rise in storeys it contains. Sprinklers are proposed which comply with the provisions of this clause.*

    Note: *Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

30. BCA cl. E4.2 & E4.4 – Emergency Lighting: Emergency Lighting is required in the building in accordance with AS 2293.1-2005.

    Note: *Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

31. BCA cl. E4.5 & E4.6 – Exit Signs: Exit signs 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. Signs are required to comply with AS 2293.1-2005.

    In this regard, it noted that new emergency exit sign installations will be installed to provide compliant coverage in the proposed building.

    Note: *Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.*

BCA SECTION F – HEALTH & AMENITY:

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section F of the BCA subject to the compliance with the following:

32. BCA cl. F1.1 – Stormwater Drainage: Stormwater drainage must be installed as per AS 3500.3 -2003. All plumbing works are to comply with BCA Volumes 1 and 3.

33. BCA cl. F1.4 – External Above Ground Membranes: Waterproofing membranes for external above ground use must comply with AS4654 Parts 1 and 2.

34. BCA cl. F1.5 – 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), (b) (c), (d), (e) & (f) which set out the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation. A roof must be covered with

    - Cellulose cement corrugated sheeting compiling with AS/NZS 2908.1 and installed as per AS/NZS 1562.2.
    - Metal roof sheeting comply with AS 1562.1
    - Plastic roof sheeting complying with AS/NZS 4256 parts 1, 2 3 and 5 and AS/NZS 1562.3.

35. BCA cl. F1.6 – Sarking: Sarking must be installed to roof and walls for weatherproofing as per AS/NZS 4200.1 and 2 - 1994. Damp proofing between external abutting walls of any adjacent buildings is also to be considered.

36. BCA cl. F1.7 – Waterproofing of Wet Areas: Wet areas in the building are required to comply with AS 3740-2004.

37. BCA cl. F1.9 & F1.10 – Damp Proofing: Compliance with the provisions of the BCA and the referenced Australian Standard is required.

38. BCA cl. F1.13 – Glazed Assemblies: Glazed assemblies in an external wall of a building are required to comply with AS 2047 requirements for resistance to water penetration. All other glazing installations are to comply with AS1288-2006 and full height glazing is to be toughened glass and provided with decals/motifs.

39. BCA cl. F2.3 – Facilities in Class 3 to 9 Buildings: This clause provides the requirements for sanitary facilities to be installed in Class 3, 5, 6, 7, 8 and 9 buildings in accordance with Table F2.3.

    In this regard, *the current sanitary facility arrangements proposed cater for no more than ten (10) staff which is understood to be an accurate assessment.*

    Note: *Final Confirmation of total population numbers and Architectural details to the satisfaction of the Accredited Certifier are to be provided with the Construction application.*

35. BCA cl. F2.4 – Facilities for People with Disabilities: The accessible WC's must be designed in accordance with the requirements of Section 15 of AS 1428.1-2009.

36. BCA cl. F2.5 – Construction of Sanitary Compartments: The door to fully enclosed sanitary facilities must open outwards, slide or be readily removable from the outside unless there is a clear space of 1.2 metres measured in accordance with figure F2.5.

    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 F2.5 between the closet pan within the sanitary compartment and the doorway.

37. BCA cl. F3.1 – Height of Rooms: The floor to ceiling heights in the office parts of the building must not be less than 2.4 metres and the ceiling heights in the storage compartments and corridors can be reduced to 2.1 metres.

    Note: *Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.*

40. BCA cl. F4.4 – Artificial Lighting: Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. In this regard we note that artificial lighting is required throughout the building in accordance with AS/NZS 1680.0.

41. BCA cl. F4.5 – Ventilation of Rooms: The building is required to be provided with either mechanical ventilation complying with AS1668.2-2012 or natural ventilation achieving 5% of the floor area of the room served.

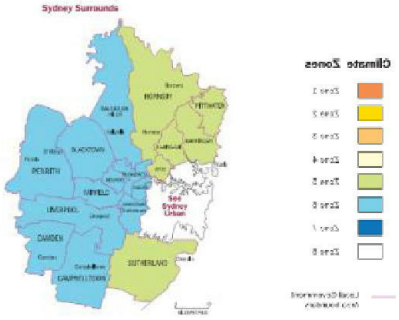
    Note: *Design statement to the satisfaction of the Accredited Certifier is to be provided with the Construction Certificate application*

BCA SECTION J – ENERGY EFFICIENCY

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section J of the BCA subject to the compliance with the following:

38. BCA Section J Energy Efficiency: The proposed building will be subject to the Energy Efficiency requirements under this section. In this regard the applicable requirements include J1 – Building Fabric, J2 – External Glazing, J3 – Building Sealing, J5 – Air Conditioning and Ventilation Systems, J6 – Artificial Lighting and Power, J7 – Hot Water Supply and J8 – Access for Maintenance.

    The building is located in Climate Zone 6 and the relevant provisions of the BCA are to be applied to each classification concerned accordingly.



In this regard, it is understood that only the office parts will be a conditioned space with all other storage areas only being served by natural ventilation. As such, in acordence with the BCA definitions below, it is considered that J1, J2 and J3 do not apply to the storage building parts.

Envelope , for the purposes of **Section J**, means the parts of a building's *fabric* that separate a *conditioned space* or *habitable room* from—

(a) the exterior of the building; or

(b) a non-*conditioned space* including—

(i) the floor of a rooftop plant room, lift-machine room or the like; and

(ii) the floor above a *carpark* or warehouse; and

(iii) the *common wall* with a *carpark*, warehouse or the like.

Conditioned space means a space within a building, including a ceiling or under-floor supply air plenum or return air plenum, where the environment is likely, by the intended use of the space, to have its temperature controlled by *air-conditioning*, but does not include—

(a) a non-*habitable room* of a Class 2 building or Class 4 part of a building in which a heater with a capacity of not more than 1.2 kW or 4.3 MJ/hour provides the *air-conditioning*; or

(b) a space in a Class 6, 7, 8 or 9b building where the input energy to an *air-conditioning* system is not more than 15 W/m^2 or 15 J/s.m^2 (54 KJ/hour.m^2); or

(c) a lift *shaft*.

Air-conditioning , for the purposes of **Section J**, means a *service* that actively cools or heats the air within a space, but does not include a *service* that directly—

(a) cools or heats cold or hot rooms; or

(b) maintains specialised conditions for equipment or processes, where this is the main purpose of the *service*.

Note: *In order to demonstrate compliance, a Section J Report from an ESD Consultant will be submitted with the Construction Certificate Application. Glazing calculators for the office parts are to accompany reports.*

GENERAL REQUIREMENTS:

39. External and internal surfaces are to comply with the slip resistance criteria referenced under AS/NZS 4586-2013.

40. All safety and toughened glazing need to have permanently affixed labels as required by AS1288 - 2006.

41. Roof anchoring systems and roof access provisions need to comply with Work, Health and Safety legislation, Work Cover requirements, AS1657-2013 etc.

42. External carpark areas including driveways, turning circles and car spaces are to comply with AS2890.1 -2004 and AS2890. 6-2009.

43. Perimeter access gates must have fail-safe provisions to ensure occupants egressing the building have access to the road ways.

44. Areas where occupants could trip, fall and cause injury (over and above areas listed in the BCA) should be provided with suitable barriers and signage.

4. CONCLUSION

This BCA Assessment Report contains an assessment of the referenced architectural documentation for the proposed development against the deemed-to-satisfy provisions of the Building Code of Australia 2016 (BCA).

Arising from the review, it is considered that the proposed development can readily achieve compliance with the BCA subject to the compliance matters outlined under **Section 2** and **Section 3** of this report above being adequately addressed.

APPENDIX: PRELIMINARY FIRE SAFETY SCHEDULE

The following comprises a preliminary fire safety schedule containing statutory fire safety measures that will apply to the new buildings

Statutory Fire Safety Measure	Design/Installation Standard
Alarm Signalling Equipment	AS 1670.3 – 2004 and Manufacturer's Specification + Fire Engineered Performance Based Solution
Building Occupant Warning System	BCA Spec E2.2 and/ or Clause 3.22 of AS 1670.1 – 2015
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 – 2005
Fire Dampers - (Fire Walls)	BCA Clause C3.15,AS 1668.1 - 2015 & AS 1682.1 & 2 - 1990 and Manufacturer's Specification
Fire Doors	BCA Clause C2.12, C2.13, C3.5 and AS 1905.1 – 2015
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 - 2005 + Fire Engineered Performance Based Solution
Fire Seals -(Fire Walls)	BCA Clause C3.15 & AS 1530.4 – 2014 & AS 4072.1 – 2005
Mechanical Air Handling Systems	BCA Clause E2.2, AS/NZS 1668.1 - 2015 & AS 1668.2 – 2012
Paths of Travel	EP & A Regulation Clause 186 + Fire Engineered Performance Based Solution
Portable Fire Extinguishers (common areas and MSB)	BCA Clause E1.6 & AS 2444 – 2001
Fire Engineered Performance Solutions for the following: – BCA Spec C1.1: Rationalisation of the need to fire rate some external columns where utilised to provide lateral support to the new fire wall. – BCA Clause C2.2: Rationalisation of the oversized fire compartment in the new addition (volume only) – BCA Clause C3.3: Rationalisation of the extent of protection offered the existing buildings external walls and opening located within 3m/6m of the new addition which is a separate fire compartment. – BCA Clause D1.4: Rationalisation of the extended egress distances between alternative exits being up to 80 m in lieu of 60m. – BCA Clause E1.3: Rationalisation of the proposed location of the hydrant booster assembly not being within sight of the Buildings main entrance and any other departures identified by the project fire services consultant.	The relevant Performance Requirements associated with the proposed Fire Engineered Performance Solutions: CP1, CP2, DP4, EP1.3 & EP2.2

Note: *The above performance solutions include Category 2 fire safety provisions and pursuant to Clause 144 of the EP&A Regulation 2000, formal fire engineering brief and report referrals to Fire & Rescue NSW may be require prior to the CC application stage.*