



Suite 3.04, 55 Miller Street Pyrmont NSW 2009

Phone: 02 9571 8433

Fax: 02 9571 8466

admin@aedconsulting.com.au

www.aedconsulting.com.au

BCA COMPLIANCE ASSESSMENT REPORT

Proposed Student Accommodation

Urbanest – The Haymarket, Sydney

DATE ► 10 MAY 2013

PREPARED FOR ► LEND LEASE PTY LTD

REPORT No. ► 4357– REV 2

PREPARED BY ► AE&D

C O N T E N T S

Executive Summary and Recommendations 3

1.0 Introduction 6

2.0 BCA Assessment Data 10

3.0 BCA Assessment Summary 12

4.0 Conclusion 32

Attachment A – Requirements for Type A Construction 33

REVISION STATUS			
REVISION	DATE	STATUS	WRITTEN
4357 Rev 0	17.4.13	DRAFT BCA REPORT ISSUED TO CLIENT	JS
4357 Rev 1	3.5.13	PRE-FINAL BCA REPORT ISSUED TO CLIENT	JS
4357 Rev 2	10.5.13	FINAL BCA REPORT ISSUED TO CLIENT	JS

COMMERCIAL IN CONFIDENCE
This document contains confidential material that is intended solely for the client commissioning AE&D to prepare this report. The client, project team and all regulatory authorities shall exercise precautionary measures to ensure that the information contained herein is not to be accessed by any third party. AE&D will take no responsibility for the use of any

information contained within this report by any third party, unless AE&D's permission is requested and provided in writing.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

This report provides a Building Code of Australia 2013 (BCA) compliance assessment of the proposed student accommodation building, to be located at The Haymarket.

The primary purpose of this report is to identify the compliance status of the proposed design against the current Deemed-to-Satisfy (DTS) Provisions of the BCA and to provide comment regarding the use of alternative solutions where proposed by the fire engineers.

The following is a list of Deemed-to-Satisfy Provisions that have been indicated as being addressed via an Alternative Solution, with the remaining BCA clauses being addressed via either compliance with the deemed to satisfy provisions of the BCA or a fire engineered solution:

BCA Clause	Deemed-to-Satisfy Provision to be addressed
C1.1 Type of construction required	<p>The design proposes to utilise a performance based solution to modify the rating of the walls to SOU's within cluster apartments to a smoke rating, in lieu of a fire rating, based on sprinkler protection.</p> <p>Fire and Rescue NSW will be required to provide comment in written format, prior to the issue of the Construction Certificate, in respect to their approval of this proposal.</p>
C3.2 Protection of openings in external walls	<p>The plans indicate that the building is less than 3-metres from the boundary to the west, as such the fire engineers have indicated they propose to utilise a performance based solution to address the need to protect openings within the façade closer than 3-metres to the west boundary, this is due to the area adjacent being used for light rail.</p>
C3.11 Bounding construction: Class 2, 3 and 4 buildings	<p>Within the residential component of the building (levels 1 and above), the doorways between sole-occupancy units/common areas (e.g. gym, TV room, stores, laundry, etc) and the public corridors are required to be protected by self or auto-closing -/60/30 fire doors, with the exception of the following:</p> <ul style="list-style-type: none"> Doors to the bedrooms located within the cluster apartments are proposed to be provided with life safety doors as part of a performance based solution. Doors to the kitchens within the cluster apartments are to be provided with -/30/30 fire rated life safety doors, as part of a performance based solution. <p>The above performance based solutions are to be approved by Fire and Rescue NSW, prior to the issue of the Construction Certificate.</p>
D1.4 Exit travel distances	<p>A review of the travel distances has indicated that there are extended travel distances proposed within the current design.</p> <ul style="list-style-type: none"> The current maximum travel distances noted from the SOU's to the exit/point of choice, is to be approximately 16-metres. The travel distances from common areas to the exit/point of choice, is to be approximately 27-metres. The fire engineers for the project have confirmed that these can be addressed via a performance based solution. This will need to be formalised within a fire engineering report prior to the issue of the Construction Certificate. FRNSW approval will be also be required prior to the issue of the Construction Certificate.
E1.4 Fire hose reels	<p>A fire hose reel system must be provided throughout the building in accordance with E1.4 and AS 2441-2005. Fire hose reels are to be located internally within 4m of an exit. The fire hose reel on level 1, south, is to be relocated to comply, prior to the issue of the Construction Certificate.</p>
E1.8 Fire control centres	<p>A door is required direct to open space as well as to a fire passage, currently the</p>

BCA Clause	Deemed-to-Satisfy Provision to be addressed
	design only has a single door. Clause E1.8(8) needs to be complied with, details to be provided prior to the issue of the Construction Certificate.
E2.2 General requirements	The Class 5 office level would require a zone smoke control system under the deemed to satisfy provisions of the BCA. Alternatively this would be required to be addressed via a performance based solution.
F4.2 Methods and extent of natural lighting	We note that the boundary is within close proximity to the western side of the building. The issue with this is that the BCA requires a light easement to allow for natural lighting to be provided to the bedrooms, with windows required to be a minimum of 3-metres from the side boundary. The client proposed to use a performance based solution to address this issue due to the adjacent land being used only for light rail, with the performance based solution report to be provided prior to the issue of the Construction Certificate.

1.0 Introduction

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

The Application (referred to as SSDA 3) follows the submission of a staged SSD DA (SSDA 2) submitted in March 2013 to the Department of Planning and Infrastructure that set out a Concept Proposal for a new mixed use neighbourhood at Darling Harbour known as 'The Haymarket'. The Haymarket forms part of the Sydney international convention, exhibition and entertainment precinct (SICEEP) Project, which will deliver Australia's global city with new world class convention, exhibition and entertainment facilities and support the NSW Government's goal to "make NSW number one again".

More specifically this subsequent DA seeks approval for a residential building (student accommodation) within the Western development plot (Darling Drive) of The Haymarket and associated public domain works. The DA has been prepared and structured to be consistent with the Concept Proposal DA.

Overview of Proposed Development

The proposal relates to a detailed ('Stage 2') DA for a residential building (student accommodation) in the Darling Drive Plot of The Haymarket together with associated public domain works. The Haymarket Site is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and open space. The Darling Drive Plot is one of six development plots identified in the Concept Proposal DA.

More specifically, this SSD DA seeks approval for the following components of the development:

- Demolition of existing site improvements;
- Associated tree removal and planting;
- Construction and use of one residential building within the Darling Drive Plot, to be used for student accommodation purposes;
- Public domain improvements, including:
 - Realignment and upgrade of Darling Drive (part); and
 - provision of a new urban square (known as Macarthur Place) located at the termination of The Goods Line.
- Extension, realignment and augmentation of physical infrastructure / utilities as required.

Background

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the Department of Planning and Infrastructure. The key components of these proposals are outlined below.

Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades.

The Haymarket Concept Proposal (SSD 13_5878)

The Haymarket Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Haymarket Site.

More specifically the Stage 1 Concept Proposal seeks approval for the following key components and development parameters:

- Staged demolition of existing site improvements, including the existing Sydney Entertainment Centre (SEC), Entertainment Centre Car Park, and part of the pedestrian footbridge connected to the Entertainment car park and associated tree removal;
- A network of streets, lanes, open space areas and through-site links generally as shown on the Public Domain Concept Proposal, to facilitate reintegration of the site into the wider urban context and connection with the broader SICEEP Site;
- Street layouts;
- Development plot sizes, development plot separation, building envelopes (maximum height in RLs), building separation, building depths, building alignments and a benchmark for natural ventilation and solar provision for the precinct;
- Land uses across the site, including residential and non-residential uses;
- A maximum total gross floor area (GFA) across The Haymarket Site of 197,236m² for the mixed use development (excluding ancillary above ground car parking), comprising of:
 - A maximum of 49,545m² non-residential GFA; and
 - A maximum of 147,691m² residential GFA;
- Above ground parking including public car parking;
- Residential car parking rates to be utilised in the subsequent detailed (Stage 2) Development Applications, being:
 - Zero (0) spaces per studio apartment;
 - Maximum one (1) space per two (2) one bedroom apartments;
 - Maximum one (1) space per one bedroom + study apartment, plus one (1) additional space per five (5) apartments;
 - Maximum one (1) space per two bedroom apartment, plus one (1) additional space per five (5) apartments; and
 - Maximum two (2) spaces per 3+ bedroom apartment.
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

This report has been prepared to support a detailed Stage 2 SSD DA for a residential building (student accommodation) and associated public domain works within The Haymarket (SSDA 3), consistent with the Concept Proposal SSD DA.

Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the Light Rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to **Figure 1**).

The Haymarket Site is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;

- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 43,807m².



Figure 1 – Aerial Photograph of the SICEEP Site

The Concept Proposal DA provides for six (6) separate development plots across the Haymarket Site (refer to **Figure 2**):

1. North Plot;
2. North East Plot;
3. South East Plot;

- 4. South West Plot;
- 5. North West Plot; and
- 6. Western Plot (Darling Drive).



- 1 North Plot
- 2 North-East Plot
- 3 South-East Plot
- 4 South-West Plot
- 5 North-West Plot
- 6 Western Plot (Darling Drive)

Figure 2 – Concept Proposal Development Plots

The Application Site area relates to the southern portion of the Western Plot and surrounds as detailed within the architectural and landscape plans submitted in support of the DA (see **Figure 3 – Works Boundary for subject DA**).



Figure 3 – Works Boundary for subject DA

Planning Approvals Strategy

The SICEEP Project will result in the lodgement of numerous SSD DAs for the various components of the redevelopment project. SSD DAs have already been lodged for the PPP component of the SICEEP Project (comprising the convention centre, exhibition centre, entertainment facility and ancillary commercial premises and associated public domain upgrades), and the Stage 1 Concept Proposal for The Haymarket. Separate 'Stage 2' SSD DAs for the development of the South West Plot and the North West Plot and associated public domain works will be lodged concurrently with this application. Future applications will be lodged for the Hotel complex, and the remaining development plots of The Haymarket Site.

1.1 Basis of Report

This report is based on a desktop assessment of the proposed plans, with specific reference to the following:

- Architectural plans issued by Allen Jack and Cottier Architects, as follows:
 - Drawing No. AR1001 Rev 4- Site Plan, dated 30/04/13.
 - Drawing No. AR2100 Rev 5- Ground Floor Plan, dated 30/04/13.
 - Drawing No. AR2101 Rev 4- Level 1 Plan, dated 30/04/13.
 - Drawing No. AR2102 Rev 4- Level 2 & 3-Typical Plan, dated 30/04/13.
 - Drawing No. AR2103 Rev 3-Level 11 & 12- Typical Plan, dated 30/04/13.
 - Drawing No. AR2104 Rev 2- Roof Plans, dated 30/04/13.
 - Drawing No. AR3100 Rev 4- East Elevation, dated 30/04/13.
 - Drawing No. AR3101 Rev 4- West Elevation, dated 30/04/13.
 - Drawing No. AR3102 Rev 4-North and South Elevations, dated 30/04/13.
 - Drawing No. AR3200 Rev 4- Section 1, dated 30/04/13.
 - Drawing No. AR3201 Rev 4- Section 2, dated 30/04/13.
 - Drawing No. AR5100 Rev 4- Typical Studio Layout & Level 1 Twin Studio, dated 30/04/13.
 - Drawing No. AR5101 Rev 3- Typical Twin Studio Layout, dated 30/04/13.
 - Drawing No. AR5102 Rev 4- Typical 4 Bed Cluster Apartment Layout (Accessible), dated 30/04/13.
 - Drawing No. AR5103 Rev 3- Typical 5 Bed Cluster Apartment Layout, dated 30/04/13.
 - Drawing No. AR5104 Rev 3- Typical 8 Bed Unit Layout, dated 30/04/13.
- The Building Code of Australia 2013 (BCA) prepared by the Australian Building Codes Board; and
- The Guide to the BCA 2013, prepared by the Australian Building Codes Board.

1.2 Purpose of the Report

The purpose of this report is to:

- Provide a Building Code of Australia (BCA) assessment of the proposed development against the Deemed-to-Satisfy (DTS) Provisions of the BCA 2013 with specific regard to Section C (Fire Resistance), Section D (Access and Egress), Section E (Services and Equipment), Section F (Health and Amenity), and Section J (Energy Efficiency) of the BCA 2013; and
- To identify the DTS non-compliances with the BCA 2013 that could affect the proposed development; and
- Make compliance recommendations to assist with addressing the identified DTS non-compliances with the BCA 2013, **OR** suggesting issues where alternative solutions could be used to demonstrate compliance with the relevant Performance Requirements of the BCA.

1.3 Limitations of the Report

This report excludes any works not outlined above, however specifically excludes the following:

- Reporting on hazardous materials, OH&S matters or site contamination;
- Assessment of any structural elements or geotechnical matters relating to the building, including any structural or other assessment of the existing fire resistance levels of the building **OR** assessment of plumbing and drainage installations, including stormwater;
- Consideration of any fire services operations (including hydraulic, electrical or other systems);
- Assessment of plumbing and drainage installations, including stormwater;
- Assessment of mechanical plant operations, electrical systems or security systems;
- Consideration of energy or water authority requirements;
- Consideration of Council's local planning policies;
- Environmental or planning issues;
- Requirements of statutory authorities;
- Glazing, shading, lighting calculations and the like required by Section J of the BCA have not been carried out. An energy efficiency consultant is to review and advise on Section J compliance.

2.0 BCA ASSESSMENT DATA

The following data is provided in respect to review of the building under the Building Code of Australia 2013 (BCA) in respect to the compliance assessment of the proposed student accommodation, to be located at The Haymarket, Sydney.

BCA Building Classifications:	3 (residential accommodation). 5 (office, including display suites – ground floor)
Number of storeys contained:	twenty one (21)
Building rise in storeys:	twenty (20) (determined in accordance with C1.2 of the BCA).
Type of Construction:	A (determined in accordance with C1.1 of the BCA).
General Floor area limitations:	The building does not have a compartment exceeding that allowed for in the BCA. Building will comply.
Effective Height:	57.30 metres

3.0 BCA ASSESSMENT SUMMARY

The following table details the BCA compliance of the proposed design:

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
SECTION B: STRUCTURE					
Part B1: Structural Provisions					
				X	<ul style="list-style-type: none"> Consulting structural engineer to provide structural drawings/details and accompanying structural design certificate to demonstrate that all building elements will comply with Section B of the BCA. Termite protection to be provided as per AS 3660.1 or confirmation that no primary building elements are to be of timber. All glazing to comply with AS 1288- 2006 and AS 2047- 1999.
SECTION C: FIRE RESISTANCE					
Part C1: Fire Resistance & Stability					
C1.1					
Type of construction required				X	<ul style="list-style-type: none"> The design proposes to utilise a performance based solution to modify the rating of the walls to SOU's within cluster apartments to a smoke rating, in lieu of a fire rating, based on sprinkler protection. <p>Fire and Rescue NSW will be required to provide comment in written format, prior to the issue of the Construction Certificate, in respect to their approval of this proposal.</p> <ul style="list-style-type: none"> Refer to Spec C1.1 and Attachment B for Schedule of FRLs for Type A Construction. These are to be certified by the architect and structural engineer as having been met, based on the proposed design. <p>Please note that specification C1.1 also requires design compliance with the following:</p> <ol style="list-style-type: none"> Where a combustible material is used as a finish or lining to a wall or roof, or sunscreen, or awning, to a building element required to have an FRL the material must be exempted or comply with the fire hazard properties prescribed under C1.10 and must not otherwise constitute an undue risk of fire spread via the façade of the building or compromise egress from the building. This includes any aluminum panels which where containing plastic strengthening elements would not be non-combustible. Fire isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction as per specification C1.1. This fire rating is required in two directions. External walls, common walls and the flooring and floor framing of lift pits must be non- combustible construction. This includes any aluminum cladding

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
					<p>which is integral to an external wall. It should be noted that some cladding fails the test for combustibility due to plastics within the cladding, as such further details of such cladding should be provided to AE and D for review.</p> <ol style="list-style-type: none"> 4. Internal lightweight walls to be fire rated, as well as non-load bearing lift, ventilating, pipe, garbage or similar shaft wall must be of non-combustible construction. 5. Bounding walls of SOU's and common room walls within the class 3 part of the building are to be fire rated to be compliant with table 3 of the BCA. This includes walls to rooms such as the gym, TV room, stores, laundry, kitchen, etc. 6. Where the garbage room is deemed as the base of the shaft, it should be two hour fire separated from the remainder of the building. 7. The walls to fire rated shafts must achieve the fire rating from both directions i.e. from inside and outside the shaft. 8. The lintels within any walls required to be fire rated must achieve the same fire rating as the walls within which they are located. This is not applicable if the opening is less than 3m wide and the masonry is non-load bearing or less than 1.8m wide if the masonry is loadbearing. 9. Roof: The roof of the building does not need an FRL, provided the roof covering is non-combustible (as per the concession in Clause 3.5 of Specification C1.1 of the BCA). 10. Floors: Floors require an FRL of 90/90/90 within the residential areas and 120/120/120 between the class 5 ground floor and level 1 residential.
C1.2 Calculation of rise in storeys			X		The building will have a rise in storeys of twenty.
C1.3 Buildings of multiple classifications			X		Noted. Informational clause only.
C1.4 Mixed types of construction			X		The building will be Type A construction only.
C1.5 Two storey Class 2, 3 or 9c buildings			X		Not applicable. This clause cannot be applied to the subject building, contains more than 2 storeys.
C1.6 Class 4 parts of buildings			X		Not applicable. There are no Class 4 parts proposed.
C1.7 Open spectator stands and indoor sports			X		Not applicable. There are no open spectator stands or indoor sports stadiums proposed.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
stadiums					
C1.8 Lightweight construction				X	If lightweight construction is used to achieve a FRL, such as enclosing structural steel elements in fire rated plasterboard, it must comply with Specification C1.8.
C1.9 -			X		Clause deleted.
C1.10 Fire Hazard Properties				X	Fire hazard properties of all new materials must comply with BCA Clause C1.10. Specifically, all new floor materials, floor coverings, wall and ceiling lining materials must comply with Specification C1.10 of the BCA and all new materials/assemblies must comply with Specification C1.10 of the BCA except where an exemption from these requirements is provided for in BCA Clause C1.10.
NSW C1.10 (b) Fire Hazard Properties			X		There are no entertainment venue parts proposed.
C1.11 Performance of external walls in fire			X		Not applicable.
C1.12 Non-combustible materials			X		Noted - Noted. Informational clause only.
Part C2: Compartmentation & Separation					
C2.2 General floor area and volume limitations	X				Fire compartments will comply.
C2.3 Large isolated buildings			X		Not applicable. The building is not a 'Large Isolated Building'.
C2.4 Requirements for open spaces and vehicular access			X		Not applicable. The building is not a 'Large Isolated Building'.
C2.5 Class 9a & 9c buildings			X		Not applicable. There are no Class 9a or 9c parts proposed.
C2.6 Vertical separation of openings in external walls			X		Not applicable, as the building will be sprinkler protected throughout.
C2.7 Separation by fire walls				X	The fire walls separating the building are required to comply with this clause. See clause C2.8 below also.
C2.8 Separation of classifications in the same storey				X	Fire wall separation is required between the different classes of the building. The walls to the north and west edges of the void space (level 1) are walls separating the class 5 ground floor from the class 3 first floor. As such the walls are either required to be two hour fire rated, or addressed via a performance based solution if glazing is proposed.
C2.9 Separation of classifications in different storeys			X		See comments in specification C1.1 above regarding separation of the floors via fire rated construction.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
C2.10 Separation of lifts shafts				X	The lift shafts are required to be fire rated in accordance with table 3 of specification C1.1.
C2.11 Stairways and lifts in one shaft	X				Lifts and stairways are not proposed to be in the same shaft. Building will comply.
C2.12 Separation of equipment				X	Should lift motor room/s be provided, they will require separating construction between the lift shaft and the lift motor room with an FRL of 120/-/- and the lift motor room doors be self-closing fire doors with an FRL of -/120/30.
C2.13 Electricity supply system				X	<ul style="list-style-type: none"> The substation is required to be two hour fire separated from the remainder of the building. The main switchboard proposed must be complaint with this clause regarding two hour fire separation.
C2.14 Public corridors in Class 2 & 3 buildings				X	Any corridors within the residential floors more than 40-metres in length must be provided with smoke doors and walls to comply with specification C2.5.
Part C3: Protection of Openings					
C3.2 Protection of openings in external walls				X	The plans indicate that the building is less than 3-metres from the boundary to the west, as such it is proposed to utilise a performance based solution as confirmed by the fire engineers, to address the need to protect openings within the façade closer than 3-metres to the boundary, this is due to the area adjacent being used only for light rail.
C3.3 Separation of external walls and associated openings in different fire compartments			X		Not applicable.
C3.4 Acceptable methods of protection			X		Not applicable
C3.5 Doorways in fire walls			X		Not applicable
C3.6 Sliding fire doors			X		Not applicable.
C3.7 Protection of doorways in horizontal exits			X		Not applicable
C3.8 Openings in fire isolated exits				X	Doors into fire isolated exits must be -/60/30 self or auto-closing fire doors.
C3.9 Service penetrations in fire-isolated exits				X	<p>The fire isolated exits are not to be penetrated by any services other than water supply pipes for fire services OR electrical wiring associated with:</p> <ul style="list-style-type: none"> a lighting, detection, or pressurization system serving the exit; or a security, surveillance or management system serving the exit; or an intercommunication system or an audible or visual alarm

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
					<p>system in accordance with D2.22 (it is noted that re-entry from fire-isolated exits will be required); or</p> <ul style="list-style-type: none"> the monitoring of hydrant or sprinkler isolating valves.
C3.10 Openings in fire-isolated lift shafts				X	<ul style="list-style-type: none"> Lifts landing doors are required to fire doors with an FRL of -/60/- and comply with AS 1735.11 and are to be set to remain closed except when discharging or receiving, passengers etc. Lift call panels, lift indicator panels and the like are required to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm² in area.
C3.11 Bounding construction: Class 2, 3 and 4 buildings				X	<p>Within the residential component of the building (levels 1 and above), the doorways between sole-occupancy units/common areas (e.g. gym, TV room, stores, laundry, etc) and the public corridors are required to be protected by self or auto-closing -/60/30 fire doors, with the exception of the following:</p> <ul style="list-style-type: none"> Doors to the bedrooms located within the cluster apartments are proposed to be provided with life safety doors as part of a performance based solution proposed by the fire engineers Doors to the kitchens within the cluster apartments are to be provided with -/30/30 fire rated life safety doors, as part of a performance based solution. <p>The above performance based solutions are to be approved by Fire and Rescue NSW.</p>
C3.12 Openings in floors and ceilings for services				X	Where services pass through a floor which is required to achieve an FRL, the services must be protected within a fire resisting shaft or in accordance with Clause C3.15.
C3.13 Openings in shafts				X	<ul style="list-style-type: none"> Any door(s) providing access to service shafts must be protected via -/60/30 fire doors. For access panels to service shafts these must have an FRL of -/60/30. Doors to garbage chutes must be of non-combustible construction.
C3.14			X		Blank clause
C3.15 Openings for service installations				X	<p>Where services pass through an element which is required to achieve an FRL (other than an external wall or roof), the service must be protected in accordance with this Clause (as relevant to the subject service). i.e. PVC pipe penetrations can be protected with fire collars, mechanical penetrations to be fitted with fire damper etc.</p> <p>This includes mechanical penetrations through the smoke rated walls to any of the cluster bedrooms, as identified by the fire engineers.</p>
C3.16 Construction joints				X	Construction joints to be fire sealed as required.
C3.17 Columns protected in lightweight construction			X		It appears that the columns will be of concrete construction. If this is incorrect then compliance with this clause would be required for columns protected with lightweight construction.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
to achieve an FRL					
SECTION D: ACCESS & EGRESS					
Part D1: Provision for Escape					
D1.2 Number of exits required	X				The plans detail compliance.
D1.3 When fire-isolated stairways and ramps are required			X		The stairs appear to be fire isolated and as such would be compliant with the BCA, subject to compliance with the remaining clauses of the BCA.
D1.4 Exit travel distances				X	<p>A review of the travel distances has indicated that there are extended travel distances proposed within the current design.</p> <ul style="list-style-type: none"> The current maximum travel distances noted from the SOU's to the exit/point of choice, is to be approximately 16-metres. The travel distances from common areas to the exit/point of choice, is to be approximately 27-metres. The fire engineers for the project have confirmed that these can be addressed via a performance based solution. This will need to be formalised within a fire engineering report prior to the issue of the Construction Certificate. Fire and Rescue NSW approval will be also be required prior to the issue of the Construction Certificate.
D1.5 Distance between alternative exits				X	The design is compliant.
D1.6 Dimensions of exits and paths of travel to exits				X	<ul style="list-style-type: none"> All paths of travel to be minimum 1-metre clear. All doors are required to be a minimum of 1980-mm clear height and a minimum of 750-mm clear (except where compliance with Part D3 is required, see below).
D1.7 Travel via fire isolated exits				X	A 1.1m2 air-lock is required between the fire pump room and stair 2, ground floor, as a room cannot open directly into a fire stair. Details to be provided prior to the issue of the construction Certificate.
D1.8 External stairways or ramps in lieu of fire-isolated exits			X		Not applicable. There are no external stairs being used in lieu of fire isolated exits.
D1.9 Travel by non-fire-isolated stairways or ramps			X		Not applicable
D1.10 Discharge from exits <i>Note NSW D1.10</i>				X	All discharge paths from exits must have an unobstructed width of 1 metre and connect the discharge paths to the street via a ramp or stair complying with the BCA.
D1.11 Horizontal exits			X		Not applicable
D1.12 Non-required stairways, ramps or escalators			X		There are no 'non-required' stairs or ramps proposed within the subject building.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
D1.13 Number of persons accommodated			X		Noted. Informational clause only.
D1.14 Measurement of distances			X		Noted. Informational clause only.
D1.15 Method of measurement			X		Noted. Informational clause only.
D1.16 Plant rooms and lift machine rooms: Concession			X		Noted. Informational clause only.
D1.17 Access to lift pits				X	Where lift pits are not more than 3m deep, access to the lift pit(s) shall be through the lowest landing doors. Where lift pits are more than 3m deep, D1.17(b) shall be complied with.
Part D2: Construction of Exits					
D2.1 Application of Part			X		Noted. Informational clause only.
D2.2 Fire-isolated stairways and ramps				X	The fire isolated stairways must be constructed of non-combustible materials and constructed so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of, the shaft. Consulting structural engineer to provide structural drawings/details and accompanying structural design certificate to demonstrate that the building elements will comply with D2.2.
D2.3 Non-fire-isolated stairways and ramps	X				Not applicable
D2.4 Separation of rising and descending stair flights			X		Not applicable
D2.5 Open access ramps and balconies			X		There are no open access ramps or balconies subject to this clause.
D2.6 Smoke lobbies			X		There are no smoke lobbies required by this clause.
D2.7 Installations in exits and paths of travel				X	Any electricity meters, distribution boards; telecommunications distribution boards or equipment; electrical motors or other motors corridors opening into hallways/lobbies or the like must be enclosed with non-combustible construction or a fire protective covering with doorways suitably sealed against smoke spread.
D2.8 Enclosure of space under stairs and ramps				X	The space under the fire-isolated stairways must not be enclosed to form a cupboard or similar enclosed space.
D2.9 Width of stairways			X		Noted. Informational clause only.
D2.10 Pedestrian ramps			X		Not applicable
D2.11			X		Not applicable

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
Fire-isolated passageways					
D2.12 Roof as open space			X		Not applicable
D2.13 Goings & risers				X	The goings would need to be between 250mm and 355mm and the risers between 115mm high and 190mm high. The goings and risers must be (constant) uniform throughout each flight and each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosing's with the stairs complying with the 2R + G requirements of this clause also.
D2.14 Landings				X	Landings must not be less than 750mm long and where this involves a change in direction the length is measured from the inside edge of the landing. All landings must have a non-slip finish or an adequate non-skid strip near the edge of the landings.
D2.15 Thresholds				X	All door thresholds must not incorporate a step or ramp at any point closer to the doorways than the width of the door leaves unless the door sill is to the external space and has been provided with a threshold ramp as per AS 1428.1 – 2009, this includes doors from fire stairs and doors to balconies.
D2.16 Balustrades and other barriers				X	Balustrades must be provided to stairs and balconies where there is a fall of more than 1m. Balustrades in fire-isolated stairways shall comply with D2.16(g) and (h)(i) generally, however where fire stairs are to be used as communicating stair also they require balustrading as per D2.16(g) and (h)(ii). All other balustrades shall comply with D2.16(g) and (h)(ii).
D2.17 Handrails				X	All stairways and ramps require handrails. Handrails shall be fixed at a height of not less than 865mm; measured above the nosings of stair treads. It should be noted that the handrail must not encroach into the required width of an exit. A required exit serving an area required to be accessible must be designed and constructed to comply with Clause 12 of AS 1428.1 regarding handrails, except that Clause 12(d) does not apply to a handrail required by (a)(iii)(B). Please also note any requirements in the Access Consultants report.
D2.18 Fixed platforms, walkways and ladders				X	The stairs to the roof plant may comply with AS 1657-1992.
D2.19 Doorways & doors				X	Swinging doors are provided as required. The auto-opening sliding doors are required to: <ul style="list-style-type: none"> • be openable manually with a force not more than 110N; and • open automatically if there is a power failure or on the activation of a fire alarm or smoke alarm.
D2.20 Swinging doors	X				Complies.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
D2.21 Operation of latch <i>Note NSW D2.21</i>				X	<ul style="list-style-type: none"> All doors in a required exit or forming part of a required exit AND doors in a path of travel to a required exit (other than doors to sole-occupancy units) must be readily openable without a key from the side that faces a person seeking egress, by single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m above the floor. In addition all doors to fire exits must comply with clause D2.21(a)(i) for accessibility, i.e. if serving an area required to be accessible by Part D3 as follows - <ul style="list-style-type: none"> a) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and b) have a clearance between the handle and the back plate or door face at the center grip section of the handle of not less than 35mm and not more than 45mm; or c) a single hand pushing action on a single device which is located between 900mm and 1.2m from the door.
D2.22 Re-entry from fire-isolated exits				X	<p>Since the building has an effective height of more than 25m, there is a requirement to provide re-entry from fire-isolated stairs into public corridors in accordance with this clause, this either requires doors to be not lockable from inside the stair, or compliant with one of the options in sub clause (b).</p>
D2.23 Signs on doors				X	<ul style="list-style-type: none"> Signs are to be installed on required fire doors and required smoke doors to alert persons that the operation of these doors is not to be impaired as per this clause. This includes the doors into and out of fire stairs. Signage as per clause 183 of the Environmental Planning and Assessment Regulations 2000 is also required.
D2.24 Protection of openable windows				X	<p>Window openings must be provided with protection, if the floor below the window is 2m or more above the surface beneath, in a bedroom in the Class 3 part of the building.</p> <p>The lowest part of a window opening must not be less than 1.7m. Notwithstanding, a window opening may be less than 1.7m high however the openable portion of the window must be protected with a device to restrict the window opening or be fitted with a screen consisting of secure fittings complying with Clause D2.24 requirements.</p>
Part D3: Access for People with Disabilities					
D3.1 General building access requirements				X	<p>The following design requirements are to be provided, in respect to providing access as per AS 1428.1 – 2009.</p> <ul style="list-style-type: none"> All doors required to be accessible must be 850-mm clear width, including one leaf of all double doors. The access consultant is to provide comment on the provision of access to and within the building as per AS 1428.1 – 2009 and table D3.1. Accessible SOU's to be provided in accordance with table D3.1. Accessible SOU's are to be compliant with AS 1428.1 –

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
					<p>2009.</p> <ul style="list-style-type: none"> The display suite area, north end of ground floor is to be provided with circulation space provisions to doors as per AS 1428.1 – 2009.
D3.2 Access to buildings				X	<p>Access to and within the building from the street is required to be provided as per AS 1428.1 – 2009. The Access Consultant is to confirm that the method for accessing the building is acceptable, relative to this clause, and noting the need to access the building from all main entry <u>points</u> at the lot boundary, as well as any accessible car spaces on the lot.</p>
D3.3 Parts of buildings to be accessible				X	<ul style="list-style-type: none"> Turning spaces as per figure 5(a) or (b) of AS 1428.1 – 2009 are to be provided within 2-metres of the ends of all corridors or be addressed by the Access Consultant. every stairway, must comply with: <ul style="list-style-type: none"> for a stairway, except a fire-isolated stairway, clause 11 of AS 1428.1; and for a fire-isolated stairway, clause 11.1(f) and (g) of AS 1428.1 (unless used as a communicating stair). all passenger lifts must comply with E3.6; and all doors in accessible parts of the building must comply with clause 13.1 of AS 1428.1 – 2009. the switches to accessible SOU's and WC's must comply with AS 1428.1 – 2009. clause 7.4.1(a) of AS 1428.1 does not apply and is replaced with the pile height or pile thickness shall not exceed 11 mm and the carpet backing thickness shall not exceed 4mm; and the carpet pile height or pile thickness dimension, carpet backing thickness dimension and their combined dimension shown in figure 8 of AS 1428.1 do not apply and are replaced with 11 mm, 4 mm and 15 mm respectively.
D3.4 Exemptions			X		<p>The following areas are not required to be accessible as access would be inappropriate because of each area's particular use:</p> <ul style="list-style-type: none"> Plant rooms.
D3.5 Accessible Carparking			X		Not applicable
D3.6 Signage				X	<ul style="list-style-type: none"> Signage is required to the accessible/ambulant WC's as per this clause and specification D3.6. Signage is also required to identify each exit door as per this clause.
D3.7 Hearing augmentation			X		Not applicable. A hearing augmentation system is not proposed in this building.
D3.8 Tactile indicators				X	Tactile ground surface indicators, complying with AS/NZS 1428.4.1 - 2009, must be provided to the top and bottom of all stairways (except fire-isolated stairways, unless to be used as communicating stairs).
D3.9 Wheelchair seating spaces in Class 9b assembly buildings			X		Not applicable.
D3.10			X		Not applicable.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
Swimming pools					
D3.11 Ramps			X		Not applicable
D3.12 Glazing on an accessway				X	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 clause 6.6 of AS 1428.1.
SECTION E: SERVICES & EQUIPMENT					
Part E1: Fire Fighting Equipment					
E1.3 Fire hydrants				X	<ul style="list-style-type: none"> The floor area of the building exceeds 500m² and therefore a fire hydrant system must be provided in accordance with E1.3 and AS 2419.1-2005. The doors encroaching into the fire shielding requirements for the fire booster will be required to be addressed via a performance based solution by the fire engineers, Fire and Rescue NSW approval will also be required.
E1.4 Fire hose reels		X		X	<p>A fire hose reel system must be provided throughout the building in accordance with E1.4 and AS 2441-2005. Generally speaking, fire hose reels are to be located internally within 4m of an exit.</p> <p>The fire hose reel on level 1, south, is to be relocated to comply.</p>
E1.5 Sprinklers				X	<p>The sprinkler system must comply with Clause and Specification E1.5 of the BCA. In addition any requirements of the fire engineers should also be incorporated into the sprinkler design.</p> <p>The sprinkler system must be connected to and activate a building occupant warning system complying with Clause 6 of Specification E2.2a and allow for fire brigade notification.</p>
E1.6 Portable fire extinguishers				X	Portable fire extinguishers must be provided in accordance with Table E1.6 of the BCA and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444-2001.
E1.8 Fire control centres		X		X	<ul style="list-style-type: none"> The building has an effective height of more than 50-m as such a fire control room is required in accordance with specification E1.8. The doors are to be re-swung to open into the room as per specification E.1.8, to be detailed prior to the issue of the Construction Certificate. In addition a door is required direct to open space, currently the design only has a single door. Clause E1.8(8) needs to be complied with, details to be provided prior to the issue of the Construction Certificate.
E1.9 Fire precautions during construction				X	During construction fire precautions as per this clause are required.
E1.10 Provision for special hazards			X		Not applicable. It is not considered that the subject building comprises any special hazards.
Part E2: Smoke Hazard Management					

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
E2.2 General requirements				X	<p>An automatic smoke detection and alarm system must be installed throughout the building complying with Clauses 4, 6 and 7 of Specification E2.2a.</p> <p>We further note that the client proposes to use an alarm acknowledgment facility, to delay the smoke detection system activating due to a false alarm, this is to be incorporated within the fire engineer's final report.</p> <p><u>General requirements</u></p> <p>Any air-handling system which recycles air from one fire compartment to another fire compartments must be designed in accordance with BCA clause E2.2(b).</p> <p>A smoke detection system must be installed as per clause 5 of specification E2.2a to operate the air pressurisation system for the fire stairs.</p> <p>The fire isolated stairs are required to be provided with air pressurization as per AS 1668.1 – 1998.</p> <p>The class 5 office level would require a zone smoke control system under the deemed to satisfy provisions of the BCA. Alternatively this would be required to be addressed via a performance based solution.</p>
E2.3 Provision for special hazards			X		Not applicable. It is not considered that the subject building comprises any special hazards.
Part E3: Lift Installations					
E3.1				X	Lift installations are required to comply with specification E3.1.
E3.2 Stretcher facility in lifts				X	<p>Stretcher facilities in one emergency lift are required.</p> <p>A stretcher lift must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level.</p>
E3.3 Warning against the use of lifts in fire				X	Warning signs indicating "DO NOT USE LIFTS IF THERE IS A FIRE" shall be displayed near every call button for passenger lifts as per E3.3.
E3.4 Emergency lifts				X	Two emergency lifts are required as the effective height of the building is more than 25m and multiple lifts are provided. The emergency lifts must also be provided within their own independent two hour fire rated shafts. We note that the current design indicates walls bounding each lift.
E3.5 Landings	X				Access and egress to and from liftwell landings complies.
E3.6 Passenger lifts				X	<p>Every passenger lift must comply for access for people with a disability as follows:</p> <ul style="list-style-type: none"> • be one of the types identified in Table E3.6a, subject to the limitations on use specified in the Table; and • have accessible features in accordance with Table E3.6b;

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
					and <ul style="list-style-type: none"> not rely on a constant pressure device for its operation if the lift car is fully enclosed.
E3.7 Fire service controls				X	The lift cars must be provided with fire service controls.
E3.8 Aged care buildings			X		Not applicable. The building is not a Class 9c aged care building.
E3.9 Fire service recall operation switch				X	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. The switch must be installed to the requirements of Clause E3.9.
E3.10 Lift car fire service drive control switch				X	The lift car fire service drive control switch required by E3.7 must be activated from within the lift car. The switch must be installed as per the requirements of Clause E3.10.
Part E4: Emergency Lighting, Exit Signs and Warning Systems					
E4.2 Emergency lighting requirements				X	An emergency lighting system must be installed throughout the building in accordance with E4.2 of the BCA and AS 2293.1-2005.
E4.3 Measurement of distance			X		Noted. Informational clause only.
E4.4 Design and operation of emergency lighting			X		The emergency lighting system must comply with AS 2293.1-2005.
E4.5 Exit signs				X	Exit signs must be installed throughout the building in accordance with E4.5 of the BCA and AS 2293.1 – 2005.
E4.6 Direction signs				X	If an exit is not readily apparent to persons occupying or visiting the building then exit direction signs must be installed in appropriate positions in corridors, hallways, lobbies etc indicating the direction to a required exit. Direction signs must be installed throughout the building in accordance with E4.6 of the BCA and AS 2293.1 – 2005.
E4.7 Class 2 & 3 buildings & Class 4 parts: Exemptions			X		Not applicable
E4.8 Design & operation of exit signs				X	The exit sign system must comply with AS 2293.1-2005. It should be noted that this standard requires the 'running man' symbol, in lieu of the word "EXIT".
E4.9 Sound systems and intercom systems for emergency purposes				X	A sound system and intercom system for emergency purposes is required throughout as per AS 1670.4 - 2004.
SECTION F: HEALTH & AMENITY					
Part F1: Damp & Weatherproofing – Details should be provided in the Design & Construct Specification					
F1.1 Stormwater drainage				X	Stormwater drainage must comply with AS/NZS 3500.3.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
F1.4 External above ground membranes				X	Any external above ground membranes must be waterproofed as per AS 4654-1 and 2.
F1.5 Roof coverings				X	Metal sheet roofing must comply with AS 1562.1-1992.
F1.6 Sarking				X	Sarking-type materials used for weatherproofing must comply with AS/NZS 4200 Parts 1 and 2-1994.
F1.7 Waterproofing of wet areas in buildings				X	Residential areas must be waterproofed, and commercial areas water resistant, in accordance with AS 3740-2004 and F1.7 of the BCA.
F1.9 Damp-proofing				X	Where a damp-proof course is provided, it must consist of a material that complies with AS/NZS 2904; or impervious termite shields in accordance with AS 3660.1.
F1.10 Damp-proofing of floors on the ground				X	Where 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 2870-1996, except damp-proofing need not be provided if- <ul style="list-style-type: none"> weatherproofing is not required; or the floor is the base of a stair, lift or similar shaft which is adequately drained by gravitation or mechanical means.
F1.11 Provision of floor wastes				X	Residential bathrooms and laundries must be provided with a floor waste.
F1.12 Sub floor ventilation			X		Not applicable. It is assumed that 'sub floor' spaces will not be incorporated into the design.
F1.13 Glazed assemblies				X	The following glazed assemblies in an external wall must comply with AS 2047-1999 requirements for resistance to water penetration: <ul style="list-style-type: none"> Windows; Sliding doors with a frame; Adjustable louvers; Window walls with one-piece framing.
Part F2: Sanitary & Other Facilities					
F2.1 Facilities in residential buildings	X				Suitable facilities have been provided to the building.
F2.2 Calculation of number of occupants and facilities			X		Noted. Informational clause only.
F2.3 Facilities for Class 3 to 9 buildings	X				Suitable toilet facilities have been provided to the building.
F2.4 Facilities for people with disabilities				X	<ul style="list-style-type: none"> The accessible WC's and facilities for the disabled within accessible SOU's are required to be provided in accordance with AS 1428.1 – 2009. The unisex ambulant toilet on level 1 is required to comply

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
					with AS 1428.1 – 2009.
F2.5 Construction of sanitary compartments				X	The door to a fully enclosed sanitary compartment must: (i) Open outwards; or (ii) Slide; or (iii) Be readily removable from the outside of the sanitary compartment unless there is a clear space of at least 1.2m between the closet pan within the sanitary compartment and the doorway, measured in accordance with Figure F2.5.
F2.6 Interpretation: Urinals and washbasins			X		Noted. Informational clause only.
F2.7 Microbial (legionella) control			X		N/A Clause Deleted in NSW.
F2.8 Waste management			X		Not applicable to subject building.
Part F3: Room Sizes					
F3.1 Height of rooms and other spaces				X	The building is required to be provided with floor to ceiling heights in accordance with this Clause. 2400-mm for habitable rooms and 2100-mm for non-habitable rooms. Also a minimum 2m above a stairway, ramp or landing is required (measured vertically above the nosing line of stairway treads or the floor surface of the ramp or landing).
Part F4: Light & Ventilation					
F4.1 Provision of natural light			X		Natural light must be provided to all habitable rooms within the class 3 component.
F4.2 Methods and extent of natural lighting				X	The natural light must be provided from windows which are open to the sky and have an aggregate light transmitting area of not less than 10% of the floor area of the room which they serve. A glazing schedule is required prior to the issue of the Construction Certificate. We note that the boundary is within close proximity to the western side of the building. The issue with this is that the BCA requires a light easement to allow for natural lighting to be provided to the bedrooms, with windows required to be a minimum of 3-metres from the side boundary. The client proposed to use a performance based solution to address this issue due to the adjacent land being used only for light rail, with the performance based solution report to be provided prior to the issue of the Construction Certificate.
F4.3 Natural light borrowed from adjoining room			X		Noted. Informational clause. Natural light is allowed to be 'borrowed' from other rooms.
F4.4 Artificial lighting				X	Artificial lighting (complying with AS/NZS 1680.0 – 2009) must be provided throughout the building.
F4.5 Ventilation of rooms				X	All rooms in the building are to be provided either with adequate natural ventilation OR a mechanical ventilation or air-

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
					conditioning system complying with AS 1668.2–1991 or AS 1668.2–2012.
F4.6 Natural ventilation			X		Noted. Informational clause. Natural ventilation must come through permanent openings or operable windows which have an operable size of not less than 5% of the floor area of the room which they serve.
F4.7 Ventilation borrowed from adjoining room			X		Noted. Informational clause. Natural ventilation is allowed to be 'borrowed' from other rooms.
F4.8 Restriction of position of water closets and urinals	X				Complies.
F4.9 Airlocks				X	See F4.8.
F4.11 Carparks				X	Not applicable
F4.12 Kitchen local exhaust ventilation			X		There are no commercial kitchens proposed.
Part F5: Sound Transmission					
F5.2 Determination of airborne sound insulation ratings			X		Noted. Informational clause only.
F5.3 Determination of impact sound insulation ratings				X	Acoustic separation within the building is proposed to be designed in accordance with the provisions of the BCA.
F5.4 Sound insulation rating of floors				X	Acoustic separation within the building is proposed to be designed in accordance with the provisions of the BCA.
F5.5 Sound insulation rating of walls				X	Acoustic separation within the building is proposed to be designed in accordance with the provisions of the BCA.
F5.6 Sound insulation rating of services				X	Ducts and pipes must achieve an $R_w + C_{tr}$ (airborne) of no less than 40 if the adjacent room is habitable or 25 if non-habitable.
F5.7 Sound isolation of pumps				X	A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating pump.
SECTION G: ANCILLARY PROVISIONS					
NSW G1.101 Provision for cleaning of windows				X	Windows are required to be able to either be cleaned from wholly within the building or as per a method complying with the Occupation Health and Safety Act 2000 and regulations under that Act.
SECTION H: THEATRES, STAGES AND PUBLIC HALLS					
Clause NSW H1.4 Seating area			X		Not applicable.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
Clause NSW H1.7 Aisle lighting in theatres			X		Not applicable.
SECTION I: MAINTENANCE					
NSW I1.1 Essential fire safety measures				X	Essential fire or other fire safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
SECTION J: ENERGY EFFICIENCY					
NSW SECTION J: ENERGY EFFICIENCY					
NSW SUBSECTION J(B) ENERGY EFFICIENCY - CLASS 3 AND CLASS 5-9 BUILDINGS					
Part J0: Energy Efficiency					
J0.1 Application of Section J			X		Not applicable
J0.2 Heating and cooling loads of sole-occupancy units of a Class 2 building or Class 4 part			X		Not applicable
J0.3 Ceiling fans			X		Not applicable
Part J1: Building Fabric					
J1.1 Application of Part				X	This Part applies to the whole building.
J1.2 Thermal construction – general				X	Where required, insulation must be provided as per AS/NZS 4859.1 and installed as per this clause.
J1.3 Roof and ceiling construction				X	The Total R values specified in Table J1.3a and Table J1.3b must be achieved.
J1.4 Roof lights			X		Not applicable
J1.5 Walls				X	Walls which are part of the envelope must satisfy one of the options in Table J1.5.
J1.6 Floors				X	A floor that is part of the building's envelope must comply with J1.6(a).
Part J2: Glazing					
J2.1 Application of Part				X	This Part applies to the whole building.
J2.2			X		Blank clause.
J2.3			X		Blank clause.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
J2.4 Glazing				X	Glazing to comply throughout. Glazing calculations to be carried out by a specialised energy efficiency consultant.
J2.5 Shading				X	Shading to comply with J2.5 as applicable.
Part J3: Building Sealing					
J3.1 Application of Part				X	This Part applies to the whole building.
J3.2 Chimney and flues			X		Not applicable.
J3.3 Roof lights			X		Not applicable.
J3.4 Window and doors				X	Seals to restrict air infiltration to windows and doors must be provided as required (note exceptions listed in J3.4 (b), and requirements for sealing of main entrance in J3.4 (d).
J3.5 Exhaust fans				X	Exhaust fans to be fitted with dampers where serving a conditioned space.
J3.6 Construction of roofs, walls and floors				X	Construction is to generally minimise air leakage, and be lined internally with gaps sealed by cornices or caulking etc.
J3.7 Evaporative coolers				X	An evaporative cooler must be fitted with a self-closing damper of the like when serving a heated space.
Part J4: Blank					
Part J5: Air-conditioning and ventilation systems					
J5.2 Air-conditioning and ventilation systems				X	An air-conditioning unit or system or a mechanical ventilation system must comply with J5.2(a), J5.2(c) and J5.2(d).
J5.3 Time switch				X	Time switches must be provided in accordance with this Clause.
J5.4 Heating and chilling systems				X	The designer of the systems must confirm compliance with this Clause.
J5.5 Miscellaneous exhaust systems				X	The designer of the systems must confirm compliance with this Clause.
Part J6: Artificial lighting and power					
J6.2 Artificial lighting				X	The building must comply with J6.2(b).
J6.3 Interior artificial lighting and power control				X	The building must comply with J6.3.
J6.4 Interior decorative and display lighting				X	The building must comply with J6.4, as applicable.
J6.5 Artificial lighting around the perimeter of a building				X	Where provided, must be controlled by a daylight sensor or time switch in accordance with Specification J6.
J6.6				X	Compliance required where water storage units are provided.

BCA DEEMED-TO-SATISFY PROVISION	Complies	Does Not Comply	NA or Informational	Compliance Required	COMMENTS
Boiling water and chilled water storage units					
Part J7: Hot water supply and swimming pool and spa pool plant					
J7.2 Hot water supply				X	Any hot water supply for food preparation and sanitary purposes must be designed and installed in accordance with Section 8 of AS/NZS 3500.4-2003.
J7.3 Swimming pool heating and pumping			X		Not applicable
J7.4 Spa pool heating and pumping			X		Not applicable.
Part J8: Access for maintenance and facilities for monitoring					
J8.1 Application of Part			X		Information clause.
J8.2 Access for maintenance				X	Access for maintenance is to be provided to all plant, equipment and components as per NSW clause J8.2.
J8.3 Facilities for energy monitoring				X	As the building is more than 2500m ² , energy monitoring is required as per sub-clause (b).


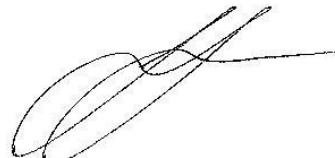
4.0 CONCLUSION

This report provides a Building Code of Australia 2013 (BCA) compliance assessment of the proposed student accommodation facility, to be located at The Haymarket, Sydney.

The primary purpose of this report was to identify the non-compliance matters contained in the proposed design against the current Deemed-to-Satisfy (DTS) Provisions of the BCA and to provide compliance recommendations to overcome the DTS non-compliances.

This report provided a BCA assessment table in Section 3.0 that summarises the identified non compliance matters and offers specific recommendations that are also outlined in the Executive Summary.

Further, if compliance with the Deemed-to-Satisfy Provisions is not achievable or desirable, Alternative Solutions could be further developed and verified by an appropriately qualified BCA Consultant or Fire Safety Engineer.

 <p>Report prepared By:</p> <p>Jason Storer Director</p> <p>Grade A1 – BPB No. BPB0394 A1 - Accredited Building Surveyor</p> <p>for AE&D</p>	 <p>Approved By:</p> <p>Trenton Jones – Director</p> <p>MAAC G.DIP Build Surv (UWS) Dip Env Health and Bld Surv (SIT) Grade A1 – BPB No. BPB0203 A1 - Accredited Building Surveyor</p> <p>for AE&D</p>
---	--

3. TYPE A FIRE-RESISTING CONSTRUCTION

3.1 Fire-resistance of building elements

In a building *required* to be of Type A construction—

- (a) each building element listed in **Table 3** and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and
- (b) *external walls*, *common walls* and the flooring and floor framing of lift pits must be *non-combustible*; and
- (c) any *internal wall required* to have an FRL with respect to *integrity* and *insulation* must extend to—
 - (i) the underside of the floor next above; or
 - (ii) the underside of a roof complying with **Table 3**; or
 - (iii) if under **Clause 3.5** the roof is not *required* to comply with **Table 3**, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or
 - (iv) a ceiling that is immediately below the roof and has a *resistance to the incipient spread of fire* to the roof space between the ceiling and the roof of not less than 60 minutes; and
- (d) a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be of concrete or masonry; and
- (e) a non-*loadbearing*—

- (i) *internal wall required* to be *fire-resisting*; and
- (ii) lift, ventilating, pipe, garbage, or similar *shaft* that is not for the discharge of hot products of combustion, must be of *non-combustible* construction; and
- (f) the FRLs specified in **Table 3** for an external column apply also to those parts of an internal column that face and are within 1.5 m of a *window* and are exposed through that *window* to a *fire-source feature*.

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building — FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
For <i>loadbearing</i> parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non- <i>loadbearing</i> parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS— continued

Building element	Class of building — FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
INTERNAL WALLS—				
<i>Fire-resisting</i> lift and stair <i>shafts</i> —				
<i>Loadbearing</i>	90/ 90/ 90	120/120/120	180/120/120	240/120/120
<i>Non-loadbearing</i>	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding <i>public corridors</i> , public lobbies and the like—				
<i>Loadbearing</i>	90/ 90/ 90	120/–/–	180/–/–	240/–/–
<i>Non-loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding <i>sole-occupancy units</i> —				
<i>Loadbearing</i>	90/ 90/ 90	120/–/–	180/–/–	240/–/–
<i>Non-loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like <i>shafts</i> not used for the discharge of hot products of combustion—				
<i>Loadbearing</i>	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
<i>Non-loadbearing</i>	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—				
	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

3.2 Concessions for floors

A floor need not comply with **Table 3** if—

- it is laid directly on the ground; or
- in a Class 2, 3, 5 or 9 building, the space below is not a *storey*, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or
- it is a timber *stage* floor in a Class 9b building laid over a floor having the *required* FRL and the space below the *stage* is not used as a dressing room, store room, or the like; or
- it is within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part; or
- it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the *required* FRL.

3.3 Floor loading of Class 5 and 9b buildings: Concession

If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3 kPa—

- the floor next above (including floor beams) may have an FRL of 90/90/90; or
- the roof, if that is next above (including roof beams) may have an FRL of 90/60/30.

3.4 Roof superimposed on concrete slab: Concession

A roof superimposed on a concrete slab roof need not comply with **Clause 3.1** as to *fire-resisting construction* if—

- (a) the superimposed roof and any construction between it and the concrete slab roof are *non-combustible* throughout; and
- (b) the concrete slab roof complies with **Table 3**.

3.5 Roof: Concession

A roof need not comply with **Table 3** if its covering is *non-combustible* and the building—

- (a) has a sprinkler system complying with **Specification E1.5** installed throughout; or
- (b) has a *rise in storeys* of 3 or less; or
- (c) is of Class 2 or 3; or
- (d) has an *effective height* of not more than 25 m and the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes.

3.6 Rooflights

If a roof is *required* to have an FRL or its covering is *required* to be *non-combustible*, rooflights or the like installed in that roof must—

- (a) have an aggregate area of not more than 20% of the roof surface; and
- (b) be not less than 3 m from—
 - (i) any boundary of the allotment other than the boundary with a road or public place; and
 - (ii) any part of the building which projects above the roof unless that part has the FRL *required* of a *fire wall* and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with **C3.4**; and
 - (iii) any rooflight or the like in an adjoining *sole-occupancy unit* if the walls bounding the unit are *required* to have an FRL; and
 - (iv) any rooflight or the like in an adjoining fire-separated section of the building; and
- (c) if a ceiling with a *resistance to the incipient spread of fire* is *required*, be installed in a way that will maintain the level of protection provided by the ceiling to the roof space.

3.7 Internal columns and walls: Concession

For a building with an *effective height* of not more than 25 m and having a roof without an FRL in accordance with **Clause 3.5**, in the *storey* immediately below that roof, internal columns other than those referred to in **Clause 3.1(f)** and *internal walls* other than *fire walls* and *shaft walls* may have—

- (a) in a Class 2 or 3 building: FRL 60/60/60; or
- (b) in a Class 5, 6, 7, 8 or 9 building—
 - (i) with *rise in storeys* exceeding 3: FRL 60/60/60
 - (ii) with *rise in storeys* not exceeding 3: no FRL.