

BUILDING CODE OF AUSTRALIA 2016

FIRE SAFETY UPGRADE REPORT

THE LOCOMOTIVE WORKSHOP, AUSTRALIAN TECHNOLOGY PARK, EVELEIGH, NSW



Report prepared for:

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REVISION HISTORY

Revision No.	Prepared by	Description	Date
R01	Frank De Pasquale	Draft BCA Fire Safety Upgrade Report for review and comment	21/01/2017
R02	Frank De Pasquale	Final BCA Fire Safety Upgrade Report for SSDA Submission	12/09/2017
R03	Frank De Pasquale	Final BCA Fire Safety Upgrade Report for SSDA Submission incorporating Section 6 Conclusion	19/09/2017
R04	Frank De Pasquale	Final BCA Fire Safety Upgrade Report for SSDA Submission including Commercial and Retail Bays	19/10/2017

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1.0 SCOPE

1.1 Introduction

This report supports a State Significant Development Application (SSDA) submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Application (referred to as SSDA 8449) seeks approval for the adaptive reuse and redevelopment of the western portion of the Locomotive Workshop Building (being Bays 5-15 (Commercial use)) within Australian Technology Park (ATP), Eveleigh as described in the Project Description section of this report.

The Application (referred to as SSDA 8517) also seeks approval for the adaptive reuse and redevelopment of the eastern portion of the Locomotive Workshop Building (being Bays 1-4a (Retail use)) within the Australian Technology Park (ATP), Eveleigh as described in the Proposed Development Description section of this report.

This report is provided in accordance with the requirements of the SEARs and includes reference to BCA Clauses, Standards of Performance including relevant fire safety engineering required to support the proposed development.

1.2 Background

Historically, ATP was used for railway maintenance, storage and other associated industries. Use of the site as marshalling yards and workshops formed part of a large railway-based precinct on both sides of the main railway line, dating from 1882 and growing in size until its closure in 1989. Since this time, the precinct has been progressively redeveloped and repurposed.

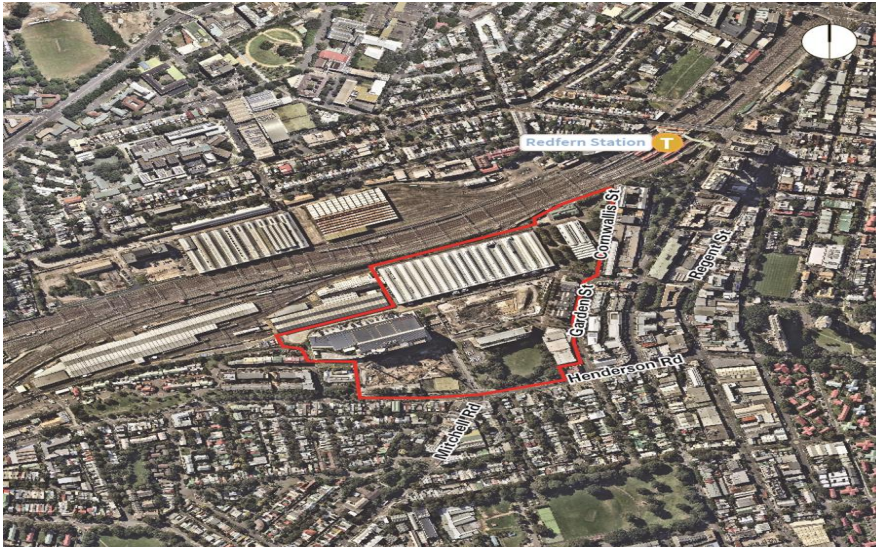
In 2014, the NSW Government resolved to offer development sites within the ATP for sale through a selective tender process conducted by Urban Growth NSW Development Corporation (UGDC). In November 2015 Mirvac Projects Pty Ltd (Mircvac) was named as the successful party and ownership and development rights of the precinct were subsequently transferred.

In December 2015, an SSDA was submitted to the Department of Planning & Environment for a multi-building redevelopment (i.e. Buildings 1, 2 and 3 shown in Figure 2) of the ATP to provide new commercial office, retail and community uses and a significant upgrade to the ATP public domain. Following public exhibition, and the submission of additional information, the development was approved by the Planning Assessment Commission on 20 December 2016. The construction of Buildings 1, 2 and 3 is currently underway.

The redevelopment of the Locomotive Workshop is also part of Mirvac's redevelopment strategy for the ATP. The Locomotive Workshop is to be redeveloped in its entirety, however planning approvals are sought through the submission of two separate SSDAs. This Application relates to the eastern portion encompasses the heritage Bays 1 and 2, the existing Blacksmith operation and Bays 3,4 and 4a. In conjunction with SSDA 8449 that relates to Bays 5-15, this Application is envisaged to be the next phase of urban regeneration within the ATP.

1.3 Site Location

The Locomotive Workshop is located within the Australian Technology Park (ATP), Eveleigh. The ATP precinct is located approximately 5km south of the Sydney CBD, 8km north of Sydney airport and within 200m of Redfern Railway Station and has an overall area of approximately 13.2 hectares. An aerial photograph of the ATP precinct is shown in Figure 1.



 The ATP Precinct

Figure 1 ATP Precinct

1.4 Proposed Development Description

This SSDA seeks approval for the following:

Bays 5-13 & Bay 15

- demolition of existing 'modern' infill fit-out elements to Bays 5-13 and 15;
- the adaptive reuse of the western portion of the Locomotive Workshop Building for 'commercial premises' uses including light industrial floorspace;
- construction of internal and external improvements to the Locomotive Workshop Building;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of the Building;
- provision of an external building illumination system;
- signage; and
- associated utilities and infrastructure.

Bays 1-4a

- demolition of existing 'modern' infill fit-out elements to Bays 3-4a, including display barriers in Bays 1 & 2;
- relocation of moveable heritage items;
- adaptive reuse of the Bays 1-4a and two annex structures for retail premises uses, function centre uses, information and education facility uses, general industrial uses, recreation facility (indoor) uses and associated back of house facilities;
- construction of internal and external alterations to Bays 1-4a;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of Bays 1-4a;
- provision of an external building illumination system;
- signage; and
- associated utilities and infrastructure.

1.5 Documentation

Philip Chun has inspected the building with respect to its compliance with the **fire safety provisions** contained within the Building Code of Australia 2016 (BCA). We have made every attempt to cover the issues under Parts B, C, D, E, F, and J of the BCA to bring to the attention of the client any areas of major regulatory concern. **A fire safety upgrade in accordance with Parts B, C, D, & E of the BCA is included in this report.**

The following drawings and documents have been assessed;

- The existing Annual Fire Safety Statements prepared by EnFact Pty Limited dated 01/12/2016 and Survitec Group dated 28/11/16.
- Architectural Drawing Numbers SA-AR-DWG-BB-B4-0200/H, 0202/H, 0203/F, 0210/H, 0211/H, 0212/H, 0214/H, 0220/H, 0221/G, 0225/H, 0226/G, 0230/I, 0231/H, 0232/D, 0234/H, 0240/H, 0245/H, 0250/G & 0261/F all dated 18th & 19th October 2017 as prepared by Sissons Architects.

1.6 Limitations and exclusions

The limitations and exclusions of this report are as follows.

This report is based upon a walkthrough site inspection of the building carried out in December 2016. This report identifies that the existing building is deficient with the deemed-to-satisfy provisions of the **BCA 2016** as noted in the body of this report.

Adequacy of the individual building services was not fully assessed and particular mention must be made to:

- Structural adequacy including the performance of the external walls has not been assessed. A separate report prepared by Arcadis Australia Pacific addresses structural requirements.
- Wet & dry fire including fire hydrant & hose reel coverage, pressures and flows – whilst a series of internal fire hose reels and internal & external fire hydrants are observed, some deficiencies are noted however all fire systems (excluding services in Bay 14) will be upgraded to comply with the current provisions of the BCA (BCA2016) - see comments provided in Section E of this report.
- The assessment of the existing mechanical systems in the building has not assessed, however all mechanical systems will be upgraded (excluding mechanical services in Bay 14) to comply with the current provisions of the BCA (BCA2016) - see comments provided in Section E & F of this report.
- Electrical services (excluding electrical services in Bay 14) will be upgraded to comply with the current provisions of the BCA (BCA2016) - see comments provided in Section E & F of this report.

1.7 Issue of building approvals and certifications

The issue of Building Approvals or Construction Certificates for the buildings does not totally guarantee the building's compliance to the current regulations. It should be noted that many buildings have variations to the BCA.

The issue of the buildings Annual Fire Safety Statement for the essential services also does not warrant the compliance of the systems or services but merely acknowledges that the services have been maintained relatively in accordance with an acceptable Australian Standard or Building Code at the time the building was constructed.

1.8 Future upgrade according to current legislation

The proposed Locomotive Workshop Building redevelopment proposes a **'change of use' and a major refurbishment that entails greater than 50% of the building volume and / or floor area**. Accordingly, the following legislation is to be considered.

1. Change of Use:

Environmental Planning and Assessment Regulation 2000– Clause 93 Fire safety considerations

(1) This clause applies to a development application for a change of building use for an existing building, where the applicant does not seek the rebuilding, alteration, enlargement or extension of a building.

(2) In determining the development application, the consent authority is to take into consideration whether the fire protection and structural capacity of the building will be appropriate to the building's proposed new use.

*(3) Consent to the change of building use sought by a development application to which this clause applies must not be granted unless **the consent authority** is satisfied that the building complies (or will, when completed, comply) with such of the Category 1 fire safety provisions as are applicable to the building's proposed new use. Note. The obligation to comply with the Category 1 fire safety provisions may require building work to be carried out even though none is proposed or required in relation to the relevant development consent.*

2. Major refurbishment:

Clause 94 of EPA Regulation 2000 - Consent authorities may require buildings to be upgraded

(1) This clause applies to a development application for development comprising the rebuilding, alteration, enlargement or extension of an existing building where:

(a) the proposed building work, together with any other building work completed or authorised within the previous 3 years, represents more than half the total volume of the building, as it was before any such work was commenced, measured over its roof and external walls, or

(b) the measures contained in the building are inadequate: (i) to protect persons using the building, and to facilitate their egress from the building, in the event of fire, or(ii) to restrict the spread of fire from the building to other buildings nearby.

*(2) In determining a development application to which this clause applies, **a consent authority** is to take into consideration whether it would be appropriate to require the existing building to be brought into total or partial conformity with the Building Code of Australia.*

(3) The matters prescribed by this clause are prescribed for the purposes of section 79C (1) (a) (iv) of the Act.

Based on the above Legislation this report will address a holistic BCA fire safety upgrade for the entire building excluding Bay 14 as Bay 14 is not the subject of any refurbishment works. The intent is to retain the existing long-term tenant occupying Bay 14 and fire separate the tenancy from the adjoining Bays ie from Bay 15 to the west and Bay 13 to the east.

2.0 BCA CLASSIFICATION AND BUILDING CHARACTERISTICS

The following Building Code of Australia Classifications and Type of Construction will apply as per the redevelopment: The effective height of the building is less than 25m. The building is deemed a large-isolated-building.

Ground & Level 1	Use	BCA Class	Rise in storeys	Type of Construction
Bays 1-4a	Retail, Blacksmith workshop & museum, event space, gym, library, medical suites	6 & 9b	2	Type B
Bays 5-13c	Commercial office	5	2	Type C
Bay 14	Offices, production studios, teaching facilities	5 & 9b	3 (existing)	Type A
Bay 15	Commercial office, EOT and ancillary plant	5 & ancillary 6	2	Type C

Table 1 – Rise in storeys and Type of Construction

3.0 FIRE SAFETY STRATEGY UPGRADE

The following fire safety strategy upgrade will be provided to the entire building with the exception of Bay 14. Bay 14 is excluded from any future upgrade as no new works are proposed with the existing Bay 14.

Section B – Structure			
Part B1 – Structural Provisions			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
B1.1 – Resistance to actions	The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions.	Refer structural engineers report.	Arcadis Australia Pacific to address structural requirements and confirm the buildings resistance to actions according to this clause. Any departures to this requirement to be addressed by Performance Solution according to BCA 2016.
B1.2 – Determination of individual actions	The magnitude of individual actions must be determined in accordance with the following; - Permanent actions - Imposed actions, - Wind, snow and ice and earthquake actions	It is unlikely the building was originally designed to take earthquake actions into consideration. Dispensation is sought from the Department with regards to earthquake strengthening based on heritage constraints should an upgrade be required.	Arcadis Australia Pacific to address structural requirements and confirm the buildings resistance to actions according to this clause. Any departures to this requirement to be addressed by Performance Solution according to BCA 2016.

Section C – Fire Resistance / Compartmentation / Separation			
Part C1 - Fire Resistance and Stability			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
C1.1 - Type of Construction required.	The building is required to be of Type A, B & C Construction as per Table 3, 4 & 5 of the BCA.	<i>It is unlikely the building was originally designed to comply with the requirements for Type A Construction as applicable to Bay 14 only.</i> Bays 1-4a, 5-13 & 15 will comply with the current provisions of the BCA subject to fire safety engineering.	<i>All new structure including the external walls to be upgraded to comply with Table 4 & 5 of the BCA (with the exception of Bay 14).</i> <i>A holistic approach will be adopted for the entire building whereby a reduction in Fire Resistance Levels i.e. 2-hrs in lieu of 3-hrs will be provided across the whole development as part of a fire engineered Performance Solution.</i>
C1.2 - Calculation of rise in storeys.	Sum of the greatest number of storeys at any point.	See table 1 above	See table 1 above
C1.3 - Buildings of multiple classifications.	In a building of multiple classifications, the Type of construction required for the building is the most fire-resisting Type unless the building is separated by fire walls.	<i>It is unlikely the building was originally designed to comply with the requirements for Type A Construction as applicable to Bay 14 only.</i>	<i>All new structure including the external walls to be upgraded to comply with Table 4 & 5 of the BCA (with the exception of Bay 14).</i> <i>A holistic approach will be adopted for the entire building whereby a reduction in Fire Resistance Levels i.e. 2-hrs in lieu of 3-hrs will be provided across the whole development as part of a fire engineered Performance Solution.</i>
C1.4 - Mixed types of construction.	A building may be of mixed Types of construction where it is separated in accordance with C2.7.	<i>It is unlikely the building was originally designed to comply with the requirements for Type A Construction as applicable to Bay 14 only.</i>	<i>All new structure including the external walls to be upgraded to comply with Table 4 & 5 of the BCA (with the exception of Bay 14).</i> <i>A 2 hour fire wall is to be constructed between the following Bays;</i> <i>• 4a & 5,</i> <i>• 13 & 14 and</i> <i>• 14 & 15.</i> <i>The 2-hour fire separation</i>

Section C – Fire Resistance / Compartmentation / Separation

Part C1 - Fire Resistance and Stability

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
			will provide separation between the different classifications and or Type of Construction. A holistic approach will be adopted for the entire building whereby a reduction in Fire Resistance Levels i.e. 2-hrs in lieu of 3-hrs will be provided across the whole development as part of a fire engineered Performance Solution.
C1.8 - Lightweight construction.	Lightweight construction must comply with Specification C1.8.	N/A	Nil - compliance achievable if lightweight construction proposed.
C1.10 - Fire Hazard Properties.	Floor coverings, wall and ceiling linings to all levels need to have a Critical radiant Flux of not less than 1.2 kW/m². Wall and ceiling linings must comply with the group number specified in Table 3. Air-handling ductwork must comply with AS4254 Parts 1 and 2. Other materials used in theatre or public hall must comply with the group number specified in Table 4.	N/A	Nil - compliance achievable for all new works.

Part C2 - Compartmentation and Separation

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
C2.2 - General floor area and volume limitations.	The following limitations apply according to the type of construction of the building (Type A Construction for this building). Class 5, 9b - max floor area -	Does not comply as the area of the building exceeds 5000m²/8000m² contrary to this clause.	Refer to Clause C2.3 & C2.4 below. A Performance Solution will be provided from a Fire Safety Engineer to meet Performance Requirement CP9 of the BCA.

Part C2 - Compartmentation and Separation			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	8000m² - max volume - 48000m³ Class 6, 7, 8 - max <i>floor area</i> - 5000m² - max volume - 30000m³		Fire Brigade referral is required in accordance with Clause 144 of the EP&A Reg 2000.
C2.3 - Large Isolated Buildings.	The size of a fire compartment in a building may exceed that specified in Table C2.2 where— (a) the building does not exceed 18 000 m² in floor area nor exceed 108 000 m³ in volume, if— (i) the building is Class 7 or 8 and— (A) contains not more than 2 storeys; and (B) is provided with open space complying with C2.4(a) not less than 18 m wide around the building; or (ii) the building is Class 5, 6, 7, 8 or 9 and is— (A) protected throughout with a sprinkler system complying with Specification E1.5; and (B) provided with a perimeter vehicular access complying with C2.4(b); or (b) N/A	Does not comply for the following reason; • Perimeter access is not provided around the entire building. There is no access for FRNSW Brigade vehicles around the western or northern sides of the building.	A Performance Solution will be provided from a Fire Safety Engineer to meet Performance Requirement of CP9 of the BCA. Fire Brigade referral is required in accordance with Clause 144 of the EP&A Reg 2000.
C2.4 - Requirements for open spaces and vehicular access.	(a) An open space required by C2.3 must— (i) be wholly within the allotment except that any road, river, or public place adjoining the allotment, but not the farthest 6 m of it may be included; and (ii) include vehicular	Does not comply for the following reason; • Perimeter access is not provided around the entire building. There is no access for FRNSW Brigade vehicles around the western or northern sides of the building.	A Performance Solution will be provided from a Fire Safety Engineer to meet Performance Requirement of CP9 of the BCA. Fire Brigade referral is required in accordance with Clause 144 of the EP&A Reg 2000.

Part C2 - Compartmentation and Separation			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	access in accordance with (b); and (iii) not be used for the storage or processing of materials; and (iv) not be built upon, except for guard houses and service structures (such as electricity substations and pump houses) which may encroach upon the width of the space if they do not unduly impede fire-fighting at any part of the perimeter of the allotment or unduly add to the risk of spread of fire to any building on an adjoining allotment. (b) Vehicular access required by this Part— (i) must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and (ii) must have a minimum unobstructed width of 6 m with no part of its furthest boundary more than 18 m from the building and in no part of the 6 m width be built upon or used for any purpose other than vehicular or pedestrian movement; and (iii) must provide reasonable pedestrian access from the vehicular access to the building; and (iv) must have a load bearing capacity and unobstructed height to permit the operation and passage of fire brigade vehicles; and (v) must be wholly within the allotment		

Part C2 - Compartmentation and Separation			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	except that a public road complying with (i), (ii), (iii) and (iv) may serve as the vehicular access or part thereof.		
C2.7 - Separation by fire walls.	Fire walls to be constructed in accordance with this clause.	<i>It is unlikely the building was originally designed to comply with the requirements for Type A Construction as applicable to Bay 14 only.</i>	<i>All new structure including the external walls to be upgraded to comply with Table 4 & 5 of the BCA (with the exception of Bay 14).</i> <i>A 2 hour fire wall is to be constructed between the following Bays;</i> <i>4a & 5,</i> <i>13 & 14 and</i> <i>14 & 15.</i> <i>The 2-hour fire separation will provide separation between the different classifications and or Type of Construction.</i> <i>A holistic approach will be adopted for the entire building whereby a reduction in Fire Resistance Levels i.e. 2-hrs in lieu of 3-hrs will be justified as part of a fire engineered Performance Solution.</i>
C2.8 - Separation of classifications in the same storey.	Fire walls need to separate different uses or to be built to the highest fire rated construction.	Note	Refer to Clause C2.7 above.
C2.9 - Separation of classifications in different storeys.	Floors to the building are required to provide the specified level of fire separation as per Table 3 of Specification C1.1 of the BCA.	Note	Refer to Clause C2.7 above.
C2.10 - Separation of lift shafts.	Lift shafts are to be fire rated where not part of an atrium in accordance with Specification C1.1 and where connecting more than 3 storeys in a sprinkler protected	Note	Building is protected with a sprinkler system and lift does not connect more than 3 levels hence complies.

Part C2 - Compartmentation and Separation			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	building.		
C2.12 - Separation of equipment.	Essential / emergency equipment including lift motor rooms, switch rooms, emergency generators, central smoke control plant, boilers or batteries are to be separated by fire rated construction with a fire resistance level as required by Specification C1.1 but not less than 120/120/120.	Note	Nil - compliance achievable for all new works.
C2.13 - Electricity supply system.	If the main switchboard supports any emergency equipment then it must be fire isolated with two-hour construction. Electricity substation to be separated by 120/120/120 construction. Where emergency equipment is required in a building, all switchboards in the electrical distribution system, which sustain the electricity supply to the emergency equipment, must provide full segregation by way of enclosed metal partitions designed to prevent the spread of any fault from non-emergency equipment switchgear to the emergency equipment switchgear. Emergency equipment includes; Fire hydrant booster pumps. (ii) Pumps for automatic sprinkler systems, water spray, chemical fluid suppression systems	External transformers are located external to the building however access within these rooms is required by the relevant Authorities.	Compliance achievable for all new works.

Part C2 - Compartmentation and Separation

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	or the like. (iii) Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building. (iv) Air handling systems designed to exhaust and control the spread of fire and smoke. (v) Emergency lifts.		

Part C3 - Protection of Openings

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
C3.2 - Protection of openings in external walls.	Openings within 3m of fire source feature i.e. the side or rear boundaries of the site will need to be protected or 6m from the far boundary of a road, river or lake or 6m from another building on the allotment.	All opening are setback greater than 3m hence complies.	Nil
C3.3 - Separation of external walls and associated openings in different fire compartments.	The part of an external wall of a different compartment if within certain distances and angles requires protection in accordance with C3.4.	Note	Compliance readily achievable.
C3.5 - Doorways in fire walls.	The aggregate width of openings for doorways in a fire wall, must not exceed $\frac{1}{2}$ of the length of the fire wall and each doorway must be protected by a single fire door which has an FRL of not less than that required by Specification C1.1 for the fire wall.	Note	Compliance readily achievable.
C3.6 - Sliding fire doors.	If a doorway in a fire wall is fitted with a sliding fire door which is open when the	N/A	Compliance readily achievable should a sliding door be proposed separating the different classification where

Part C3 - Protection of Openings			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	building is in use it must comply with the provisions outlined in (a) (i)-(iv) and (b) (i) & (ii).		fire walls are installed. .
C3.7 - Protection of doorways in horizontal exits.	A doorway that is part of a horizontal exit must be protected by a single fire door which has an FRL of not less than that required by Specification C1.1 for the fire wall except that the door must have an insulation level of at least 30.	N/A	Compliance readily achievable for all new works.
C3.8 - Openings in fire-isolated exits.	Self closing -/60/30 fire doors are required to each fire stair entry A window in an external wall of a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp must be protected in accordance with Clause C3.4 if it is within 6 m of, and exposed to, a window or other opening in a wall of the same building, other than in the same fire-isolated enclosure.	N/A	Not applicable as there are no fire stair in the building.
C3.9 - Service penetrations in fire-isolated exits.	Not permitted if not part of the emergency services of the stair. .	N/A	Not applicable as there are no fire stair in the building.
C3.10 - Openings in fire-isolated lift shafts.	If a lift shaft is required to be fire-isolated an entrance doorway to that shaft must be fire rated.	Not applicable see C2.10 above.	Note
C3.12 - Openings in floors and ceilings for services.	Where a service passes through a floor that is required to have an FRL with respect to integrity the service must be protected by a shaft complying with Specification C1.1 or in accordance with		

Part C3 - Protection of Openings			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	Clause C3.15.		
C3.13 - Openings in shafts.	In a building of Type A Construction all openings are to have tested FRL -/60/30 access panels or fire doors fitted. Garbage shaft hoppers can be of non-combustible construction.	Not applicable as Bay 14 does not contain any enclosed shafts.	N/A
C3.15 - Openings for service installations.	All penetrations must be fire sealed, fire rated or otherwise comply with listed standards.	Not applicable for Type B & C Construction as the floors are not required to be rated. Type A construction i.e. Bay 14 is assumed to have unrated floors hence does not comply.	Compliance readily achievable with the exception of Bay 14 as the floor is not fire rated.
C3.16 - Construction joints.	Must be protected in a manner identical with a prototype tested in accordance with AS1530.4.	N/A	Compliance readily achievable.
C3.17 – Columns protected with lightweight construction to achieve an FRL	A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire must be installed using a method and material identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the spread of fire.	<i>The existing columns throughout the building do not appear to be protected and hence would not achieve the required fire ratings for Type A or B Construction.</i> <i>As no new works are proposed in Bay 14, dispensation is sought from the need to upgrade any structure within this Bay other than the two fire walls separating the Bay from the adjoining parts.</i>	<i>New columns supporting any new floor will comply with Type B requirements noting Type C Construction has no requirement for internal columns.</i> <i>A holistic approach will be provided by the structural engineer subject to the recommendations in the fire safety engineering report.</i>

Section D – Access and Egress

Part D1 - Provisions for Escape

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
D1.2 - Number of exits required.	A minimum of one exit per storey is required in the building for Class 2-9, and two exits required from all basement levels.	Complies	-

Section D – Access and Egress			
Part D1 - Provisions for Escape			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	Class 9 buildings where more than 50 persons are accommodated will have two exits.		
D1.4 - Exit travel distances	The maximum distance of travel to an exit is 40m where two exits are available with a point of choice at 20m from the point of origin.	<i>Nil</i>	<i>Rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirements DP4 & EP2.2 of the BCA.</i>
D1.5 - Distance between alternative exits	The distance between alternative exits is not to exceed 60m. Paths shall not converge within 6m of each other at any point.	<i>Nil</i>	<i>Rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirements DP4 & EP2.2 of the BCA.</i>
D1.6 - Width of exits.	The unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than 1m wide.	<i>Nil</i>	<i>Rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirements DP4, DP6 & EP2.2 of the BCA.</i>
D1.7 - Travel via fire isolated exits.	Each fire-isolated stair must provide independent egress from each storey served and discharge directly by way of its own fire isolated passageway to a road or open space.	Not Applicable.	Not applicable as there are no fire stair in the building.
D1.9 - Travel from non fire isolated stairways.	A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. The total distance of travel shall not exceed 80m.	<i>Nil</i>	<i>Rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirements DP4 & EP2.2 of the BCA.</i>
D1.10 - Discharge from exits	An exit must not be blocked at the point of discharge and where	Note	Compliance readily achievable.

Section D – Access and Egress			
Part D1 - Provisions for Escape			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it.		
D1.11 - Horizontal exits	Horizontal exits must not comprise more than half of the required exits from any part of a storey.	Note	Compliance readily achievable.
D1.12 - Non-required stairways, ramps or escalators	An escalator or non-required non fire-isolated stairway or pedestrian ramp may connect any number of storeys.	Complies as only 3 storeys connected in a sprinkler protected building.	Note
D1.13 - Number of persons accommodated.	Provides a method of determining population of floors based upon deemed to satisfy occupancy rates per m ² relative to the use of the building or part.	Note	Based on D1.13 the following population may be supported throughout the building. These numbers are likely to drop once the design is finalized and space is allocated for commercial kitchens, BOH areas, etc. These numbers exclude Bay 14. Sub-total 6050 patrons and staff.
D1.16 - Plant rooms and lift motor rooms: Concession.	Where a plant room or lift motor room has a floor area of not more than 100m ² , a ladder may be used in lieu of a stairway from each point of egress from the room; or if more than 100m ² and not more than 200m ² , and where two or more points of egress are provided from the room, a ladder may be used in lieu of a stairway from all but one of those points. A ladder permitted above may form part of an exit provided that in the case of a fire-isolated stairway it is contained within the shaft; or may	Toe boards are required to each and every stairway providing access to existing plant rooms as per AS1657.	Recommend upgrade to all existing plant rooms. New works will comply.

Section D – Access and Egress

Part D1 - Provisions for Escape

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	discharge within a storey in which case it must be considered as forming part of the path of travel; and must comply with - AS 1657 for a plant room; and AS 1735.2 for a lift motor room.		

Part D2 - Construction of Exits

BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
D2.3 - Non-fire-isolated stairways and ramps.	In a building having a rise in storeys of more than 2, required stairs and ramps (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft , must be constructed according to D2.2 , or only of— (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m ³ at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.	Nil.	All new stairs will comply.
D2.7 - Installations in exits and paths of travel.	Electrical, gas meters & communications equipment is not permitted to be installed in fire stairs or paths to fire stairs or	<i>Some departures noted throughout</i>	<i>Full upgrade of EDB required.</i>

Part D2 - Construction of Exits			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	exits. Doors to electrical cupboards must be non-combustible and smoke sealed.		
D2.8 - Enclosure of space under stairs and ramps.	Enclosure under stairs or ramps not permitted unless provided with FRL not less than 60/60/60 and any access door fitted with a self-closing -/60/30 fire door.	Note	Compliance readily achievable.
D2.13 - Goings and Risers.	Treads to stairs must not be less than 250mm. Risers must not exceed 190mm in height.	Nil.	All new stairs will comply.
D2.14 - Landings.	Required to all stairs and must be 750mm long and non slip.	Nil.	All new stairs will comply.
D2.15 - Thresholds.	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf. A 190mm step is permitted at a balcony or a doorway that opens to road or open space.	Some doors open to the roof and have steps greater than 190mm or open to a plant room provided with a hob.	Seek to accept on the basis that the doors remain closed and are only accessible to maintenance staff hence no direct staff or public access. Install signage on either side of the door leaf stating CAUTION STEP AT DOOR or WATCH YOUR STEP.
D2.16 –Barriers to prevent falls.	Minimum height 1000mm measured from the finished floor covering as applicable. Openings are not to exceed 125mm (except in the case of wired balustrades which are to meet Table D2.16a). Rails in fire isolated stairways receive a concession in that the space between rails	Some departures noted throughout Bay 14, all other areas will comply with current requirements.	Compliance readily achievable for all new works.

Part D2 - Construction of Exits			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	must not be more than 460mm and the bottom rail must be provided at a height of not more than 150mm above the line of nosings. Where the drop exceeds 4m, there is to be no climbable elements between 150 & 760mm above finished floor covering.		
D2.17 - Handrails.	All stair flights and ramps require handrails for safe passage. Where not required for disabled access a handrail located not less than 865mm above the line of nosing is required A complying handrail must be provided on both sides of any accessible ramp and at least one side of all stairs and ramps including plant areas.	Some departures noted throughout Bay 14, all other areas will comply with current requirements.	Compliance readily achievable for all new works.
D2.18 - Fixed platforms, walkways, stairways and ladders.	Ladder and any going and riser, landing, handrail or barrier attached thereto may comply with AS1657 in lieu of D2.13, D2.14, D2.16 and D2.17 if it only serves machinery rooms, boiler houses, lift-motor rooms, plant-rooms.	Metal stair noted serving the external plant rooms and roof top plant however as per AS1657 the stair require a toe board at the bottom of the balustrade landing and throughout the stair flight.	Recommend a toe board is installed to all stairs leading to roof top plant or enclosed plant rooms –compliance achievable. 
D2.19 - Doorways and doors	Exits must not be fitted with roller shutter doors and any other special door types in certain circumstances unless the total floor area of the tenancy is less than 200m ² and the door is held open when the building is	All exit doors noted to comply	Note, compliance achievable for new works.

Part D2 - Construction of Exits			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	lawfully occupied.		
D2.20 - Swinging doors.	A swinging door in a required exit or forming part of a required exit must swing in the direction of egress unless it serves a building with a floor area not more than 200m ² .	Generally complies.	<i>Upgrade doors to comply throughout with the exception of Bay 14.</i>
D2.21 - Operation of latch.	Doors to have free handles from the side where exit is sought. Hardware to be located between 900mm and 1200mm above floor level; 900mm and 1100mm if door is accessible to people with disabilities	Generally complies.	<i>Full upgrade of all door hardware required throughout with the exception of Bay 14.</i>
D2.23 - Signs on doors.	Applicable to any horizontal exits ie "FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN"	Note	Note

Part D3 - Access for People with a Disability			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
D3.2 - Access to buildings	Access for people with a disability must meet the requirements of AS1428.1 and Table D3.1. The latter requires that access is provided to and within the entrance floor; and any other floor to which vertical access by way of a ramp, step ramp or kerb ramp complying with AS 1428.1 or a passenger lift is provided. External access to a building is required to be accessible, must be in accordance with this Part and AS 1428.1,	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.

Part D3 - Access for People with a Disability			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	and must be provided (i) from the main points of a pedestrian entry at the allotment boundary; and (ii) from another accessible building connected by a pedestrian link; and (iii) from any required accessible carparking space on the allotment. In a class 9b assembly building to wheelchair seating spaces provided in accordance with D3.9.		
D3.3 - Parts to be accessible	Access must be provided: - To every ramp and stairway - Access ways and - To areas normally used by the occupants, excluding areas exempt as per D3.4. - Every passenger lift must comply with E3.6	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.
D3.4 - Exemptions	The following areas are not required to be accessible: (a) An area where access would be inappropriate because of the particular purpose for which the area is used. (b) An area that would pose a health or safety risk for people with a disability. (c) Any path of travel providing access only to an area exempted by (a) or (b).	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.
D3.5 - Accessible carparking	Required for Class 5,7 8 or 9c building at a ratio of 1 space for every 100 carparking spaces or part thereof.	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with

Part D3 - Access for People with a Disability			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	Required for Class 6 building at a ratio of 1 space for every 50 carparking spaces or part thereof.		Part D3 of the BCA.
D3.6 - Identification of access	Signage required identifying access for the disabled to lift banks, entrances and sanitary facilities. Braille and tactile signage complying with AS 1428.1 is not installed to identify each common area sanitary facility (not just accessible).	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.
D3.7 - Hearing augmentation	(a) A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed— (i) in a room in a Class 9b building; or (ii) in an auditorium, conference room, meeting room or room for judicatory purposes; or (iii) at any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider. (d) Any screen or scoreboard associated with a Class 9b building and capable of displaying public announcements must be capable of supplementing any public address system, other than a public address system used for emergency warning purposes only.	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.

Part D3 - Access for People with a Disability			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
D3.8 - Tactile Indicators	Type B indicators complying with AS 1428.4 must be installed to warn vision impaired <i>public</i> as they approach a stair, escalator, traveller, a ramp, step ramp or kerb ramp. <i>In public and non-public area</i> , tactile indicators must be installed if an overhead obstruction <2m above floor (other than a doorway) and a path of travel meeting a vehicular way adjacent to a principal public entrance to a building if there is no kerb or kerb ramp at that point.	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.
D3.9 Wheelchair seating spaces in Class 9b assembly buildings	Required in accordance with D3.9 of the BCA.	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.
D3.11 - Ramps	On an accessway— (a) a series of connected ramps must not have a combined vertical rise of more than 3.6 m; and (b) a landing for a step ramp must not overlap a landing for another step ramp or ramp.	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.
D3.12 - Glazing on an access way	On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	Not assessed	Refer to report issued by MGAC including any recommendations contained within the report requiring compliance in accordance with Part D3 of the BCA.

Section E - Services and Equipment			
Part E1 - Fire Fighting Equipment			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
E1.3 - Fire Hydrants.	A fire hydrant system must be provided to the building (greater than 500m ²) and be installed in accordance with AS 2419.1-1994.	<i>The building is fitted with an older AS2419.1-1994 hydrant system with a booster located beside the Fire Control Room and hydrant points located in various locations throughout the building and external paths.</i> <i>The fire hydrant booster is located within the sprinkler valve room enclosure, and comprises twin boost inlets, with twin feed hydrants seemingly in the path outside. This appears to comply with AS2419.1-1994 figure 5.2.</i> <i>Various other departures are noted as expected with an older system.</i>	<i>Full upgrade of the hydrant system required to current AS2419.1-2005 requirements including Bay 14.</i> <i>Where compliance with AS2419.1-2005 is not possible rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirement EP1.3 of the BCA.</i> <i>Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.</i> .
E1.4 - Fire Hose Reels.	Where internal hydrants are provided or fire compartments exceed 500m ² fire hose reels must be provided.	<i>Hose Reels appear to have been installed in 1998.</i> <i>Various other departures are noted as expected with an older system.</i>	<i>Full upgrade of the hose reel system required to current AS2441-2005 requirements including Bay 14.</i> <i>Where compliance with AS2441-2005 is not possible rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirement EP1.1 of the BCA.</i> <i>Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.</i>
E1.5 - Sprinklers.	Required when a building has an effective height of 25m or more, in a carpark (other than an open deck carpark) if more than 40 vehicles are accommodated or if building deemed large	<i>The building is deemed "large isolated building" hence to address lack of perimeter access a full compliant sprinkler system is required throughout the building.</i> <i>The current sprinklers</i>	<i>Full upgrade of the sprinkler system required to current AS2118-1999 requirements including Bay 14.</i> <i>Where compliance with AS2118-1999 is not possible rely on a Performance Solution from a Fire Safety</i>

Section E - Services and Equipment			
Part E1 - Fire Fighting Equipment			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	isolated building	<i>system is not installed throughout all parts of the building contrary to AS2118.1-1999.</i>	<i>Engineer to meet Performance Requirement EP1.4 of the BCA.</i> <i>Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.</i>
E1.6 - Portable fire extinguishers.	Fire extinguishers must be provided to all locations which are deemed a potential risk to the occupants of the building, i.e. areas such as main switchboards Commercial kitchen require Class F extinguishers involving cooking oils and fats	<i>Some notable departures i.e. mounting heights are incorrect, signs are missing.</i>	<i>Full upgrade required to current AS2444-2001 requirements with the exception of Bay 14.</i>
E1.8 - Fire control centres	A fire control centre facility in accordance with Specification E1.8 must be provided for: (b) a Class 6, 7, 8 or 9 building with a total floor area of more than 18,000m ² .	Note	Final location to be confirmed, however compliance is achievable.
E1.9 - Fire precautions during construction.	In a building under construction compliance is required in accordance with Clause (a) and (b).	Not Applicable	Compliance achievable.-
E1.10 - Provision for special hazards.	Suitable additional provision must be made if special problems of fighting fire could arise because of— (a) the nature or quantity of materials stored, displayed or used in a building or on the allotment; or (b) the location of the building in relation to a water supply for fire-fighting purposes	Not Applicable	No special conditions arise unless triggered by fire safety engineer.

Part E2 - Smoke Hazard Management			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
E2.2 - Smoke Hazard Management.	A building must comply with (b), (c), (d) of E2.2. Large Isolated Building: In a class 5, 6, 7, 8 or 9 building which exceeds 18000m in floor area, the building must be provided with – If the ceiling height of the fire compartment is not more than 12 m - • An automatic smoke exhaust system in accordance with Specification E2.2b or • An automatic smoke-and-heat vents in accordance with Specification E2.2c or If the ceiling height of the fire compartment is more than 12 m - • An automatic smoke exhaust system in accordance with Specification E2.2b. Assembly Buildings including theatre and exhibition hall: In a class 9 building, the building must be provided with – • An automatic smoke exhaust system in accordance with Specification E2.2b or • Roof mounted automatic smoke-and-heat vents complying NSW H101.22 or and • A sprinkler system	<i>The existing system cannot be verified from a visual inspection and based on the change of use the existing system will be redundant therefore requiring compliance in full for the new works (excluding Bay 14).</i> <i>Bay 14 though is currently provided with a sprinkler system hence complies in part.</i>	<i>A holistic approach is to be provided for the entire building with the exception of Bay 14.</i> <i>This will be based on a combined natural and mechanical ventilation system as part of an engineered Performance Solution to meet Performance Requirement EP2.2 of the BCA.</i> <i>Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.</i>

	complying with Specification E1.5.		
E2.3 - Provision for special hazards.	Special protection required in special cases.	None foreseen.	-

Part E3 - Lift Installations			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
E3.2 - Stretcher facility in lifts.	A stretcher facility in accordance with (b) must be provided— (i) in at least one emergency lift required by E3.4; or (ii) where an emergency lift is not required, if passenger lifts are installed to serve any storey above an effective height of 12 m, in at least one of those lifts to serve each floor served by the lifts. (b) A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level.	Emergency lift is not required.	Note
E3.3 - Warning against use of lifts in fire.	A warning sign must be displayed where it can be readily seen near every call button for a passenger lift throughout a building; must comply with the details and dimensions of Figure E3.3 and consist of incised, inlaid or embossed letters on a metal, wood, plastic or similar plate securely and permanently attached to the wall.	Note	Compliance readily achievable.
E3.4 - Emergency lifts.	An emergency lift is required in buildings over 25m in effective	N/A	N/A

Part E3 - Lift Installations			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
	height and must be contained in a fire protective shaft and have certain minimum dimensions and a range of other requirements under this Part.		
E3.5 - Landings	Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Section D.	Note	Note
E3.6 - Passenger lifts.	In an accessible building, every passenger lift must— (a) be one of the types identified in Table E3.6a, subject to the limitations on use specified in the Table; and (b) have accessible features in accordance with Table E3.6b; and (c) not rely on a constant pressure device for its operation if the lift car is fully enclosed.	Not assessed	New lifts must comply. Refer to separate report from MGAC including any recommendations contained within the report.
E3.7 - Fire service controls.	Must be provided to all passenger lifts which serve a storey above an effective height of 12m.	Note	Note
E3.9 - Fire service recall operation switch	Each group of lifts must be provided with one fire service recall control switch required by E3.7 that activates the fire service recall operation.	Note	Note
E3.10 - Lift car fire service drive control switch	The lift car fire service drive control switch required by E3.7 must be activated from within the lift car as per this clause.	Note	Note

Part E4 – Visibility in an Emergency, Exit Signs and Warning Systems			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
E4.2 - Emergency Lighting.	Required throughout the building.	<i>Some departures noted throughout.</i>	<i>Full upgrade required to current AS2293.1-2005 requirements with the exception of Bay 14.</i>
E4.5 - Exit Signs.	Required throughout the building	<i>Exit signs were a mix of the word EXIT and new running man symbol. Illuminated and photoluminescent signs are installed.</i> <i>Some EXIT signs were installed above 2.7m AFFL and multiple glazed exit doors should be provided with multiple EXIT signs.</i>	<i>Full upgrade required to current AS2293.1-2005 requirements with the exception of Bay 14.</i>
E4.6 - Direction signs.	Required to assist occupants in the direction to an exit.	<i>Some departures noted throughout.</i>	<i>Full upgrade required to current AS2293.1-2005 requirements with the exception of Bay 14.</i>
E4.9 – Sound system and intercom systems for emergency purposes.	A sound system and intercom system for emergency purposes complying where applicable with AS 1670.4 must be installed— (a) In Class 9b used as a theatre, public hall or the like, having a floor area more than 1000m ² or rise in storey of more than 2.	<i>Some departures noted throughout.</i>	<i>Full upgrade required to current AS1670.4-2015 requirements with the exception of Bay 14.</i>

Section F – Health and Amenity			
Part F1 – Damp and Weatherproofing			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
F1.1 - Stormwater drainage	To comply with AS3500.3	Not assessed	Compliance readily achievable for all new works.
F1.4 - External above ground membranes	Waterproofing membranes for external above ground use must comply with AS4654 Parts 1 & 2.	Not assessed	Compliance readily achievable for all new works.

Section F – Health and Amenity			
Part F1 – Damp and Weatherproofing			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
F1.5 - Roof coverings.	Roof coverings need to comply with the appropriate Australian Standard.	Not assessed	Compliance readily achievable for all new works.
F1.6 - Sarking	Sarking-type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2.	Not assessed	Compliance readily achievable for all new works.
F1.7 - Water proofing of wet areas in buildings	All wet areas are to be appropriately sealed and units are to be provided with floor wastes.	Not assessed	Compliance readily achievable for all new works.
F1.9 - Damp-proofing	Moisture from the ground must be prevented from reaching the lowest floor timbers and the walls above the lowest floor joists, the walls above the damp-proof course and the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.	Not assessed	Compliance readily achievable for all new works.
F1.10 - Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870.	Not assessed	Compliance readily achievable for all new works.
F1.13 - Glazed assemblies	All glazing in the external walls of the building must be impervious to water penetration and comply with AS 2047.	Not assessed	Compliance readily achievable for all new works.

Part F2 – Sanitary and Other Facilities			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
F2.2 - Calculation of number of occupants and fixtures	Building occupants are to be assessed based on 50% male and 50% females or by any other method.	Note	Compliance readily achievable
F2.3 - Sanitary facilities in class 3 to 9 buildings	To be provided for the number of persons within the building.	Note	Compliance readily achievable. Facilities to be provided in accordance with Table D1.13 of the BCA or by any other suitable means of assessing the buildings capacity. TBC once the design develops.
F2.4 - Facilities for people with disabilities	Unisex facilities are required in the building 1 on every storey containing sanitary compartments; and where a storey has more than 1 bank of sanitary compartments containing male and female sanitary compartments, at not less than 50% of those banks.	Some existing facilities do not comply due to room configuration.	Upgrade of facilities required. Refer to report issued by MGAC including any recommendations contained within the report.
F2.5 - Construction of Sanitary compartments	Doors to fully enclosed sanitary compartments to open outwards, or slide or have 1.2m clear space between door and closet plan.	None observed	Compliance achievable for all new facilities.

Part F3 – Room Heights			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
F3.1 - Height of rooms	Class 5, 6, 7, 8 building - minimum ceiling height required is to be 2.4m Class 9b building - minimum ceiling height required is to be 2.7m	Note	Compliance achievable.

Part F4 – Light and Ventilation			
BCA Clause	Requirement	Existing Building Non-Compliance	Recommendation and Strategy for upgrade
F4.4 - Artificial lighting	All areas not covered by natural light to be artificially lit in accordance with AS/NZS 1680.0-2009.	Note	Compliance achievable.
F4.5 - Ventilation of rooms	Required to AS 1668.2 where natural ventilation is not available.	Note	Compliance achievable.
F4.6 - Natural ventilation	Openings to habitable rooms to be not less than 5% of the floor areas of the rooms to be served.	Note	Compliance achievable.
F4.8 - Restriction on position of water closets and urinals	A room containing a closet pan or urinal must not open directly i) in to a dormitory in a class 3 ii) a kitchen or pantry, iii) a public dining room or restaurant .	Note	Compliance achievable.
F4.9 - Airlocks	Sanitary facilities are to be mechanically exhausted or provided with an airlock.	Note	Compliance achievable.
F4.12 - Kitchen local exhaust ventilation	All commercial kitchens must be provided with a kitchen exhaust hood that complies with AS 1668 Parts 1 and 2.	Note	Compliance achievable.

Section J – Energy Efficiency
Parts J1 – J8
BCA Parts J1 – J8
Compliance with Clause J1 to J8 is required for any new commercial/industrial building however as this is an existing building it is unlikely to comply with the requirements of Part J of the BCA. Accordingly and as part of the BCA upgrade it is highly recommended at a JV3 report be developed to address requirements of Part J of the BCA. The report will need to take into consideration the existing heritage fabric which cannot be altered hence the preferred option for a JV3 report.

4.0 EXISTING AND PROPOSED ESSENTIAL FIRE SAFETY MEASURES

The buildings essential services under current NSW laws need to be inspected under a method of certification on a yearly basis.

A schedule of the building's existing essential measures as prepared by EnFact Pty Limited dated 01/12/2016 and Survitec Group dated 28/11/16 is provided in Appendix A.

As the building will undergo a major refurbishment the schedule for the building and future AFSS will be altered. A new schedule will be developed after issue of a Construction Certificate for the building and the schedule will include any additional fire safety engineering as identified in the body of this report. The schedule will also identify the Standards of Performance for all the essential services.

5.0 SUMMARY OF RECOMMENDED FIRE SAFETY UPGRADE WORKS

The below table summarises the fire safety upgrade recommended for the building.

BCA clause	Recommendation and Strategy for upgrade	Proposed SSDA Condition
Part B – Structural Provisions	Arcadis Australia Pacific to address structural requirements and confirm the buildings resistance to actions according to this clause. Any departures to this requirement to be addressed by a Performance Solution in accordance with BCA 2016.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Structural provisions - Part B1 (with the exception that the building does not need to be upgraded to comply with earthquake provisions as noted in Part B1 of the BCA).
C1.1 - Type of Construction required C1.3 - Buildings of multiple classifications. C1.4 - Mixed types of construction. C2.7 - Separation by fire walls. C2.8 - Separation of classifications in the same storey. C2.9 - Separation of classifications in different storeys. C3.17 – Columns protected with lightweight construction	All new structure including the external walls is to be upgraded to comply with Table 4 & 5 of the BCA (with the exception of Bay 14). A holistic approach will be adopted for the entire building whereby a reduction in Fire Resistance Levels i.e. 2-hrs in lieu of 3-hrs will be justified as part of a fire engineered Performance Solution.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Fire resistance and stability - Part C1; Compartmentation and separation - Part C2; Protection of openings - Part C3. (with the exception of Bay 14).

BCA clause	Recommendation and Strategy for upgrade	Proposed SSDA Condition
to achieve an FRL.		
C2.2 General floor area and volume limitations C2.3 Large Isolated Buildings C2.4 Requirements for open spaces and vehicular access	The building exceeds the area and volume requirements of Table C2.2 of the BCA and does not comply with the requirements for a “large isolated building” as; Perimeter access is not provided around the entire building. There is no access for FRNSW Brigade vehicles around the western or northern sides of the building. Rely on an alternative solution from a Fire Safety Engineer to meet Performance Requirement CP9 of the BCA. Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Compartmentation and separation - Part C2.
D1.4 - Exit travel distances D1.5 – Distance between alternate exits D1.6 - Width of exits. D1.9 - Travel from non fire isolated stairways	Rely on a Performance solution from a Fire Safety Engineer to meet Performance Requirements DP4, DP6 & EP2.2 of the BCA.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Provision for escape (access and egress) - Part D1.
D2.7 - Installations in exits and paths of travel	EDB cupboards to be smoke-sealed to prevent the spillage of smoke into the required egress pathways and or exits.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Construction of exits - Part D2.
D2.16 - Barriers to prevent falls D2.17 - Handrails D2.18 - Fixed Stairways	Balustrades, handrails and fixed stairways require some modifications and or rectifications to ensure compliance with BCA.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Construction of exits - Part D2.
Part D3	Refer to MGAC access report including any recommendations to ensure compliance.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including:

BCA clause	Recommendation and Strategy for upgrade	Proposed SSDA Condition
		Access for people with disabilities - Part D3.
E1.3 - Fire Hydrants.	Full upgrade required to current AS2419.1-2005 requirements including Bay 14. Where compliance with AS2419.1-2005 is not possible rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirement EP1.3 of the BCA. Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Fire fighting equipment - Part E1.
E1.4 Fire Hose Reels	Full upgrade required to current AS2441-2005 requirements including Bay 14. Where compliance with AS2441-2005 is not possible rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirement EP1.1 of the BCA. Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Fire fighting equipment - Part E1.
E1.5 Sprinklers	Full upgrade required to current AS2118-1999 requirements including Bay 14. Where compliance with AS2118-1999 is not possible rely on a Performance Solution from a Fire Safety Engineer to meet Performance Requirement EP1.4 of the BCA. Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Fire fighting equipment - Part E1.
E1.6 Portable fire extinguishers	Full upgrade required to current AS2444-2001 requirements including Bay 14.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Fire fighting equipment - Part E1.
E2.2 - Smoke Hazard Management	A holistic approach is to be provided for the entire building with the exception of Bay 14. This will be based on a combined natural	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of

BCA clause	Recommendation and Strategy for upgrade	Proposed SSDA Condition
	and mechanical ventilation system as part of an engineered Performance Solution to meet Performance Requirement EP2.2 of the BCA. Fire Brigade referral will be required in accordance with Clause 144 of the EP&A Reg 2000.	Australia (BCA) including: Smoke hazard management - Part E2.
E4.2 - Emergency Lighting	Full upgrade required to current AS2293.1-2005 requirements with the exception of Bay 14.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Emergency lighting, exit signs and warning systems - Part E4.
E4.5 & E4.6 - Exit Signs including Directional Exits.	Full upgrade required to current AS2293.1-2005 requirements with the exception of Bay 14.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Emergency lighting, exit signs and warning systems - Part E4.
E4.9 – Sound system and intercom systems for emergency purposes.	Full upgrade required to current AS1670.4-2015 requirements with the exception of Bay 14.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Emergency lighting, exit signs and warning systems - Part E4.
Section J – Energy Efficiency	Partial upgrade required – refer Part JV3 report.	Pursuant to Clause 94 of the Environmental Planning and Assessment Regulation 2000, Bays 1-13 and Bay 15 must comply with the Building Code of Australia (BCA) including: Part J (noting though that Part J will be addressed in the submission of a JV3 report and analysis for the building excluding Bay 14)

6.0 CONCLUSION

We have assessed the drawings with respect to the Building Code of Australia 2016. We are confident that the development is capable of meeting a combination of the Deemed-to-Satisfy and Performance Requirements of the Building Code of Australia 2016.

Appendix A – Existing Annual Fire Safety Statements

Appendix B – Architectural Drawings issued by Sissons Architects dated 18th & 19th October 2017