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Building Compliance

Building Code of Australia 2019 Amendment 1 Certification Assessment Report

Sirius Site,
2-60 Cumberland Street,
Sydney NSW 2000

Report prepared for:	Sirius Developments Pty Ltd 52 Victoria Street, Paddington NSW 2021
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Document Acceptance

	Name	Signed	Date
Prepared by	Robert Marinelli		29/10/2020

Revision History

Revision No.	Prepared by	Description	Date
0	Rm	draft	28/10/2020
CS01	Rm	issued	29/10/2020

1.0 Introduction

The proposed development is for the restoration and refurbishment of the existing Sirius building, including alterations and additions. The existing building is proposed to be substantially retained and restored with integrity. New residential additions are proposed to be added to the existing structure in appropriate locations to maintain the legibility of the original architectural form, and new structures for commercial uses are proposed to be added at the Cumberland Street and Gloucester Walk frontages of the site.

The existing Sirius building has a varied height profile due to its modular form and due to the fall across the site when observed from Cumberland Street and from Gloucester Walk. The existing building rises from the north and south towards a central tower with a maximum height of 34.6m above ground level at Cumberland Street (equivalent to an 11-storey building). Due to the existing split-level apartments, the building is conveyed as having a greater number of levels (25 storeys).

The proposed alterations and additions to the existing building will increase the overall building height by 5.4m to a maximum building height of 40.9m above ground level at Cumberland Street. On the Cumberland Street entry side of the site, the building presents as thirteen (13) levels at the highest occupied level. When observed from Gloucester Walk, and due to the fall across the site, the building presents as fourteen (14) occupied levels.

The building incorporates two levels of basement car parking.

The proposed works include:

- Alterations and additions to the existing building to provide for:
  - Residential accommodation (a total of **76** apartments);
  - Commercial premises, including retail floorspace; and
  - Basement car parking.
- Provision of a through-site link between Cumberland Street and Gloucester Walk.
- Upgrades to Gloucester Walk including landscaping and pedestrian access.
- Improvements to Cumberland Street including landscaping and improved carpark entry.
- Associated works, including:
  - Minor demolition works;
  - Earthworks;
  - Structural upgrades;
  - Services upgrades; and
  - Landscaping works.

1.1 Brief

At the request of Sirius Developments Pty Ltd (the Client), Philip Chun BC NSW Pty Ltd have carried out an assessment of the building design to date against the requirements of the Building Code of Australia 2019 Amendment 1 (BCA). The building is located at 2 – 60 Cumberland Street, Sydney.

In our role as the appointed registered certifier for the works, this assessment report has been prepared to confirm that we have commenced 'certification works' including the assessment of the proposed building for compliance with the relevant requirements of the Building Code of Australia 2019 Amendment 1, as required by Clause 145(1) (b) of the Environmental Planning and Assessment Regulation 2000.

1.2 Scope, limitations and capability

This report contains a concept design assessment concerning the capability of the design to meet the BCA requirements. We have reviewed the architectural documentation (provided to date) for compliance with the deemed-to-satisfy provisions of the BCA.

This assessment has found that the fundamental design is capable of meeting the requirements of BCA, however further reviews will be required as the design progresses. Where compliance with the deemed to satisfy provisions is not possible, Performance Solutions may be required.

The methodology in performing this assessment is principally a review of the documentation provided by BVN architects on the building to date for the purpose of schematic design. As this is a high level concept design phase report we have made every attempt to cover the main issues under Parts B, C, D, E, F and J of Volume 1 of the BCA (including the relevant NSW variations), which is the most current applicable version, however in this review may not have not covered issues that do not relate to the overall construction of the building.

Areas of the design are still being refined so that compliance will be further assessed prior to the issue of a Construction Certificate for the works, as is required by the certifier as part of the legislative requirements related to 'certification work'.

This report does not include, nor implies any detailed assessment of the building with respect to structural engineering or engineering services, material fire resistance levels or compliance with any Australian Standards. Therefore the following are excluded from this assessment

- structural adequacy of the building;
- inherent fire-resistance ratings of any structural elements of the building;
- design basis and/or operating capabilities of electrical, mechanical, hydraulic, fire services and fire protection services;
- Disability Discrimination Act 1992 including the Disability (Access to Premises – Buildings) Standards 2010;
- provision of disabled access to the subject development against the deemed to satisfy provision of Part D.3 and F2.4 of BCA2019;
- requirements of other regulatory authorities and utilities including, but not limited to, Telstra and the like communications authority, Gas Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and any existing conditions of Development Consent issued by the Local Consent Authority.

This report is for the exclusive use of the client and cannot be used for any other purpose without prior permission from Philip Chun BC NSW Pty Ltd. The report is valid only in its entire form. Philip Chun accepts no responsibility for any loss suffered as a result of any reliance upon such assessment or report other than as being accurate at the date the report was issued. Any changes to the design will require that the design is re assessed and the report may need to be updated to reflect the changes.

1.3 Documentation provided and assessed

The assessed design documentation comprises of the plans provided by BVN Architects Pty Ltd as follows:

Drawing number	Description	Prepared by	Date	Revision
B-10-01	Basement B2b-B2a	BVN Architects	23 October 2020	29
B-10-02	Basement B1b-B1a	BVN Architects	27 October 2020	25
B-10-03	Level 01-03	BVN Architects	23 October 2020	18
B-10-04	Level 03-05	BVN Architects	23 October 2020	18
B-10-05	Level 05-07	BVN Architects	18 September 2020	14
B-10-06	Level 07-09	BVN Architects	18 September 2020	13
B-10-07	Level 09-11	BVN Architects	18 September 2020	13
B-10-08	Level 11-13	BVN Architects	18 September 2020	12
B-10-09	Level 13-15	BVN Architects	18 September 2020	12
B-10-10	Level 15-17	BVN Architects	18 September 2020	12
B-10-11	Level 18-19	BVN Architects	18 September 2020	11
B-10-12	Level 20-21	BVN Architects	18 September 2020	11
B-10-13	Level 22-23	BVN Architects	18 September 2020	12
B-10-14	Level 24-27	BVN Architects	18 September 2020	8
B-10-15	Roof Plan	BVN Architects	18 September 2020	5
C-10-01	East and West Elevations – Sirius Building	BVN Architects	23 October 2020	8
C-10-02	North and South Elevations – Overall	BVN Architects	18 September 2020	6
C-10-03	North and South Elevations – Sirius tower	BVN Architects	18 September 2020	6
C-10-04	North and South Elevations – Cumberland Building	BVN Architects	18 September 2020	4

2.0 Building general requirements and characteristics

According to the BCA the following criteria apply to the building and have been reviewed in the assessment.

2.1 Classifications for the building

The different parts of the building are classified as follows;

Section A - Governing Requirements - Part A6 – Building classification

A6.2 - Class 2: *1) A class 2 is a building containing two or more sole-occupancy units.*
2) Each sole-occupancy unit in a Class 2 building is a separate dwelling.

A6.5 - Class 5: *An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.*

A6.6 - Class 6 : *A shop or other building used for the sale of goods by retail or the supply of services direct to the public, including—*

(1) an eating room, café, restaurant, milk or soft-drink bar; or
(2) a dining room, bar area that is not an assembly building, shop or kiosk part of a hotel or motel; or
(3) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
(4) a market or sale room, showroom, or service station.

A6.7 - Class 7a: *A carpark.*

The uses will be defined below in the building description

Assessment of use and class

Level	Proposed Use	BCA Class
Basement 04 West	Apartments and ancillary plant	Class 2
Basement 04 East	Carpark, loading dock, minor storage, plant	Class 7a
Basement 04 Mezz	Plant Fire Pump Room	Class 7a
Basement 02 West	Apartments minor storage and ancillary plant	Class 2
Basement 02 Central – East	Retail, Carpark, Gym, minor storage, plant	Class 2, 6, 7a
Levels 01 – 02 - 03	Residential, Office, Retail, Carpark Void	Class 2, 5, 6, 7a
Levels 03 – 04 - 05	Residential, Office, Retail	Class 2, 5, 6
Levels 05 – 06 - 07	Residential	Class 2
Levels 07 – 08 - 09	Residential	Class 2
Levels 09 – 27	Residential	Class 2
Level 28	Lift motor room	Class 2 ancillary

2.2 Description of the building

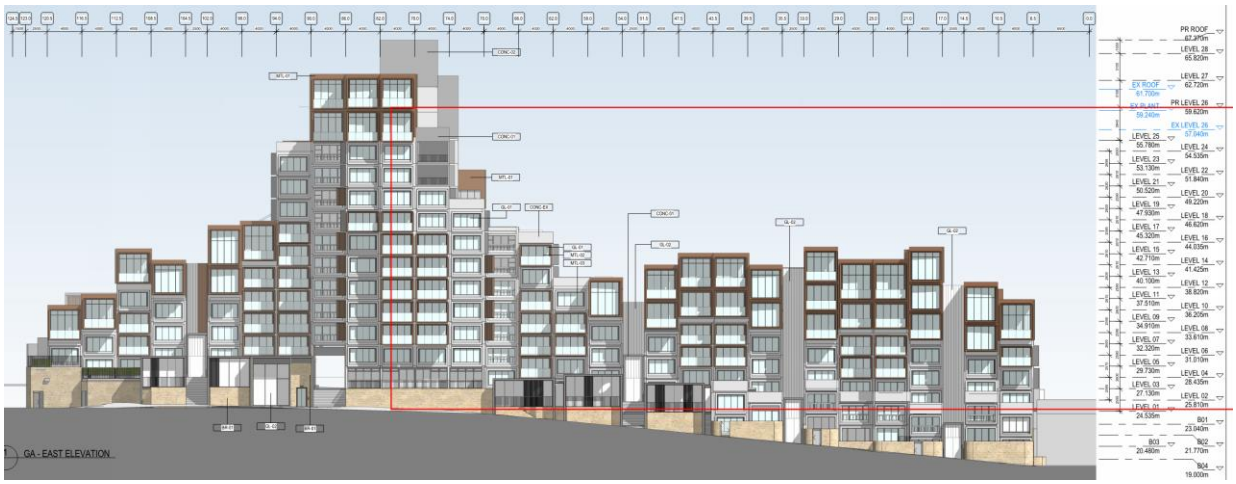
The building is described as follows with respect to the BCA and reference is made to the levels, rise in storeys, uses and classification as above. The building's construction and form is complex, and according to the existing drawings has at least 27 different defined floor levels extending from the lowest basement floor level to the roof over the highest plantroom. The primary existing construction is of reinforced concrete with infill of non loadbearing walls with rendered masonry. The windows are metal and there is little internal lightweight construction.

2.3 Rise in storeys – C1.2

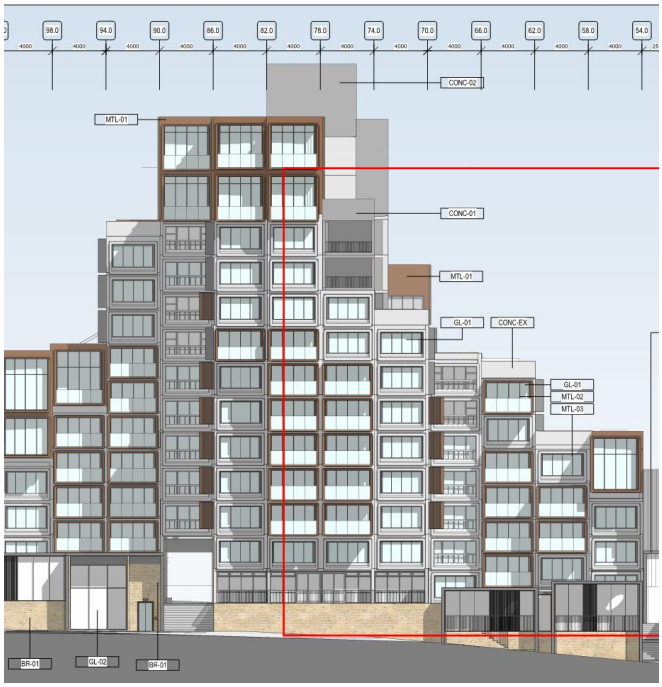
The building has a rise in storey of 14 with 14 storeys contained at its highest point, being the central tower at or about grids 78 to 90.

2.4 Effective height

The effective height of the building is currently assessed as greater than 25 metres however will be less than 50 metres.



The measured height is 35.085m from the floor of Level 01 to the floor of Level 27.



2.5 Type of construction

The building type of construction will need to be at least Type A construction as it exceeds a rise in storey of 4 and is of class 2, 5, 6 and 7a use.

Table C1.1 Type of construction required

Rise in storeys	Class of building 2, 3, 9	Class of building 5, 6, 7, 8
4 or more	A	A
3	A	B
2	B	C
1	C	C

The building is predominantly reinforced concrete frame with concrete walls, columns, beams and floors with infill walls generally of masonry. All new work is to comply.

Compliance readily achievable subject to possible fire engineering for minor variances from deemed to satisfy.

3.0 Building Code of Australia 2019 Amendment 1 Assessment

According to the BCA the following requirements apply to the building. The following has been compiled based on items that may affect the general planning and design of the building at this stage of design, and do not cover all aspects of the buildings elements given they are mostly applicable in the next stages of design development and application for Construction Certificate.

3.1 Part B – Structure

The structural components of the building must comply with the applicable Australian Standards. The structural engineering components of the existing building have been assessed at this stage. Whilst the building is essentially constructed of reinforced concrete construction, the buildings structure is to be assessed against the current requirements for upgrade and all new work is to comply.

The structural engineers will ensure the structural requirements of BCA Clauses B1.1, B1.2, and B1.4 are considered in the buildings design (including the importance level of the building). This will mean assessment according to all relevant parts of Section B of the Building Code of Australia.

The structural engineers are to design the building to withstand individual actions in accordance with, but not limited only to the following Standards; AS1170.1, AS1170.2 and AS1170.4.

Compliance is readily achievable.

3.2 Part C – Fire Resistance / Compartmentation / Separation

C1 Fire Resistance and Stability

Type of Construction – The building will is required to be of not less than Type A construction. The building needs to comply with BCA Table 3 for Type A Construction (See appendix A). Structural engineer will need to confirm at Construction Certificate stage the FRL's of all of the building elements including but not limited to the beams, columns, slabs and load bearing walls in accordance with Table 3 of Spec C1.1 i.e. -

Class 2 – 90 mins
Class 5 – 120 mins
Class 6 – 180 mins
Class 7a – 120 mins

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Fire Compartmentation – The fire compartmentation of the Class 2 (Residential) building components is based on a floor by floor separation which is to be assessed and verified by the structural engineers however generally would be deemed compliant as no floor area limitations under Table C2.2 are applicable to Class 2 building parts.

The fire compartmentation of the Class 5, 6 and 7 building components are required to meet C2.2 of the BCA which requires a maximum floor area of 5000m² and 30,000m³ for class 6 and 7 areas.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Lightweight construction (C1.8)
(a) Lightweight construction must comply with Specification C1.8 if it is used in a wall system—
(i) that is required to have an FRL; or
(ii) for a lift shaft, stair shaft or service shaft or an external wall bounding a public corridor including a

non fire-isolated passageway or non fire-isolated ramp, in a spectator stand, sports stadium, cinema or theatre, railway station, bus station or airport terminal.
(b) If lightweight construction is used for the fire-resisting covering of a steel column or the like, and if—
(i) the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting; and
(ii) the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material.

Compliance readily achievable.

Non-Combustible materials (C1.9)
(a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:
(i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.
(ii) The flooring and floor framing of lift pits.
(iii) Non-loadbearing internal walls where they are required to be fire-resisting.
(b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in—
(i) a building required to be of Type A construction; and
(ii) a building required to be of Type B construction, subject to C2.10, in—
(A) a Class 2, 3 or 9 building; and
(B) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.
(c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1.
(d) The requirements of (a) and (b) do not apply to the following:
(i) Gaskets.
(ii) Caulking.
(iii) Sealants.
(iv) Termite management systems.
(v) Glass, including laminated glass.
(vi) Thermal breaks associated with glazing systems.
(vii) Damp-proof courses.
(e) The following materials may be used wherever a non-combustible material is required:
(i) Plasterboard.
(ii) Perforated gypsum lath with a normal paper finish.
(iii) Fibrous-plaster sheet.
(iv) Fibre-reinforced cement sheeting.
(v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.
(vi) Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5.
(vii) Bonded laminated materials where—
(A) each lamina, including any core, is non-combustible; and
(B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and
(C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

Compliance readily achievable.

Fire Hazard Properties (C1.10)
All new surface finishes, assemblies and linings are to comply with BCA Clause C1.10 (Specification C1.10) with regard to Fire Hazard Properties.

Compliance readily achievable.

Ancillary Elements (C1.14)
An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following;

- An ancillary element that is non-combustible.
- A gutter, downpipe or other plumbing fixture or fitting.
- A flashing.
- A grate or grille not more than 2m² in area associated with building service.
- An electrical switch, socket-outlet, cover plate or the like.
- A light fitting.
- A required sign etc.

Compliance readily achievable.

Spandrels (C2.6) - Not applicable to a sprinkler protected building.

Separation of classifications in the same storey (C2.8)
If a building has parts of different classifications located alongside one another in the same storey—
(a) each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or
(b) the parts must be separated in that storey by a fire wall having—
(i) the higher FRL prescribed in Table 3 of Spec C1.1.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Separation of classifications in different storeys (C2.9)
The floor between the adjoining parts must have an FRL of not less than that prescribed in Specification C1.1 Table 3 Type A Construction for the classification of the lower storey.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Separation of lift shafts – (C2.10)
Any lift connecting more than 2 storeys, or more than 3 storeys if the building is sprinklered must be separated from the remainder of the building by enclosure in a shaft which, in a building required to be of Type A construction is to be separated from the rest of the building as per Table 3 of Spec C1.1.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Separation of equipment (C2.12)
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.

Compliance readily achievable.

Electricity supply system (C2.13)
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.

Compliance readily achievable.

Public corridors in Class 2 and 3 buildings (C2.14)
In a Class 2 or 3 building, a public corridor, if more than 40m in length, must be divided at intervals of not more than 40 m with smoke-proof walls complying with Clause 2 of Specification C2.5.

Compliance readily achievable.

Protection of openings in external walls (C3.2)
Any openings in an external wall required to have an FRL must be protected in accordance with BCA C3.4 and if used, wall-wetting sprinklers are to be externally fitted.
This applies to the southern and northern portions of the building facing adjoining allotments.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Openings in fire isolated exits (C3.8)
Any doors opening into a fire isolated passageway, stair or ramp must be a fire door with an FRL of not less than -/60/30 that are self closing or an automatic closing door activated by smoke detector or other detector suitable in accordance with AS 1670 or any other required suitable fire alarm system, including a sprinkler system complying with Spec E1.5.

Compliance readily achievable.

Service penetrations in fire isolated exits (C3.9)
All fire isolated exits must not be penetrated by any services other than – electrical wiring permitted by Clause D2.7 of the BCA, water pipes for fire services or ducting associated with a stair pressurization system.
Compliance readily achievable.

Openings in fire isolated lift shafts (C3.10)
Entrance doorways in lift shafts required to be fire isolated must be constructed with an FRL of not less than -/60/- and must comply with AS1735.11, and to remain close when not in use.
Compliance readily achievable.

Openings in floors and ceilings for services (C3.12)
(a) Where a service passes through—
(i) a floor that is required to have an FRL with respect to integrity and insulation; or
(ii) a ceiling required to have a resistance to the incipient spread of fire, the service must be installed in accordance with (b)
(b) A service must be protected—
(i) in a building of Type A construction, by a shaft complying with Specification C1.1; or
(ii) in a building of Type B or C construction, by a shaft that will not reduce the fire performance of the building elements it penetrates; or
(iii) in accordance with C3.15.
(c) Where a service passes through a floor which is required to be protected by a fire-protective covering, the penetration must not reduce the fire performance of the covering.
Compliance readily achievable.

Openings in shafts (C3.13)
In a building required to be of Type A construction, any opening in a wall providing access to ventilating, pipe, garbage or other services shafts must be protected by - an access panel having an FRL of not less than –/60/30 or a self-closing –/60/30 fire door or hopper.
Compliance readily achievable.

Openings for service installations (C3.15)
Electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrations that are required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire, must be fire sealed, fire rated or otherwise comply with listed standards.

Compliance readily achievable.

Summary of Specification C1.1, Table 3 - Type A Construction: FRL of Building Elements

The fundament concept of fire rating for the building is as per the following table for Type A Construction:

Building Component	Class 2	Class 5 & 7a	Class 6
External walls (load-bearing) less than 1.5m to boundary	90/90/90	120/120/120	180/180/180
External walls (load-bearing) 1.5m to less than 3m to boundary	90/60/60	120/90/90	180/180/120
External walls (load-bearing) 3m or more	90/60/30	120/60/30	180/120/ 90
External walls (non-load-bearing) less than 1.5m to boundary	-/90/90	-/120/120	–/180/180
External walls (non-load-bearing) 1.5m to less than 3m to boundary	-/60/60	-/90/90	–/180/120
External walls (non-load-bearing) more than 3m	-/-/-	-/-/-	–/–/–
External Columns not incorporated in an external wall - loadbearing	90/-/-	120/-/-	180/–/–
Fire walls	90/90/90	120/120/120	180/180/180
Shaft walls (lift and stairs)	90/90/90	120/120/120	180/120/120
Service shafts	90/90/90	120/90/90	180/180/180
Between sole occupancy units and bounding public corridors (load-bearing)	90/90/90	120/-/-	180/–/–
Between sole occupancy units and bounding public corridors (non-load bearing)	-/60/60	-/-/-	-/-/-
Load-bearing columns, internal walls, internal beams and trusses	90/-/-	120/-/-	180/–/–
Floors	90/90/90	120/120/120	180/180/180
Roof (see concessions for sprinkler protection)	90/60/30	120/60/30	180/ 60/ 30

Notes:

- Loadbearing internal walls, load bearings fire walls and loadbearing shaft walls are to be of concrete or masonry construction.
- Non-load bearing internal walls and shaft walls are to be of non-combustible construction.
- Where buildings are sprinkler protection the roof get a concession from the above fire resistance levels

Compliance readily achievable for all new work.

3.3 Part D – Access and Egress

D1 and D2 Access and Egress – Residential Apartments (Class 2)

Not less than 2 exits must be provided to any below ground levels as well as any storey where a building has an effective height greater than 25m (D1.2)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

The entrance doorway of any sole-occupancy unit must be not more than 6m from an exit or from a point from which travel in different directions to 2 exits is available or 20m from a single exit serving the storey at the level of egress to a road or open space (D1.4)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Exits that are required as alternative means of egress must be located so that alternative paths of travel do not converge such that they become less than 6m apart or more than 45 apart. The exit paths shall be not less than 9m apart as per D1.5. The discharge point of alternative exits must be located as far apart as practical (D1.10)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Widths of exits and corridors must be sufficient to provide safe passage for occupant egress. The unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than 1m (D1.6)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

A doorway must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from a public corridor, public lobby or the like, a soul occupancy unit occupying the entire storey or a sanitary compartment or air lock (D1.7).

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

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 **OR** to a point in a storey or space within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter **OR** into a covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter and has an unobstructed clear height throughout including the perimeter openings of not less that 3m and provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6m (D1.7).

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

If a stairway serving as an exit is required to be fire-isolated there must be no direct connection between a flight rising from a storey below the lowest level of access to a road or open space and a flight descending from a storey above that level.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Doors to the required exits must open in the direction of egress (D2.20)

Compliance readily achievable.

The construction and discharge of stairs, landings, thresholds, balustrades and handrails must meet the requirements of D2 of the BCA

Compliance readily achievable.

An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it (D1.10)

Compliance readily achievable.

Due to exceeding 25m in effective height doors of a fire isolated exit must not be locked from the inside throughout the fire stair unless the doors are fitted with a failsafe device that auto unlocks the doors on fire trip and on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available or otherwise an intercom system operated from within the enclosure is to be provided near the doors (D2.22).

Compliance readily achievable.

Signage should be provided to the fire doors leading to the fire-isolated exits. The signage should be in accordance with Clause D2.23 & D3.6 of the BCA.

Compliance readily achievable.

Fall protection needed to unit bedroom windows located less than 1.7m high required in accordance with Clause D2.24.

Compliance readily achievable.

D1 and D2 Access and Egress – Retail, Plant and Communal Areas (Class 2 non-residential & Class 6 and Class 7a)

Not less than 2 exits must be provided to any below ground levels as well as any storey where a building has an effective height greater than 25m (D1.2)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

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 (D1.4)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

The distance between alternative exits is not to exceed 60m (D1.5)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Paths of travel must not converge closer than 6m (D1.5)

Compliance readily achievable.

A doorway must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from a public corridor, public lobby or the like, a soul occupancy unit occupying the entire storey or a sanitary compartment or air lock (D1.7).

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

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 **OR** to a point in a storey or space within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter **OR** into a covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter and has an unobstructed clear height throughout including the perimeter openings of not less that 3m and provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6m (D1.7).

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Widths of exits and corridors must be sufficient to provide safe passage for occupant egress (D1.6)

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it (D1.10).

Compliance readily achievable.

Doors to swing in the direction of egress.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

The construction and discharge of stairs, landings, thresholds, balustrades and handrails must meet the requirements of D2 of the BCA.

Compliance readily achievable.

A swinging door in a required exit or forming part of a required exit must not encroach (D2.20)

Compliance readily achievable.

All doors need to be provided with a free lever latch located at 900-1100mm high or be fitted with fail-safe device which automatically unlocks the door upon fire trip (D2.21).

Compliance readily achievable.

Signage should be provided to the fire doors leading to the fire-isolated exits. The signage should be in accordance with Clause D2.23 & D3.6 of the BCA and Clause 183 of the Environmental Planning and Assessment Act 2000.

Compliance readily achievable.

Plant rooms and lift motor rooms, Concession (D1.16)
Plant rooms less than 100m^2 can be served by a ladder only, if less than 200m^2 can be served by a stair first and then a ladder, and over 200m^2 need two stairs.
Compliance readily achievable

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

D3 Access for people with disabilities

Compliance with part D3 of the BCA including AS1428.1 is required for the development. It is expected that the development will comply with all relevant requirements through meeting either the Deemed to Satisfy provisions of the BCA and the relevant performance requirements through development of performance solutions if required. Refer to separate Accessibility report by Morris Goding Access Consulting.

3.4 Part E – Services and Equipment

Fire Fighting Equipment

Fire Hydrants (E1.3)
The building must be served with fire hydrants complying with the requirements of BCA Clause E1.3 and AS 2419.1.

Fire Services designers are proposing to comply with current Australian Standards however given site constraints compliance may need to be achieved through a combination of deemed to satisfy provisions and performance based solutions.

Hydrant Booster
To comply with AS 2419.1-2005 except where a sprinkler system is installed throughout a building in accordance with AS 2118.1, AS 2118.4 or AS 2118.6 the fire hydrant booster protection requirements of clauses 7.3(c)(ii) and 7.3(d)(iii) of AS 2419.1 do not apply.

Compliance readily achievable.

Pumprooms
Pumprooms located within a building shall have—

- a door opening to a road or open space, or a door opening to fire-isolated passage or stair which leads to a road or open space; and
- except where the building is sprinkler protected in accordance with AS 2118.1, enclosing walls with an FRL not less than that prescribed by the BCA for a firewall for the particular building classification served by the fire hydrant system.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Fire Hose-reels (E1.4)
The plant, office, retail and storage areas of the building must be provided with hose-reel coverage complying with the requirements of BCA Clause E1.4 and AS 2441-2005. Hose-reels are to be located within 4m of an exit or an internal fire hydrant.

Compliance readily achievable.

Sprinklers (E1.5)
A Sprinkler system is required to be provided throughout the entire building as per BCA Clause E1.5 and AS2118.1 or AS2118.6 (if combined sprinkler and hydrant system). Sprinkler valve enclosure / room location to be confirmed in accordance with the requirements of Clause 6 of Specification E1.5 of the BCA.

Compliance will be achievable through a combination of deemed to satisfy provisions and performance based solutions.

Extinguishers (E1.6)
Fire extinguishers are required to be installed to the class 2 building parts in lieu of fire hose reels. Extinguishers are to be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of

AS2444. 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.

Compliance readily achievable.

Fire Control Centre (E1.8)
A fire control centre facility in accordance with Specification E1.8 is required to be installed in the building as the effective height is greater than 25m. A fire control centre must be so located in a building that egress from any part of its floor, to a public road or open space, does not involve changes in level which in aggregate exceed 300 mm (refer Clause 3 of Specification E1.8 of the BCA).

The Fire Control Centre is proposed to be provided to the ground floor level of the building within the main entrance. The current design details indicate compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution, pending floor levels.

Smoke Hazard Management
The buildings smoke hazard management will include the following

- mechanical services design is to meet the requirements of Part E2 of the Building Code of Australia and AS1668 parts 1 and 2
- smoke detection and alarm system to the sole occupancy units and class 2 areas
- exit pressurisation system to the fire isolated stairs that serve levels greater than 25meters in effective height

The current design details indicate compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

Emergency Lifts
At least 1 emergency lift is required to be installed in a building having an effective height of more than 25m and where two or more lifts are provided serving all storeys of the building at least two emergency lifts are to be provided. The emergency lifts may be combined with the passenger lifts as the passenger lifts serve every storey. Emergency lifts must serve every level of the building including the basement levels and must be accessible for people with disabilities.

The current design details indicate compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution.

All lift cars must be provided with fire service controls in accordance with AS 1735.2. A stretcher facility must be provided to at least one emergency lift and 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.

The current design details indicate compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution and may be required due to the existing lift shaft sizes.

Exit and emergency lighting
Emergency lighting must be installed in every fire isolated stair or passageway and in every storey of a class 6 and 7 building with a floor area greater than 300 square meters.

Compliance readily achievable.

Emergency Warning and Intercom Systems (EWIS)
An EWIS is required to comply with AS1670.4-2018 as the effective height of the building exceeds 25m.

Compliance readily achievable.

3.5 Part F – Heath and Amenity

Weatherproofing (FP1.4)
A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—

- unhealthy or dangerous conditions, or loss of amenity for occupants
- undue dampness or deterioration of building elements.

Weatherproofing performance solution to be developed for the building. Compliance readily achievable.

Stormwater drainage (F1.1) - Stormwater drainage must comply with AS/NZS 3500.3 where changes made to the building. .

Compliance readily achievable.

Waterproofing of wet areas in buildings (F1.7)
In a Class 2 building, building elements in wet areas must be water resistant or waterproof in accordance with Table F1.7; and comply with AS 3740.

Compliance readily achievable.

Facilities
In a Class 6 and 7 building, building elements in the bathroom or shower room, a slop hopper or sink compartment, a laundry or sanitary compartment must be water resistant or waterproof in accordance with Table F1.7; and comply with AS 3740, as if they were in a Class 2 or 3 building or a Class 4 part of a building.

Compliance readily achievable.

Provision of floor wastes (F1.11)
In a Class 2 building, a bathroom or laundry located at any level above a sole-occupancy unit or public space must have—(a) a floor waste; and (b) the floor graded to the floor waste to permit drainage of water.

Compliance readily achievable.

Sanitary Facilities (F2.1)

Sanitary and other facilities for Class 2 building and a must be provided in accordance with Table F2.1. Within each sole-occupancy unit, provide—

- a kitchen sink and facilities for the preparation and cooking of food; and
- a bath or shower; and
- a closet pan and washbasin.

Laundry facilities, provide either—
In each sole-occupancy unit—

- clothes washing facilities, comprising at least one washtub and space for a washing machine; and
- clothes drying facilities comprising—
- clothes line or hoist with not less than 7.5 m of line; or
- space for one heat-operated drying cabinet or appliance in the same room as the clothes washing facilities

Note: A kitchen sink or washbasin must not be counted as a laundry washtub.

Compliance readily achievable.

Sanitary Facilities (F2.3)
Sanitary facilities must be provided throughout all areas of the building for both females and males in accordance with the requirements of Table F2.3 of the BCA. Employees and the public may share the same facilities in a Class 6 part of a building if the number of facilities provided is not less than the total number of facilities required for employees plus those required for the public.

Compliance readily achievable.

Construction for sanitary facilities (F2.5)
Doors to fully enclosed sanitary compartments are to open outwards, or slide or have 1.2 metres clear space between door and closet plan or be readily removable from the outside of the sanitary compartment**.**

Compliance readily achievable.

Room Sizes (F3.1)
The minimum ceiling height of 2.7m is required to all habitable rooms excluding kitchens. All other rooms are required to have a minimum height of 2.1m. A Retail or Commercial space requires a minimum ceiling height of 2.4m.

The current design details indicate compliance will be achievable through a combination of deemed to satisfy provisions and performance based solution especially to the existing non sole occupancy unit areas.

Natural Light
Natural light must be provided to all habitable rooms within the apartments in accordance with Clause F4.2 of the BCA. The windows should have an aggregate light transmitting area of not less than 10% of the floor area of the room.

Compliance readily achievable.

Artificial lighting
Lighting must comply with Clause F4.4 of the BCA and AS/NZS 1680.0-2009.

Compliance readily achievable.

Mechanical ventilation – Mechanical ventilation or air-conditioning system complying with AS 1668.2 and AS/NZS 3666.1 must be provided where natural ventilation cannot be provided.

Compliance readily achievable.

Commercial kitchen Exhaust (F4.12)
A commercial kitchen must be provided with a kitchen exhaust hood complying with AS1668.1 and 1668.2 where required by specifics of clause if to be installed in the building.

Compliance readily achievable.

Sound Transmission and Insulation - Acoustics to Class 2 buildings
The proposal will need to meet the sound insulation requirements of Part F5 of the BCA.

Compliance readily achievable.

Car parks (F4.11)
Every storey of a car park (except an open deck car park) must have a system of ventilation complying with AS 1668.2 or an adequate system of permanent natural ventilation.

Compliance readily achievable

3.6 Part G – Ancillary Provisions

Occupiable Outdoor Areas (G6)
Outdoor areas that are normally occupied such as balconies and Communal areas greater than 10m² will need to comply with Part G6 of the BCA. Items for consideration by the design team include:

- All linings materials or assemblies in an outdoor occupiable area must comply with C1.10 of the BCA.
- Must be provision made for egress from the outdoor occupiable area in accordance with Part D1 and D2 of the BCA.
- Fire fighting equipment including portable fire extinguishers and/or fire hose reels and hydrant coverage will need to be provided to any outdoor occupiable area in accordance with Part E1 of the BCA.
- Lighting to be provided to the outdoor occupiable area in accordance with Part F4 of the BCA.

Compliance readily achievable.

Window Cleaning NSW (G1.101)
A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level. A building satisfies (a) where—

- the windows can be cleaned wholly from within the building; or
- provision is made for the cleaning of the windows by a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.

Compliance readily achievable.

3.7 Part J – Energy Efficiency

The building is located in Climate Zone 5.

J1 – J8 Building Fabric, external glazing, air movement & hot water supply etc.

Classes Other than 2 and 3
Compliance with Clause J1 to J8 is required. Specialist consultant advice may be required to ensure compliance with the relevant sections of the BCA.

See ESD report for the building.

Class 2 parts:
The class 2 parts of the building are subject to the Building Sustainability Index (BASIX). In addition the deemed to satisfy provisions of NSW Variations of Section J (Energy Efficiency) of the BCA will need to apply to the proposed development. See BASIX report for the building as part of the design review and assessment process.

See the BASIX report for the building.

4.0 Performance solutions

4.1 Performance solutions and performance based assessment

Where compliance with the deemed to satisfy provisions is not readily achievable, performance based assessment and performance solutions will be used to demonstrate compliance with the BCA. Based on the current design drawings the following performance solutions are required (or anticipated) unless the drawings can be amended to comply with the deemed-to-satisfy requirements of the BCA. These performance solutions are scheduled below and will need to be revisited on the furthering of design and as it approaches Construction Certificate application.

4.2 Deviations from the deemed-to-satisfy provisions

The following deviations from the deemed-to-satisfied provisions have been identified on review of the documentation provided, and identified by the design team including the fire engineers.

No	Heading	Requirement	Comment
C1.1	Type A construction required	The building needs to be fire rated in accordance with Specification C1.1	Fire engineering to validate the existing structural fire rating after report from the structural engineers. Areas of the design that do not meet current fire resistance levels will need justification through fire engineering. It is proposed that fire resistance levels be rationalised to 90 minutes for the class 2 areas and 120 minutes in all the other areas.
C2.8	Separation of classifications in the same storey	These clauses will need consideration where there are departures from the deemed to satisfy provisions.	Areas of the design that do not meet current fire resistance levels will need justification through fire engineering.
C2.9	Separation of classifications in different storeys		
C2.10	Separation of lift shafts	Any lift connecting more than 2 storeys, or more than 3 storeys if the building is sprinklered, must be separated from the remainder of the building by enclosure in a shaft in which— (i) in a building required to be of Type A construction—the walls have the relevant FRL prescribed by Specification C1.1	The lift shafts are to be assessed by the structural engineers to validate their fire resistance level. The building structure may need upgrade or fire engineering to justify compliance. The proposal to the terraces where there are lifts connecting more than 3 levels needs to include a performance solution if the lifts are not to be in fire rated shafts.
C2.11	Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	Applies to the sole occupancy units in the terraces at the fire exit stair design – departs from the deemed to satisfy provisions. Fire engineering to justify areas on non compliance with respect to deemed to satisfy provisions.
C3.2	Protection of openings in external walls	Openings in an external wall that is required to have an FRL must— (a) if the distance between the opening and the fire-source feature to which it is exposed is less than— (i) 3 m from a side or rear boundary of the	Applies to the café openings over the adjoining property to the west. Fire engineering to justify areas of non compliance with respect to deemed to satisfy provisions and

No	Heading	Requirement	Comment
		allotment; or (ii) 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or	where protection will not be provided.
D1.2	Number of exits required	All buildings - Every building must have at least one exit from each storey. Class 2 to 8 buildings - In addition to any horizontal exit, not less than 2 exits must be provided from the following: (i) Each storey if the building has an effective height of more than 25m (ii) A Class 2 or 3 building subject to C1.5. Basements – In addition to any horizontal exit, not less than 2 exits must be provided from any storey if egress from that storey involves a vertical rise within the building of more than 1.5m	Variances from the deemed to satisfy to be justified via fire-engineering where the proposed design is not in accordance with the deemed to satisfy provisions. May apply to the fire pump room.
D1.3	When fire-isolated stairways and ramps are required	Class 2 buildings – Every stairway or ramp serving as a required exit must be fire-isolated	The sole occupancy units to the terrace areas access egress stairs that are not fire isolated and connect more than 4 levels. This needs to be justified through fire engineering to the northern and southern terraces by fire engineering.
D1.4	Exit travel distances.	**Class 2 buildings** (i) The entrance doorway of any sole-occupancy unit must be not more than— (A) 6 m from an exit or from a point from which travel in different directions to 2 exits is available; or (B) 20 m from a single exit serving the storey at the level of egress to a road or open space; and (ii) no point on the floor of a room which is not in a sole-occupancy unit must be more than 20 m from an exit or from a point at which travel in different directions to 2 exits is available. **Class 5 to 9** (i) no point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m; and	Minor areas may need a performance solution and justified through fire engineering The variance relating to the distance of travel generally applies to the basement floor level carpark.
D1.5	Distance between alternative exits	Exits that are required as alternative means of egress must be— a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and b) not less than 9 m apart; and c) not more than 60 m apart; and d) located so that alternative paths of travel do not converge such that they become less than 6 m apart.	**Class 2** The tower scissor stair entry doors are less than 9 metres apart to the high rise levels and at the point of discharge at the ground floor level. **Class 7a** The distance between exits to the carpark exceed 60 metres in parts This needs to be considered in the design and justified through fire engineering
D1.6	Dimensions of exits.	Paths of exit are to be no less in clear width than 1.0m and no less than 2.0m in clear	Fire engineering may be applicable depending on the design where the

No	Heading	Requirement	Comment
		height. Width of exit not to diminish in the direction of travel. 1m wide egress path should be maintained throughout.	width of the existing fire isolated stairs and some exit paths may be less than 1000mm in clear width.
D1.7	Travel via fire-isolated exits	A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from— (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or (iii) a sanitary compartment, airlock or the like.	Non compliance will apply to the sole occupancy units to the terraces as they open directly into the stairs that would normally be required to be fire isolated stairs. The design will need to be justified through fire engineering.
D1.16	Plant rooms and lift motor rooms, Concession	Plant rooms less than 100m2 can be served by a ladder only, if less than 200m2 can be served by a stair first and then a ladder, and over 200m2 need two stairs.	The design will need to be justified through fire engineering where it does not comply.
D1.17	Access to lift pits	Specific requirements apply.	The design will need to be justified through fire engineering where it does not comply given the existing nature of the lifts to the tower.
E1.3	Fire hydrants	A fire hydrant system must be provided to the building and be installed in accordance with AS 2419.1-2005 Internal fire hydrants shall cover only the level on which they are located. Location of fire pump rooms.	Building is to be provided with a compliant system in accordance with the Australian Standards. Fire services engineer to verify any departures from the deemed to satisfy provisions however some allowance for fire engineering will need to be made.
E2.2	Smoke control	Basement carpark must be provided with mechanical ventilation system in accordance with AS1668.2 and must comply with Clause 5.5 of AS/NZS 1668.1.	Fire engineering may need to be provided to the carpark ventilation system if not fully compliant.
E3.2	Stretcher facility in lifts	A stretcher facility will be required in the passenger lift serving the apartments as it serves a storey above an effective height above 12m. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally with a clear space of not less than 600mm wide, 2000mm long and 1400mm high.	Lift details required and to be upgraded to comply otherwise the size of the lift if constrained by the existing structural walls may need a performance solution.
E3.4	Emergency lifts	At least one emergency lift must be installed in a building which has an effective height of more than 25 m;	An emergency lift will not be provided to all levels of the building. Fire engineering to validate and justify.
FP1.4	Weatherproofing	A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause— (a) unhealthy or dangerous conditions, or loss of amenity for occupants; and (b) undue dampness or deterioration of building elements	Performance solution to be compiled for the construction and waterproofing to all external walls.
F3.1	Height of rooms and other spaces.	The height of rooms and other spaces must be not less than— **In a Class 2** building a habitable room excluding a kitchen 2.4 m; other areas 2.1m; **In a Class 5, 6, 7 or 8 building**— (i) except as allowed in (ii) and (f) — 2.4 m; and	Some areas of the existing building may need a performance solution if the existing ceiling heights do not comply.

No	Heading	Requirement	Comment
		(ii) a corridor, passageway, or the like — 2.1 m; and (f) in any building— (i) a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; Minimum heights on stairs ramps and landings to be 2m measured vertically above the line of nosing or the landing.	
J1 to J8	Building Fabric, external glazing, air movement & hot water supply etc.	**Class 2 parts:** The class 2 parts of the building are subject to the Building Sustainability Index (BASIX). In addition the DTS requirements of NSW Variations of Section J (Energy Efficiency) of the BCA will need to apply to the proposed development. In this instance the following is to be complied with: **Classes Other than 2 and 3** Compliance with Clause J1 to J8 is required. Specialist consultant advice may be required to ensure compliance with the relevant sections of the BCA	Performance solution to be compiled for the existing wall construction and general energy efficiency in accordance with the requirements of BASIX and Part J for the building JV3 may be required for some parts.