Hassell

WATERLOO METRO QUARTER
BUILDING 2
SSD-10439 - RESPONSE TO SUBMISSIONS
SUPPLEMENTARY DESIGN REPORT

014079
Waterloo Integrated Station Development - Metro Quarter Development

Prepared for
Waterloo Developer Pty Ltd

15 March 2021

Acknowledgment of Country

Our Sydney studio is located on Gadigal country. We acknowledge and respect the Gadigal people as the original custodians of the land and water upon which we work. We honour their Elders past, present and emerging whose knowledge and wisdom has, and will, ensure the continuation of cultures and traditional practices.

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Document Control

Rev	Date	Approved By	Description
01	15.03.2021	Liz Westgarth	Response to Submission

INTRODUCTION

This supplementary design report has been prepared to respond to Submission received for SSD-10439.

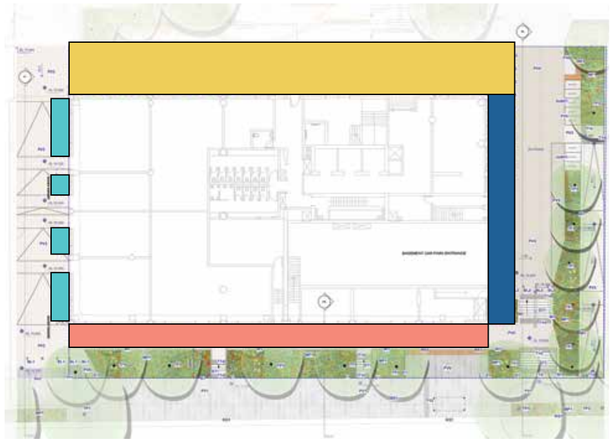
This report contains the Responses to the City of Sydney comments (dated 3rd December 2020), DPIE comments (dated 14th December 2020) and EES comments (dated 26th November 2020) relating to the architecture and design. It is intended to be read in conjunction with the updated Architectural Drawings submitted as part of the Response to Submission.

View of the Central Building and Cope Street Plaza from Cope Street (Artist's impression only)

RESPONSE TO SUBMISSION

AWNINGS, FACADE & MATERIALITY

AWNINGS



Awning Types

- Type A - Awning (Grit Lane)
- Type B - Continuous Glazed Awning (Botany Road)
- Type C - Cope Street Plaza
- Type D - Church Square

Design Excellence

13. Awnings – The applicant and DPIE are to ensure that all awnings located over the public domain and through-site links are to be between 3.2 metres and 4.2 metres above finished ground level and to be setback a minimum 800mm from the kerb. Awning widths are to be between 2 metres and 3.6 metres whilst Remaining clear of smartpoles by 1 metre and street trees by 1.5 metres. This is to allow for under awning signage, provide suitable weather protection for pedestrians and provide sufficient clearance for vehicles, trees and infrastructure.

Response

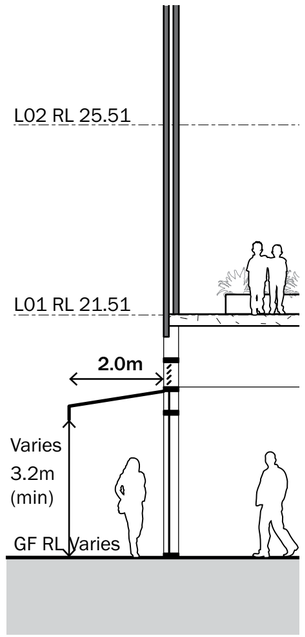
_The ground plane design of building 2 incorporates a variety of awning types to provide shelter from the elements around the building. The variety of awning types is consistent with the Urban Design principles for the precinct.

_Type A awning: a 2m deep localised awnings are provided along Grit Lane.

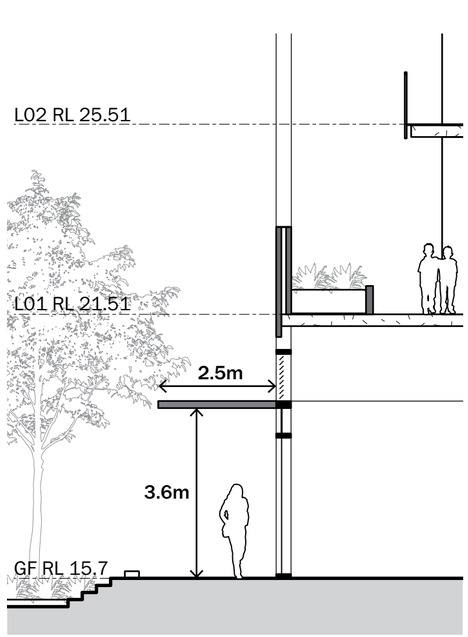
_Type B awning: a 2.5m deep continuous glazed aluminium awning is provided along Botany Road to provide protection for pedestrians and retail tenancy users, as well as providing weather protection for people waiting for buses.

_Type C awning: the podium above projects beyond the ground floor facade by 5.7m providing weather protection for pedestrians and outdoor seating zones, as well as the residential and childcare entrances.

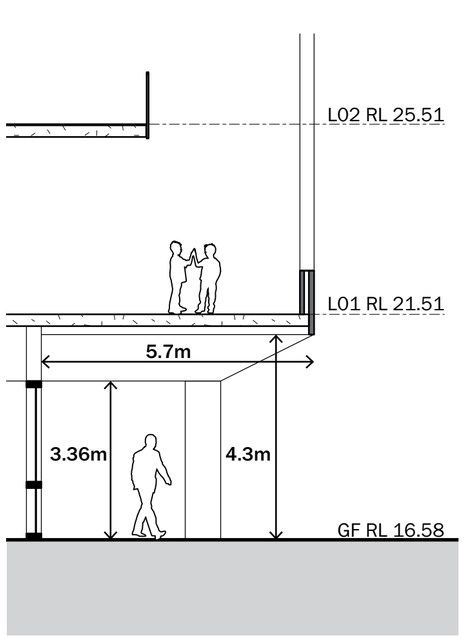
_Type D awning: the podium above projects beyond the ground floor facade by 2.9m providing weather protection for pedestrians and parking entry.



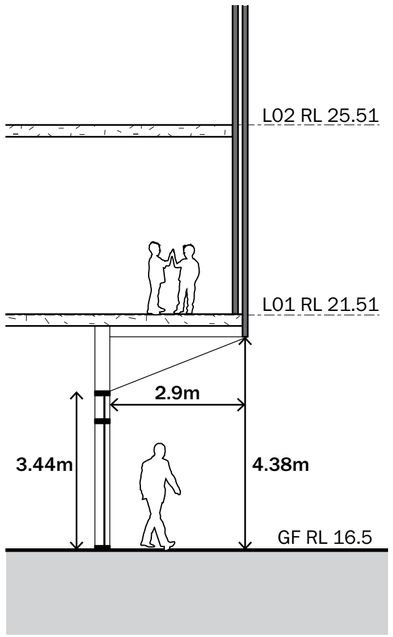
Type A - Awning (Grit Lane)



Type B - Continuous Glazed Awning (Botany Road)



Type C - Cope Street Plaza



Type D - Church Square

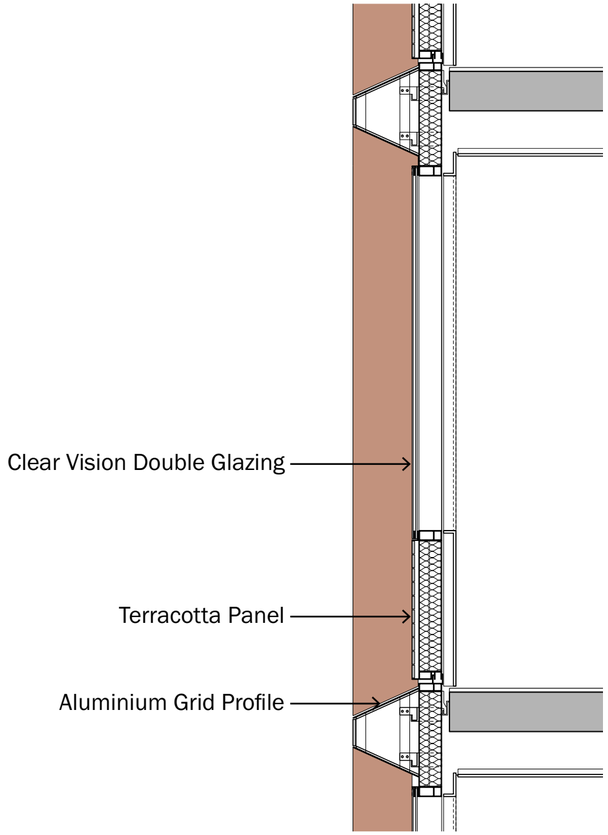
FACADE DETAIL

Design Excellence - Building 2

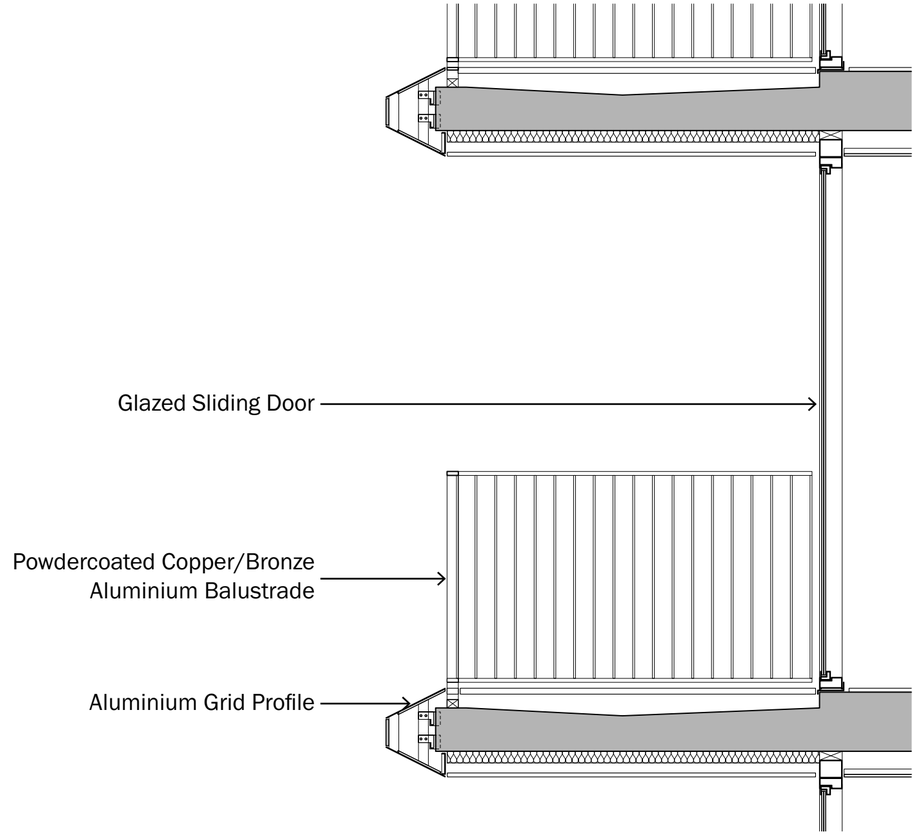
16 (a) There is a general lack of detail on facade design – 1:20 design intent facade sections should be provided to demonstrate design excellence;

Response

_Additional details regarding tower facade detail is provided.



Typical Facade Detail Intent 1:20

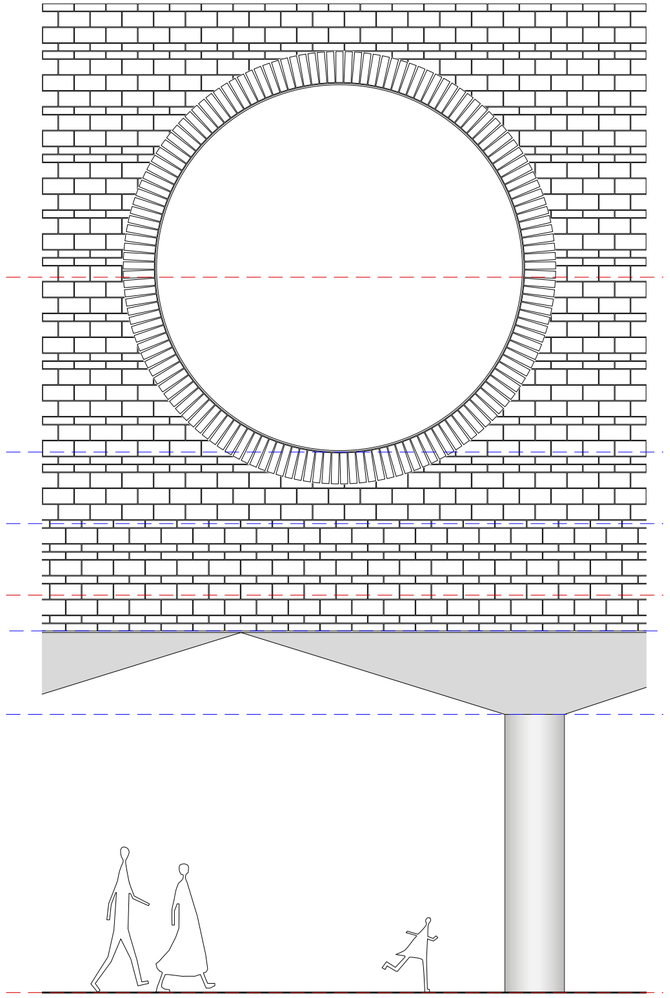


Typical Balcony Detail Intent 1:20

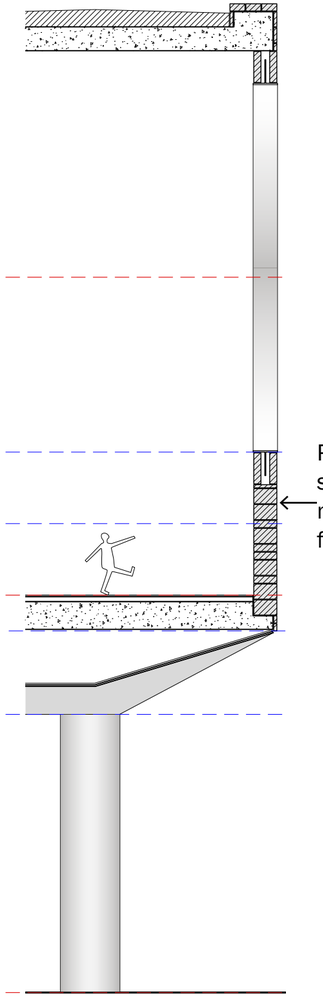
FACADE DETAIL

Response

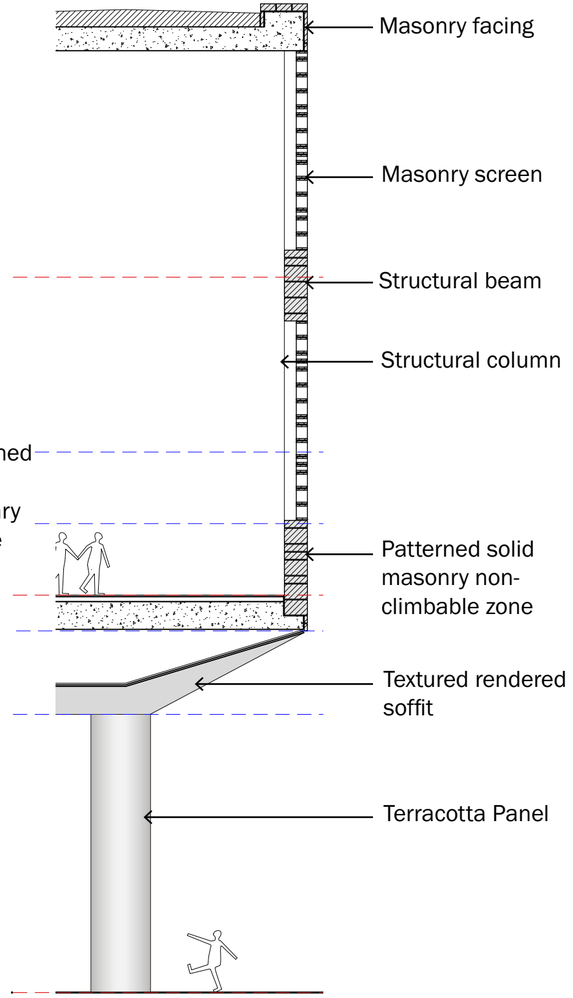
_Additional details regarding podium facade detail is provided.



Podium Facade Elevation Intent 1:20



Podium Section (Open) Intent 1:20

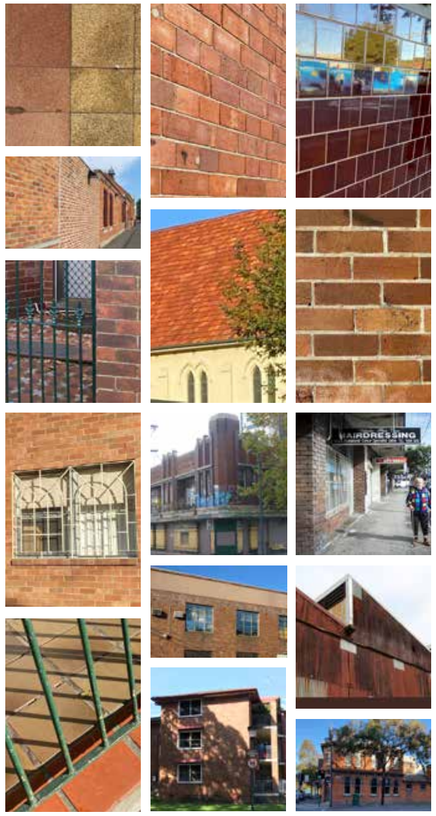


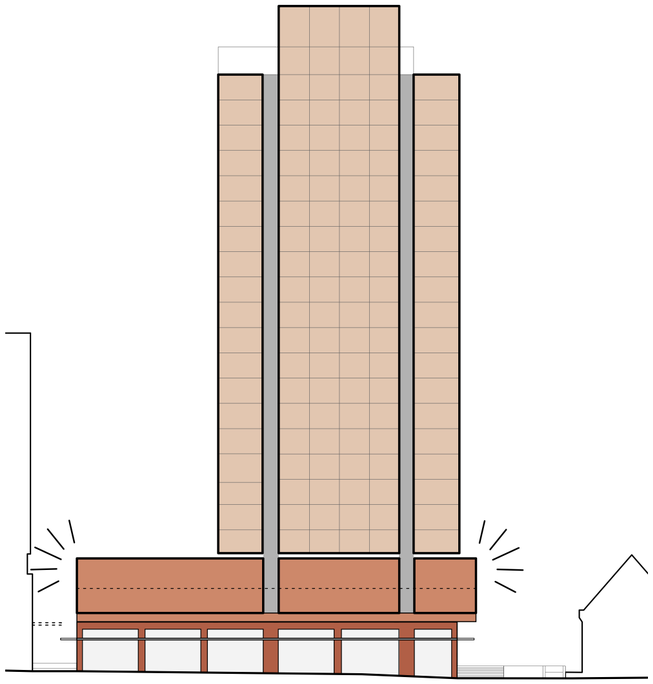
Podium Section (Screened) Intent 1:20

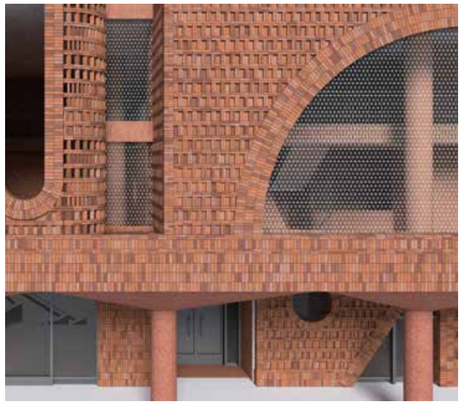
MATERIAL & FINISHES

The materiality of building 2 draws on contextual materials that catch and reflect the light in different ways and evoke the spirit of place - brick, clay, terracotta, ceramic that are warm, tactile and robust.

The central building captures the rich and layered character of Waterloo - through the juxtaposition of two distinct identities (residential and childcare) that have been carefully woven together.







MATERIAL & FINISHES

Podium

Design Excellence - Building 2

16 (b) There is a general lack of certainty or clarity of the finishes. Actual products must be specified rather than generic descriptions such as “patterned masonry facade”. References to options allowing later substitutions should be removed, e.g. “tiled or textured finish”;

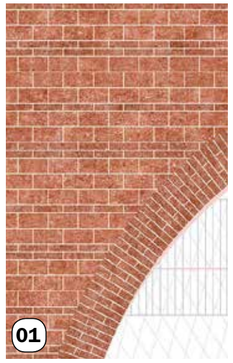
16 (c) The “patterned masonry screen” referred to as MAS-02 requires more detailed information to confirm that it is suitable for the proposed use. This is a perforated screen surrounding portions of the external areas of the childcare. The reference image does not show a feasible masonry screen and the impact will be a vast reduction of available light and air through the screen. A 1:20 brickwork elevation and 1:10 plan and section details should be provided;

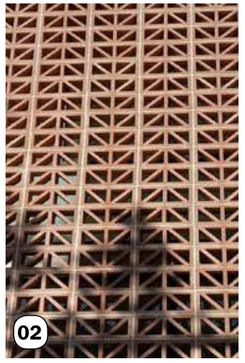
Response

_Additional information regarding the proposed materials and finishes is provided.

_For MAS - 02, currently exploring 2 products (breeze block and Flexbrick) in detail design, which are both capable of delivering design intent as high quality materials, balancing both expression and amenity of the childcare within.

_Podium facade detail and childcare amenity is addressed later in the report.





BUILDING 2 PODIUM FINISH

1.	Patterned Solid Masonry Facade	Solid masonry in bands of split face finish & smooth face finish Colour - "Pottery"
2.	Masonry Screen	Flexbrick terracotta tile system on SS mesh Colour - "Rojo Rustic" OR Perforated masonry blockwork Colour - "Pottery"
3.	Mesh Screen	Woven metal mesh Providing framework for climbing plants
4.	Textured Render	Textured rendered finish to FC Colour - "Dark clay"
5.	Terracotta Panel	Thin format terracotta panel in glazed finish Colour - "Dark clay"

MATERIAL & FINISHES

Ground

Design Excellence - Building 2

16 (d) FAC-03 is shown to ground level solid facade areas. This is described as a solid textured panel. All materials at ground level should be robust and durable with an integral finish. This description implies a lightweight painted cladding panel which is not supported;

Response

_Additional information regarding the proposed materials and finishes is provided

BUILDING 2 GROUND FINISH

1.	Terracotta Panel	Large format Terracotta panel Matt finish with anti graffiti coating Colour - "Dark clay"
2.	Clear Vision Glass Window Frame	Glazed DGU with clear performance vision glass Solid aluminium Powdercoat 'metallic' finish Colour - "Dark bronze"
3.	Dark Bronze Aluminium Frame	Solid Aluminium Powdercoat 'metallic' finish Colour - "Dark bronze"
4.	Exhaust Louvres	Solid Aluminium Powdercoat 'metallic' finish Colour - "Dark bronze"
5.	Aluminium Awning with glass	Solid Aluminium Powdercoat 'metallic' finish Colour - "Dark bronze" Safety glass

MATERIAL & FINISHES

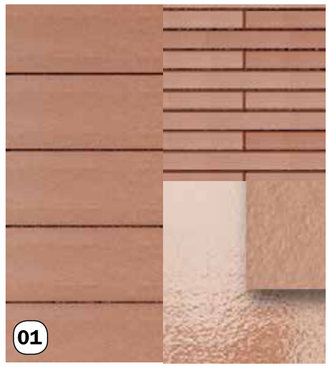
Tower

Design Excellence - Building 2

16 (e) The proposed materials for the tower are also described too generically to allow proper assessment. They appear to be lightweight cladding panels with an applied paint finish. This is not supported on the basis of design excellence. A preferred material would have an integral finish to reduce costs and effort required to maintain the finish over the lifetime of the building;

Response

_Additional information regarding the proposed materials and finishes is provided



BUILDING 2 TOWER FINISHES

1.	Terracotta Panel	Terracotta panel in various sizes Matt and glazed finish Colour - "Light clay"
2.	Precast Concrete	Colour - painted to match terracotta facade colour
3.	Facade Grid Aluminium profile	Aluminium Powdercoat 'metallic' finish Colour - "Copper/Bronze"
4.	Aluminium Acoustic Plenum Vents	Aluminium Powdercoat 'metallic' finish Colour - "Copper/Bronze"
5.	Metal Balustrade (Level 6 - Level 22)	Aluminium Powdercoat 'metallic' finish Colour - "Copper/Bronze"
6.	Solid Metal Balustrade (Level 3 - Level 5)	Solid upstand with small format terracotta panels (matt and glazed finish), and Aluminium balustrade above Powdercoat 'metallic' finish Colour - "Copper/Bronze"
7.	Aluminium Louvres (Plant Level)	Aluminium Powdercoat 'metallic' finish Colour - "Copper/Bronze"
8.	Clear Vision Glass Window Frame	Glazed DGU with clear performance vision glass Solid Aluminium Powdercoat 'metallic' finish Colour - "Copper/Bronze"

PLANT ROOM

Roof Top

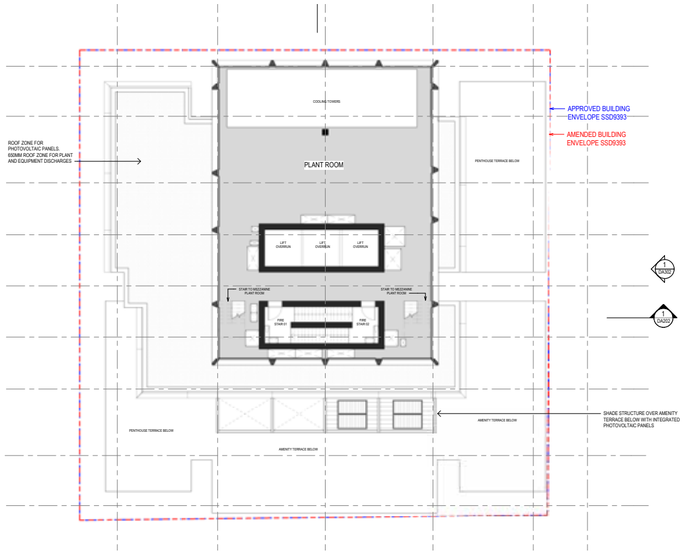
Design Excellence - Building 2

16 (g) A large consolidated plant room is provided on Level 24, which is supported as this removes the need for ad-hoc equipment on the adjoining areas of roof. A condition of consent is recommended to require the integration of all roof services within the Level 24 plant room and to prohibit the installation of any roof plant on any other areas of the roof.

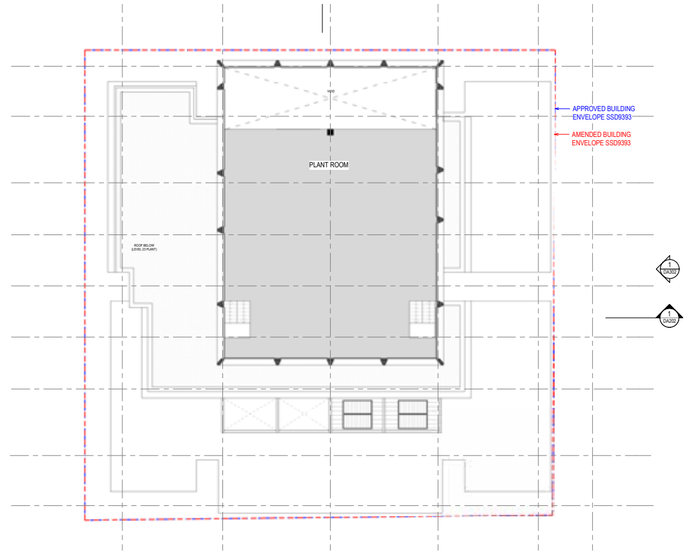
Response

_As noted in the submitted DA drawings, level 23 and level 23 mezzanine will house plant equipment servicing building 2. This will be a semi enclosed structure designed to be part of the overall building facade.

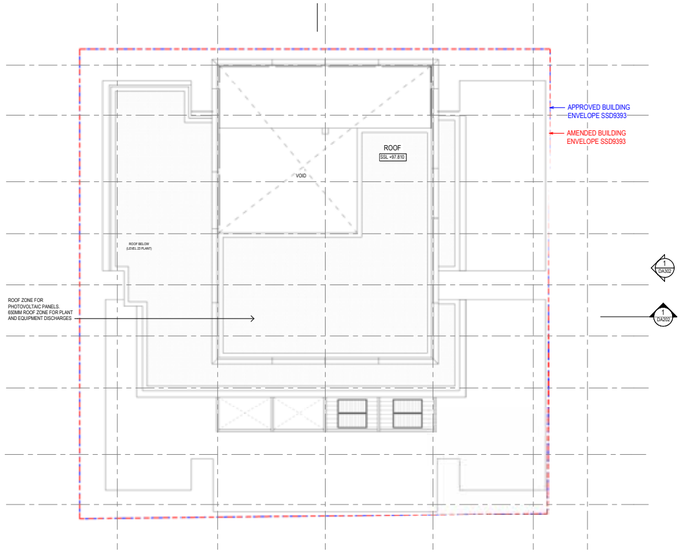
_The roof area adjacent to level 23 plant room and the roof is proposed to house photovoltaic panels to achieve ESD targets.



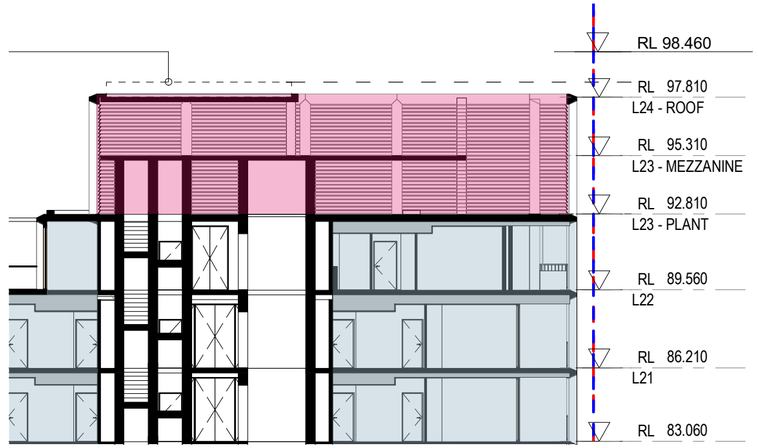
Level 23 - Plant Room



Level 23 - Plant Room Mezzanine



Level 24 - Roof



North Elevation

RESPONSE TO SUBMISSION

RESIDENTIAL AMENITY

DESIGN REVIEW PANEL

Process Overview

Over the period of 13 months, the team presented to the Design Review Panels on 14 occasions. On each occasion, aspects of the design were presented to the panel with explanation & justification.

The items noted in the attached DRP Actions and Advice Tracker, reflect the journey which the design has taken in collaboration with the Design Review Panel.

Central precinct ADG compliance was presented on three occasions, resulting in commentary from the Panel. On all occasions, the issues raised by the Panel were closed out by the design team in subsequent meetings. The key items related to ADG are noted on the right.

Specifically, it is noted that the design has sought to optimise the response to the Apartment Design Guidelines, balancing the amenity of the apartments with the site constraints. In the project teams view, the DRP has challenged and accepted that the current design represents the optimal balance of amenity for the building and urban experience.

_DRP PANEL ADVICE AND ACTION RECORD

- 15/16 June 2020
- 18 February 2021

_Waterloo DRP Action and Advice Register (March 2021)

Refer Appendix F - Design Integrity Report for complete copy of DRP Panel Advice and Action Record and Register.

DRP Panel Advice & Actions Record - 15/16 June 2020

OSD Central

Built Form

- **Tracker Item 2.21** – The Panel accepts that the central apartment building layout can satisfy the minimum requirement for natural cross ventilation in the Apartment Design Guide. The Panel requests a diagram showing openable window locations in all apartments to clarify how this ventilation will be achieved, whilst maintaining visual and acoustic privacy between units.
- **Tracker Item 2.22** – The Panel supports in principle the proposed solar shading devices as presented to east, west and northern facades. It was noted however that the detailed CGIs indicated significantly deeper reveals than the proposed 350mm, and recommends the imagery be adjusted for accuracy.
- **Tracker Item 6.04** – The Panel commends the team for their review of the façade approach and supports the façade design development and materiality, in particular the material linkages with the podium design, and the variation of reflectivity and texture between terracotta surface treatments.

DRP Panel Advice & Actions Record - 18 February 2021

Building 2 – Central OSD

Built Form

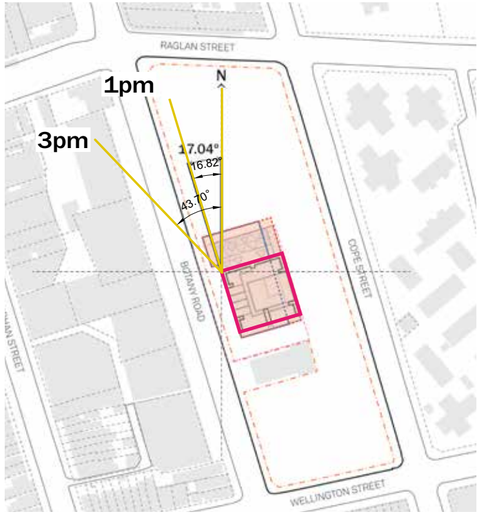
- The Panel acknowledges that it is difficult for this building to meet minimum ADG requirement for solar access to apartments. The Panel also notes that whilst not compliant, a larger number of apartments will still have reasonable solar access during winter days.

DESIGN FRAMEWORK

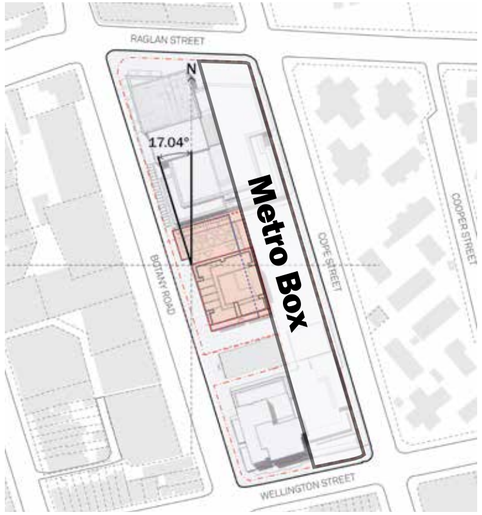
The below design framework ensures a balanced approach to apartment amenity including shading, solar access, cross ventilation, natural ventilation, apartment planning and functionality.

Building to align with precinct grid

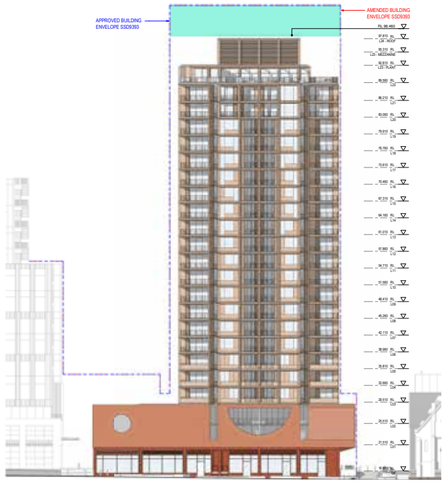
West facade past 1pm mid winter sun angle



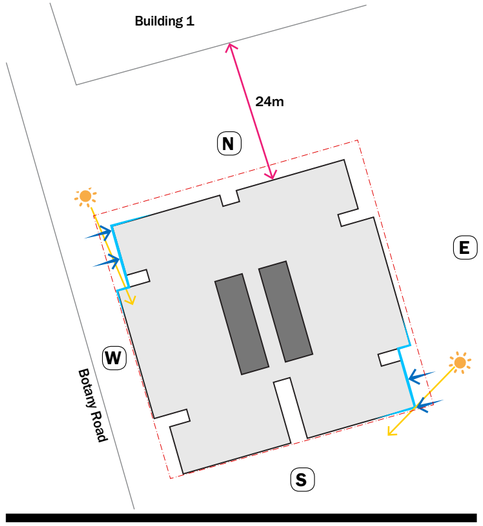
Building not to cantilever over Metro



Lowered height and orientation of the building reduces overshadowing



Minimum 24m building separation



Master Plan and Precinct Continuity

_Building 2 with residential and community use has been intentionally located as the heart of the precinct.

_The massing of Building 2 follows the site boundary and street grid to ensure alignment in the public realm (footpaths, awning etc) and basement functionality, creating a consistency in built form and coordinated basement.

Envelope Constraints

_The dimension of the concept approval tower envelope is square in proportion (approx. 32m x 32m). ie. A deep volume.

_The envelope is aligned to the street grid between Botany Road and Cope Street which is oriented 17.04 degrees off the north point, where the mid winter 1pm sun is at 16.82 degrees. This means that the western facade edge will receive solar amenity between 1:30pm -3:30pm mid winter.

Metro and Cope Street Plaza Interface

_Rotation of building is discounted due to Metro box interface.

_Rotation of building is discounted due to visual impact on Cope Street Plaza.

Public Open Space Amenity

_Providing solar amenity to Alexandria Park as a key public space is a driving principle for the building.

_Key moves include:

- Lowering the concept approval height of the tower by 2 levels
- Setback on the SE corner

_Rotation of the building has been discounted as it would increase overshadowing to Alexandria Park.

Maximising Apartment Amenity & Functionality

_Solar amenity, views, thermal comfort, privacy and internal room relationships are key considerations for maximising liveability and functionality of apartments.

_Key moves include:

→ Modular facade concept with an integral response to solar, daylight and privacy
→ 24m setback from Building 1 to maximise solar amenity and privacy
→ Setback on the NW corner to maximise solar access to centrally located west apartments

SOLAR ACCESS

Amenity - Central Residential Building

18. Solar access – Objective 4A-1 of the Apartment Design Guide (ADG) recommends, as a minimum, 70% of apartments be provided solar access to living rooms and balconies for at least two hours during midwinter. The application states that 57% of apartments achieve the design criteria. The City does not support the applicant's justification for the non-compliance by including solar access after 3pm as this is not reflected in the design guidance or criteria and is of little thermal benefit due to the low altitude of the sun.

No information is provided to illustrate alternatives to achieve compliant solar access within the widely accepted criteria (9am to 3pm) such as staggering the floor plate to allow sun ingress from 1pm. Winter sunlight is generally discounted outside 9.00am-3.00pm as it is of little thermal benefit due to the low altitude of the sun. The more detailed solar information in the architectural design report demonstrates that even at 1.30pm, sunlight is too oblique to the facade and there is no benefit to extending the assessment criteria.

The tally incorrectly includes apartments as complying where only the living room glazing meets the criteria, rather than both living room glazing and balcony. This is not a correct interpretation of the ADG, which requires both to achieve a minimum of 2 hours of sunlight in order to be counted in the minimum 70% of apartments. This applies to both west facing apartments, and apartments at lower levels in the northeast corner of the plan, which are shaded by the southeast corner of Building 1. These apartments have been counted where only the balcony achieves the minimum amount of sunlight (loss of 3 apartments). The stated solar access tally is incorrect and should be updated to reflect a correct interpretation of the ADG design criteria. It is likely to be well below the minimum when measured correctly.

The non-compliance is a symptom of the site planning, locating the commercial office building adjoining the northern boundary and obstructing solar access to the residential apartments to the south. The City therefore raises concerns with the appropriateness of SSD-10441 regarding Objectives 3A-1, 3B-1 and 4A-1 of the ADG.

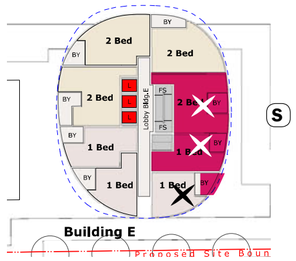
Response

Optimised Apartment Layout

_Apartment planning options were explored to maximise east and north facing apartments while eliminating south facing apartments within the envelope.

_The typical lower floor apartment layout of Stage 1 DA plan has 2 south facing apartments, whilst the 2 and 3 bedroom south apartments have south facing balconies where they won't receive any direct sunlight mid winter.

_The proposal is an improvement from the concept approval.



Level 9 - 16 (Stage 1 DA)

3 apartments will not comply with ADG objective 4A-1 for solar amenity.

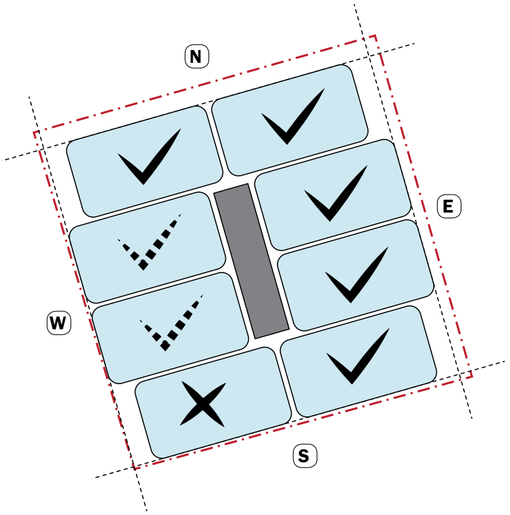
Apartment/Balconies with no solar access between 9am - 3pm mid winter

Apartment planning to maximise amenity.

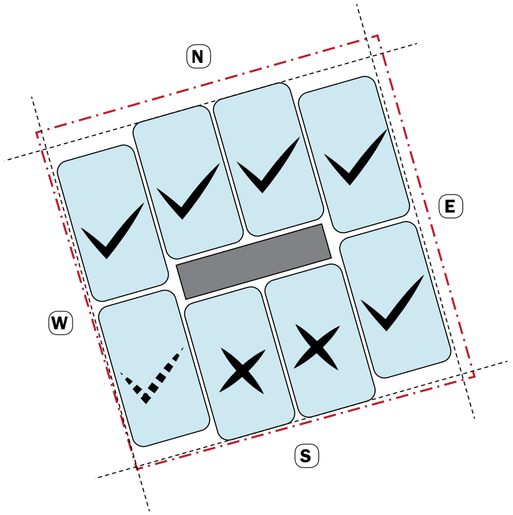
Apartment receives minimum 2 hour sun between 9am-3pm mid winter

Apartment receives minimum 2 hour sun between 9am-3:30pm mid winter

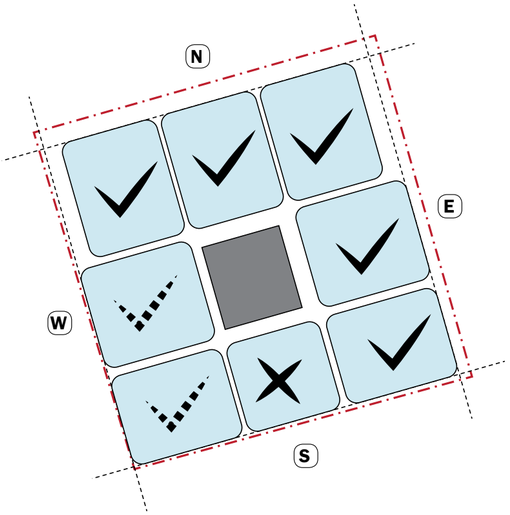
Apartment doesn't receive minimum 2 hour sun between 9am-3pm mid winter



01. Maximising east facing apartments with no south facing apartment.



02. Option to maximise north facing apartments. This configuration creates 2 south facing apartments.
The 2 captured north apartments will be overshadowed by Building 1 on the lower levels.



03. Balancing east and north facing apartments. This configuration creates 1 south facing apartment.
The captured north apartment will be overshadowed by Building 1 on the lower levels.

SOLAR ACCESS

Amenity - Central Residential Building

No information is provided to illustrate alternatives to achieve compliant solar access within the widely accepted criteria (9am to 3pm) such as staggering the floor plate to allow sun ingress from 1pm. Winter sunlight is generally discounted outside 9.00am-3.00pm as it is of little thermal benefit due to the low altitude of the sun. The more detailed solar information in the architectural design report demonstrates that even at 1.30pm, sunlight is too oblique to the facade and there is no benefit to extending the assessment criteria.

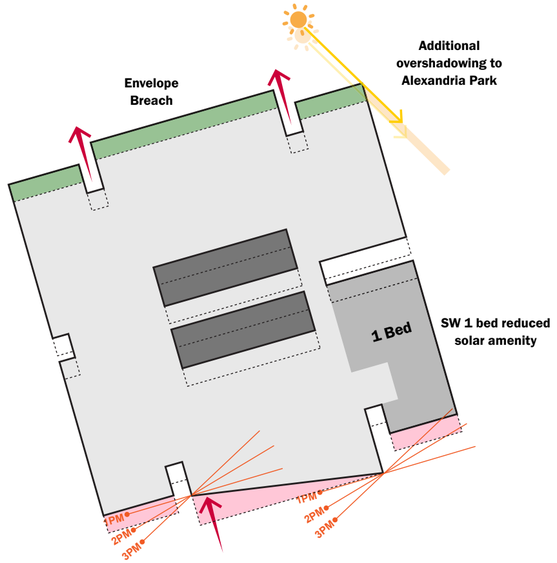
Response

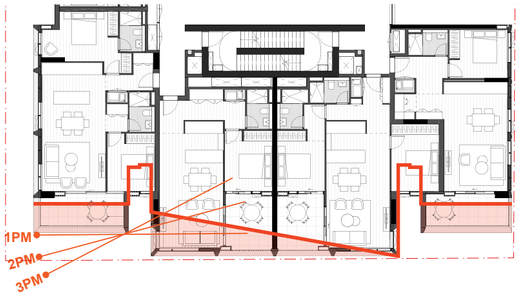
_A number of designs were explored to maximise solar amenity on the optimised apartment layout.

_The diagrams on the right seek to demonstrate the problematic nature of seeking absolute compliance with the Apartment Design Guidelines, rather than using them as a way to optimally balance the quality of user experience. The proposed design is non-compliant as proposed, by a margin of 30-minutes on the winter solstice.

_The options to the right present a way to make the building strictly compliant with ADG solar access requirements – both approaches are detrimental to the quality of internal apartment space, the urban experience of the architecture and overshadowing to Alexandria Park. The design team has worked with the Design Review Panel to finesse the design of the building, including proportion, materiality and structural integration to ensure a balanced approach to apartment amenity, architectural expression and overshadowing to public spaces.

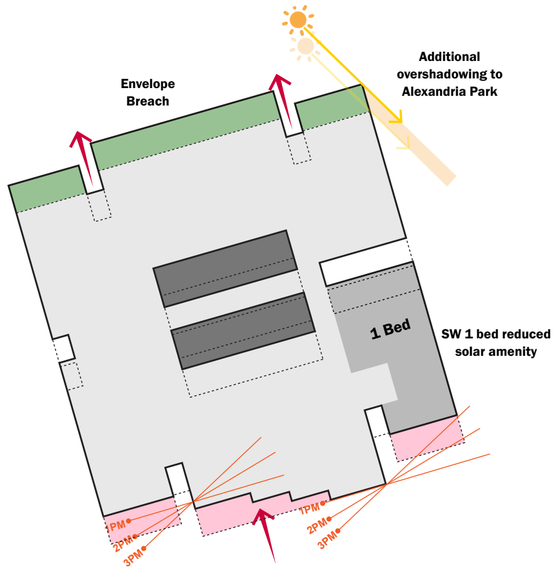
_The proposed design solution does not adopt the approach shown here and was noted as still receiving reasonable solar access during winter days by the Design Review Panel.

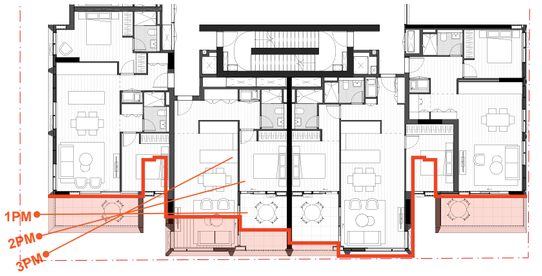




Area to be relocated

Relocated area





West facade rotated towards north

- ✗ Impact on Alexandria Park shadow: to retain the efficiency and amenity of apartment planning, by rotating the west facade to strictly comply with the ADG requirement, it means the building needs to be pushed further east, creating more cantilever to the public domain and increasing overshadowing to Alexandria Park.
- ✗ Envelope breach
- ✗ Inefficient apartment layout reducing functionality - awkward geometry, depth of living room
- ✗ Reduced solar amenity of SW 1 bedroom apartment
- ✓ ADG solar compliant

Staggered west facade

- ✗ Impact on Alexandria Park shadow: to retain the efficiency and amenity of apartment planning, by rotating the west facade to strictly comply with the ADG requirement, it means the building needs to be pushed further east, creating more cantilever to the public domain and increasing overshadowing to Alexandria Park.
- ✗ Envelope breach
- ✗ Privacy issue between apartments
- ✗ Reduced solar amenity of SW 1 bedroom apartment
- ✓ ADG solar compliant

SOLAR ACCESS

Internal apartment layout to maximise amenity and minimise Alexandria Park overshadowing.

Amenity - Central Residential Building

18. Solar access – Objective 4A-1 of the Apartment Design Guide (ADG) recommends, as a minimum, 70% of apartments be provided solar access to living rooms and balconies for at least two hours during midwinter. The application states that 57% of apartments achieve the design criteria. The City does not support the applicant's justification for the non-compliance by including solar access after 3pm as this is not reflected in the design guidance or criteria and is of little thermal benefit due to the low altitude of the sun.

Response

Principles of Good Apartment Design

_The diagram on the right demonstrates the key principles which are employed to ensure the optimal amenity is provided to apartment occupants. These apartments are all in excess of the minimum areas, demonstrate rigorous planning and optimise the layouts for their orientations.

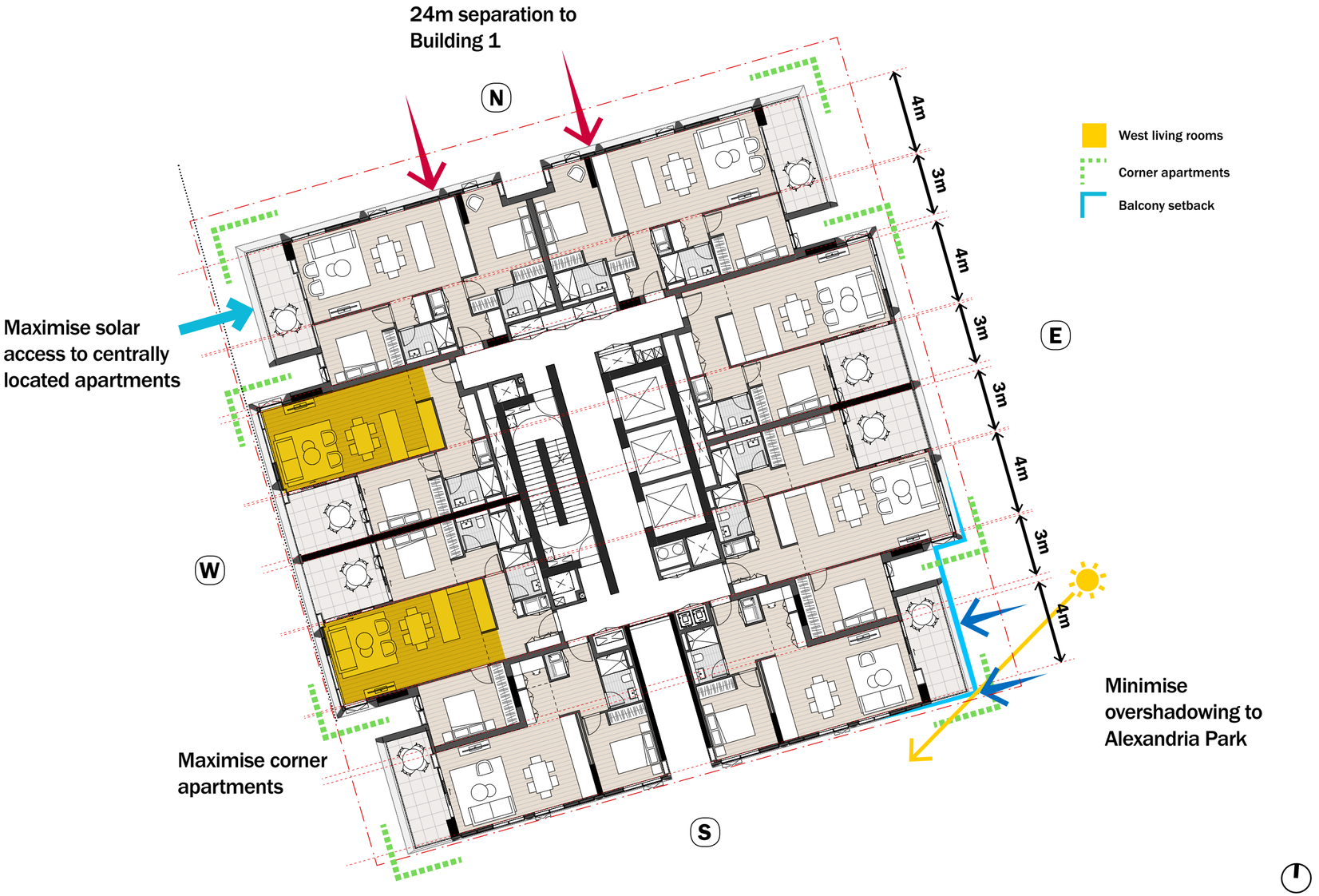
_Maximise the number of east facing apartments.

_Setback on the northeast and north west corner to increase solar access to east and west apartments.

_No south facing apartments

_Living rooms on the western elevation are designed without balconies adjoining the western edge. Eg, all living rooms have a glazed facade on the western boundary of the site, maximising solar access at mid winter.

_Setbacks on the facades are designed to maximise the number of corner apartments in order to improve amenity for the centrally located apartments, maximising dual aspect apartments.



SOLAR ACCESS

Amenity - Central Residential Building

The tally incorrectly includes apartments as complying where only the living room glazing meets the criteria, rather than both living room glazing and balcony. This is not a correct interpretation of the ADG, which requires both to achieve a minimum of 2 hours of sunlight in order to be counted in the minimum 70% of apartments. This applies to both west facing apartments, and apartments at lower levels in the northeast corner of the plan, which are shaded by the southeast corner of Building 1. These apartments have been counted where only the balcony achieves the minimum amount of sunlight (loss of 3 apartments). The stated solar access tally is incorrect and should be updated to reflect a correct interpretation of the ADG design criteria. It is likely to be well below the minimum when measured correctly.

Response

ADG requires 70% of the apartments (105/150) to have a minimum 2 hour direct solar access to POS and living areas between 9am-3pm mid winter. 86 apartments or 57% (shortfall of 19 apartments) achieve the design criteria set out in the ADG on both POS and living areas. Due to a number of constraints such as the sites orientation and envelope as well as balancing design considerations such as apartment layout and planning, the submission provides justification including the additional 34 apartments that are able to achieve solar access between 9am to 3.30pm, noting the additional 30 minutes beyond 3.00pm is not consistent with the design criteria but achieves the intent of the ADG.

A review of the Bureau of Meteorology solar parameters data has been undertaken by RWDI for the winter period at the closest ground station in Wagga Wagga (in terms of distance) and Mildura (in term of latitude). This assessment will evaluate solar irradiance at location that is closest to the site and also in similar latitude, which will provide a more accurate comparison.

The direct normal solar irradiation for the two ground stations are noted as follows:

Station Location	Direct Normal Solar Irradiance (% variance)	
	3:00pm	**3:30pm (interpolated)**
Mildura (Closest site in terms of latitude)	100%	83-88%
Wagga Wagga (Closest site in terms of distance)	100%	71-79%

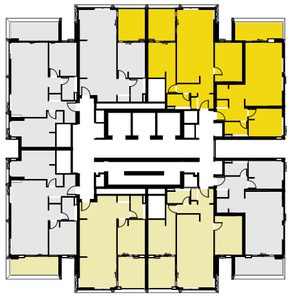
The 12%-29% difference in solar irradiance levels highlights the marginal variance in solar access between3.00pm to 3.30pm in the winter period. In addition, the slightly lower angle of the sun after 3.00pm will provide greater solar penetration into the apartment instead of just at the glazing line.

It should be noted that the above justifications on ADG solar were presented to the DRP on the 18 February 2021. Due to the constraints outlined above, the DRP acknowledged that it is difficult for this building to meet minimum ADG requirement. The DRP also notes that whilst not compliant, a larger number of apartments will still have reasonable solar access during winter days.

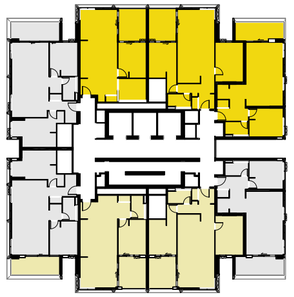
	2 Hours Direct Sunlight (POS & Living Area)		
	9:00am - 3:00pm	9:00am - 3:30pm	Total
Level 22	2/2		2/2
Level 21	3/5		3/5
Level 20	3/5		3/5
Level 19	5/8	2/8	7/8
Level 18	5/8	2/8	7/8
Level 17	5/8	2/8	7/8
Level 16	5/8	2/8	7/8
Level 15	5/8	2/8	7/8
Level 14	5/8	2/8	7/8
Level 13	5/8	2/8	7/8
Level 12	5/8	2/8	7/8
Level 11	5/8	2/8	7/8
Level 10	5/8	2/8	7/8
Level 09	5/8	2/8	7/8
Level 08	5/8	2/8	7/8
Level 07	5/8	2/8	7/8
Level 06	5/8	2/8	7/8
Level 05	3/8	2/8	5/8
Level 04	3/8	2/8	5/8
Level 03	2/8	2/8	5/8
	86/150	34/150	120/150
	57%	**23%**	**80%**

Apartments receive 2 hours of direct sunlight between 9am to 3pm mid winter

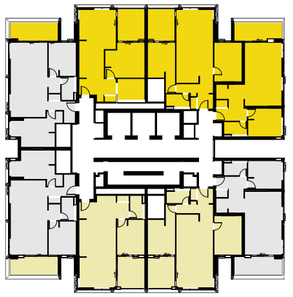
Apartments receive 2 hours of direct sunlight between 9am to 3:30pm mid winter



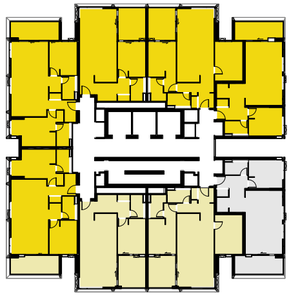
Level 3 solar amenity diagram



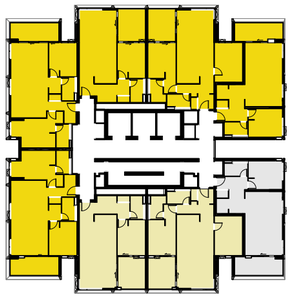
Level 4 solar amenity diagram



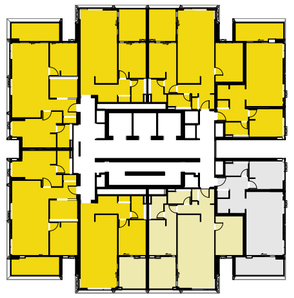
Level 5 solar amenity diagram



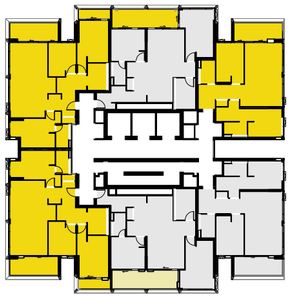
Level 6 solar amenity diagram



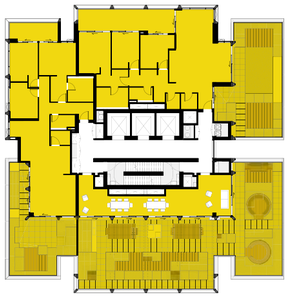
Level 7 solar amenity diagram



Level 8-19 solar amenity diagram



Level 20-21 solar amenity diagram



Level 22 solar amenity diagram

EXTERNAL SUN SHADING

Design Excellence - Building 2

16 (f) Glazing type is not specified. Due west orientations will require thermal glass which will have negative impacts on reflectivity, heat reflection and outlook. A preferable solution is to have externally mounted, operable shading devices and clear glazing;

Amenity - Central Residential Building

19. External sun shading – Contrary to Objective 4A-3 of the ADG, no sun-shading is provided to west elevation. Despite probable compliance with internal thermal targets via energy rating tools, the tower facade design does not provide residents with the means to passively shade and cool their home, particularly where economic circumstances prohibit the use of air-conditioning. These apartments are not designed to withstand extreme heat events. External, operable shading devices should be provided to all facades with exposure to mid-morning and mid to late-afternoon sun. Although passive shading is nominated as one of the measures in the Project's Sustainability Framework (refer to page 34 App M, initiative 9.11.3), it is not delivered.

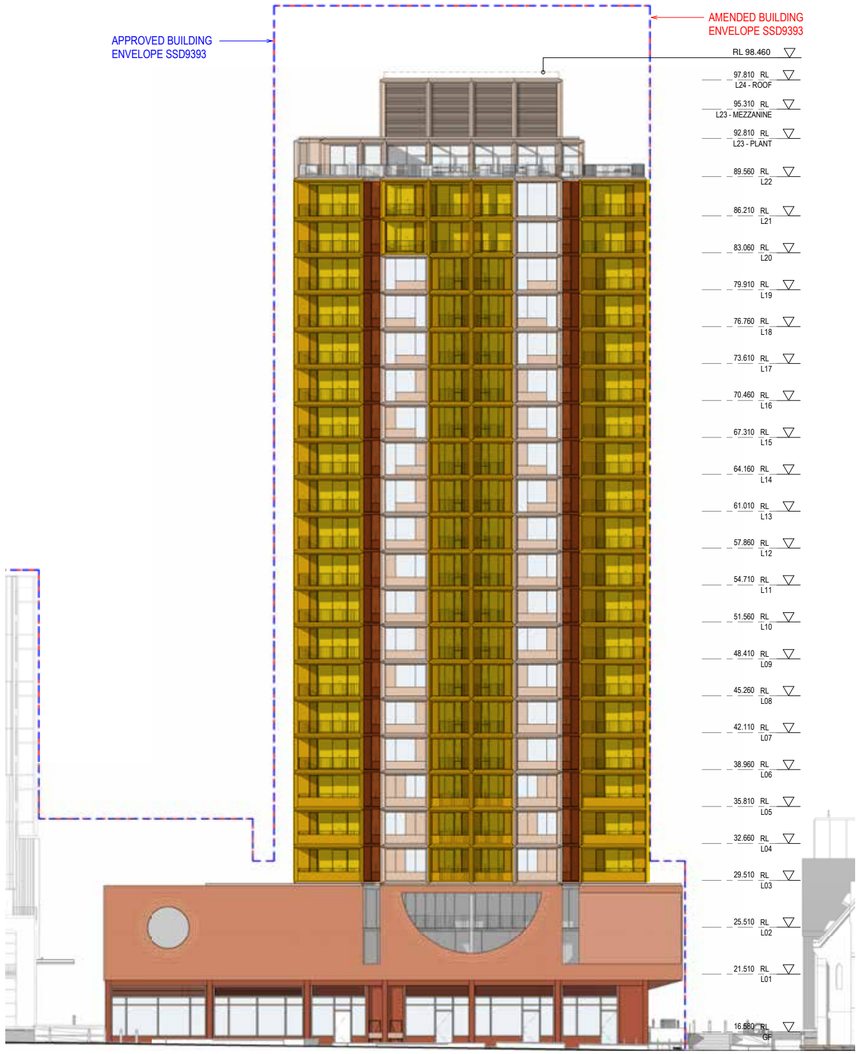
Response

_The west facade has a high level of shading with passively shaded balconies.

_Balconies and setbacks within the built form are deliberately planned to provide effective passive shading to the majority of west facade.

_The ADG objective 4A-3 recommends design features to facilitate shading that's not limited to shading devices. The submitted proposal adopts this recommendation to explore passively shaded balconies, horizontal shading projections and high performance glazing.

_Aluminium framed double glazing (high VLT, low reflectivity) is proposed to all units. Performance glazing is proposed to reduce heat gains in addition to passive shading.



West Elevation

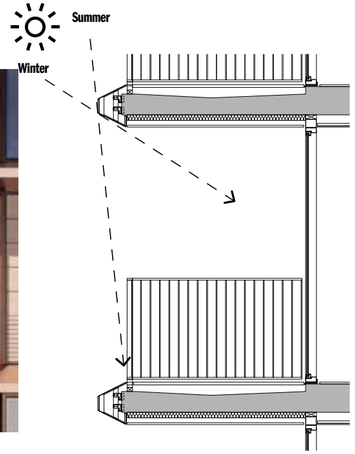
The balconies and setbacks on the west facades provide passive shading to

75%

of the elevation

Balconies

Setbacks in built form



EXTERNAL SUN SHADING

Response

_Our design has a deliberate modular approach to respond to solar, privacy, daylight and views as an integral response.

_Horizontal and vertical solid panels reduces the glass area of the living rooms.

_Apartments on the north and west elevation will be fitted with internal blinds, which will assist in significantly reducing the radiant temperature of the apartments.

_The facade grid projects 300mm over the facade to provide shading to the glazing on the west facade.

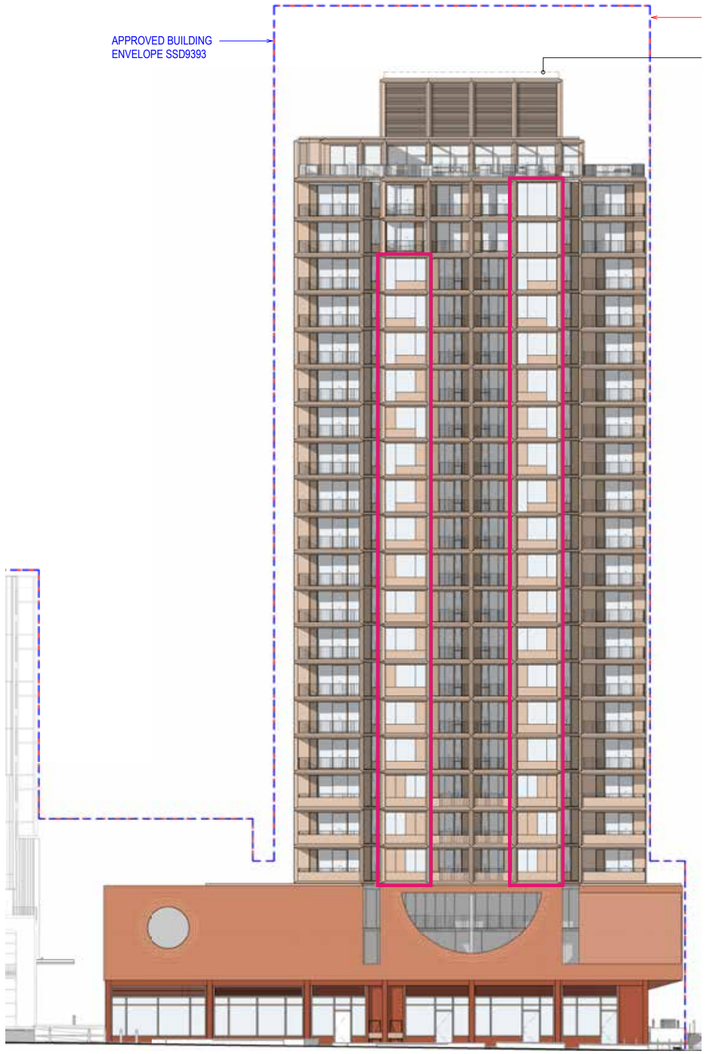
_The living rooms are dual aspect allowing view out when the western facade blinds are drawn.

_Fixed vertical shading fins were explored but discounted as it offered little improvement to the overall energy usage and thermal comfort.

_External shading (operable and fixed) on the non-balcony western facades would have a detrimental impact on solar access to the living room mid winter.

_The additional material required for external sun shading increases the overall embodied carbon of the building while failing to provide improvements to thermal comfort.

_Please refer to Memo prepared by Cundall for further clarification.



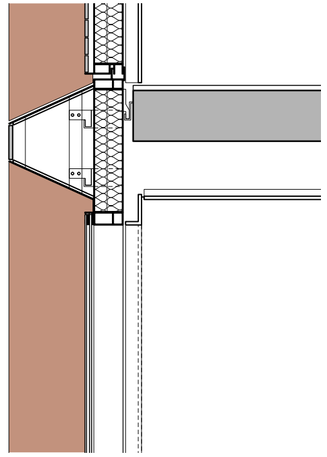
West Elevation

On average, the glazed portion of the facade without balcony or setbacks in builtform for passive shading is

56% solid.

With 75% of west facade being passively shaded,

11% of the west facade is glazed where there's no balcony or built form setback.



Typical facade horizontal projection

Typical facade module

NATURAL CROSS VENTILATION

Amenity - Central Residential Building

20. Natural cross ventilation – Objective 4B-3 of the ADG recommends a minimum 60% of apartments to be naturally cross ventilated. The applicant includes centrally located apartments as achieving natural cross ventilation, not-withstanding these do not meet the definition under the ADG. Furthermore, at least half of the apartments that do meet the definition of natural cross ventilation are noise affected and will require windows and doors to be closed to comply with Objective 4J-1. As such the development provides well below the minimum recommended.

DRP Panel Advice & Actions Record:

OSD Central - Built Form

Tracker Item 2.21 - The Panel accepts that the central apartment building layout can satisfy the minimum requirement for natural cross ventilation in the Apartment Design Guide. The Panel requests a diagram showing openable window locations in all apartments to clarify how this ventilation will be achieved, whilst maintaining visual and acoustic privacy between units.

Response

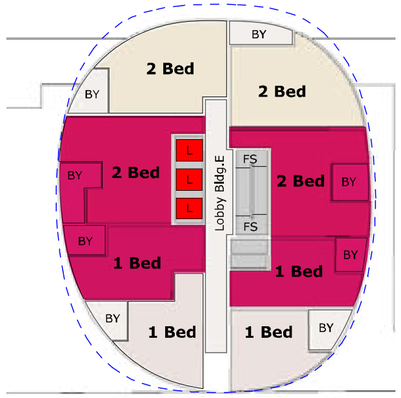
_The cross ventilation of Building 2 has been modelled based on prevailing wind directions and pressure differential at the openings to enable cross flow.

_The stepped planning or setbacks in the design maximises apartments' ability to have more than one aspect with direct exposure to the prevailing winds, or windows located in significantly different pressure regions.

_75% (36/48) of the residential apartments up to Level 8 (first 9 storeys) of Building 2 are considered naturally cross ventilated according to the ADG.

	Cross Ventilated Apartments (not noise effected)	Cross Ventilated Apartments (with Acoustic Ventilator)	Total No. of Cross Ventilated Apartments
Level 08	1/8	5/8	6/8
Level 07	1/8	5/8	6/8
Level 06	1/8	5/8	6/8
Level 05	1/8	5/8	6/8
Level 04	1/8	5/8	6/8
Level 03	1/8	5/8	6/8
	6/48	30/48	36/48
	12.5%	**62.5%**	**75%**

_Please refer to Memo prepared by RWDI for further clarification.



Stage 1 Concept Plan

_The Stage 1 Concept Plan presents 4 centrally located apartments on the north and south facade.

_The submitted design improves upon the Stage 1 Concept Plan to maximise corner apartments, maximising not only cross ventilation but also view and solar.

ADG Appendix 4 Example Scheme 8

_Scheme 8 in Appendix 4 of the ADG shows a similar floor plan in design, consisting of 8 apartments per floor, centrally located apartments on two aspects and setback corner apartments.

_This scheme notes the design qualities as possessing excellent natural cross ventilation provided.

NATURAL CROSS VENTILATION

Amenity - Central Residential Building (DRP #13 Feedback)

The Panel suggests that further improvement in cross ventilation could be achieved by splitting the northern 2 apartments from the adjacent east and west apartments and adding staggered openings through these walls within the resulting gap. It is recommended that the Project Team consider this option and its impact on the internal planning as part of ongoing design development.

Response

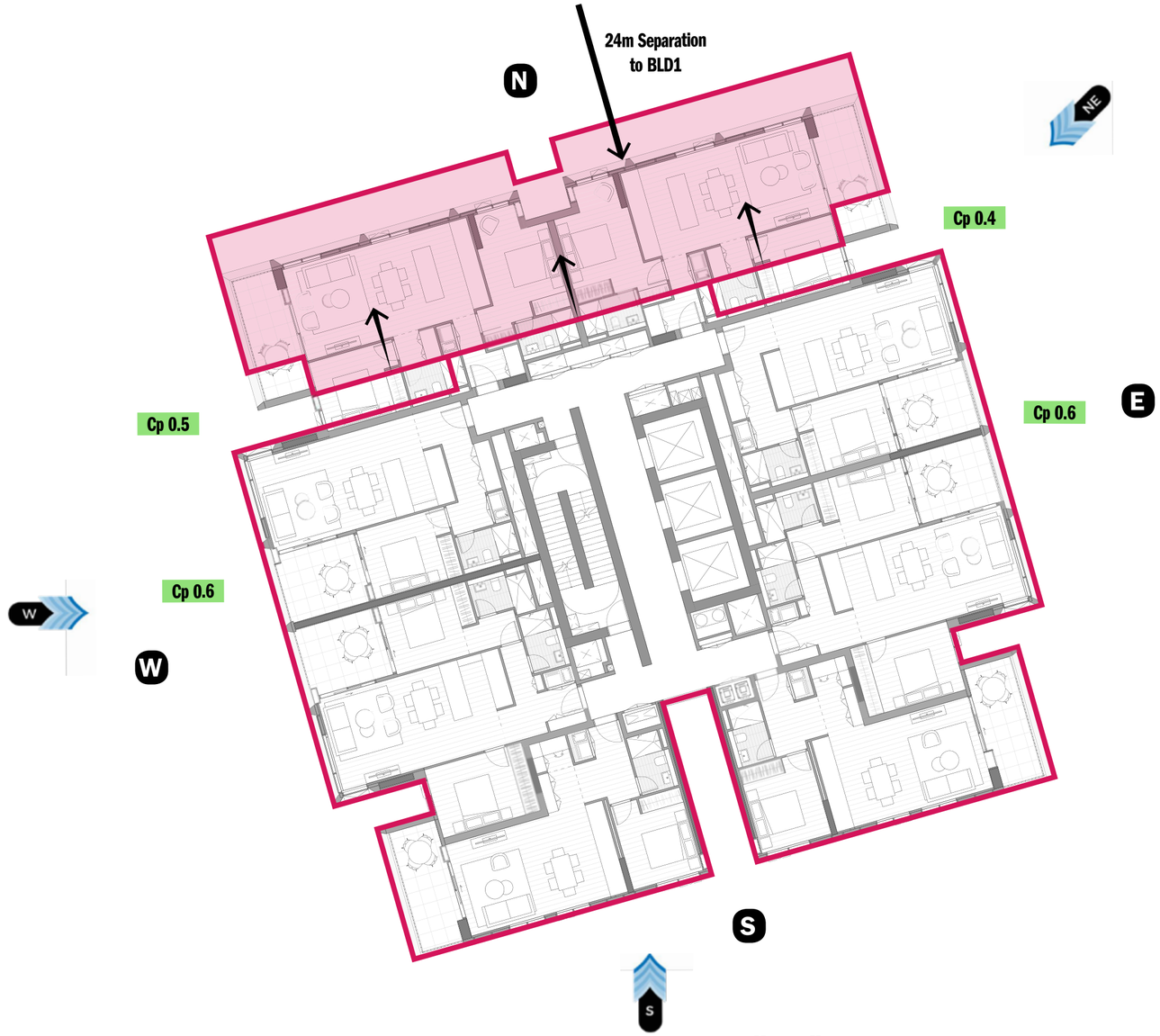
_Splitting the northern 2 apartments from the adjacent east and west apartments will result in the reduction in building separation to building 1. The reduced building separation will impact solar amenity of the lower apartments on the north elevation.

_The shifted northern edge of the building will resulting in additional overshadowing to Alexandria Park.

_The additional staggered opening will have little benefit on achieving a large pressure differential to enable natural cross ventilation.

_We welcome the DRP's suggestion and the suggestion was considered by the design team and assessed by the technical engineer. As noted above, this option will not materially improve cross ventilation due to immaterial improvement to pressure differential at the openings. In addition, this option will impact on apartment layouts and planning to create additional adverse amenity impact. The current apartment layout is designed to optimise amenity, layout and functionality.

_Please refer to Memo prepared by RWDI for further clarification.



NATURAL VENTILATION AND NOISE

Natural Ventilation and Noise

29. Objective 3B-1 of the ADG requires all habitable rooms to be naturally ventilated. Objective 4J-1 requires development in noisy or hostile environments to minimise the impact of external noise and pollution through the careful siting and layout of buildings. The applicant has identified apartments within the central and southern precincts as being noise affected and requiring acoustically attenuated natural (non-mechanical) ventilation systems to meet these objectives.

30. City staff are concerned that the acoustic report has not sufficiently assessed the performance of the building to mitigate road noise, and the application has not adequately demonstrated compliance with Clause 102 of the State Environmental Planning Policy (Infrastructure) (ISEPP).

31. The report focuses on the incorrect measure for assessing acoustic privacy with windows open, which under the Development Near Busy Roads & Rail Corridors - Interim Guideline is the criteria under Clause 102(3) + 10dB.

32. Where windows are required to be closed and an alternative ventilation strategy proposed, the development must demonstrate that the criteria under Clause 102 (3) is met without the 10dB variance.

33. (a) The road traffic noise levels through noise monitoring, noting that traffic volumes may currently be depressed due to the pandemic.

33. (b) The relevant materials and finishes of the building, both internal and external.

33. (c) Whether the windows or doors can be open or are required to be closed.

34. City staff are continuing to review the efficacy of the alternative natural ventilation system and will provide an addendum to this submission when that review is complete. However, concern is raised regarding the assessment of the acoustic performance of the system. There is no calculation of the ventilator performance in keeping with the variables outlined above. As the windows closed ventilator open design criteria within the report is incorrect, the ventilator performance requirement will need to be increased.

Response

_The noise affected apartments on the north, west and south facade are designed with acoustic ventilators to allow natural air flow into the apartment without the requirement of opening a door or window.

_CFD modelling undertaken by Stantec.

_In the CFD modelling, the road noise from Botany Road has been measured both before and during COVID-19. The monitor on Botany Road was installed in a location similar to that of SLR's monitoring location for the Concept SSD DA.

_The acoustic privacy was assessed in-line with the criteria outlined in Sydney DCP 2012 and the requirement of the Waterloo Metro Quarter Design & Amenity Guidelines. The proposal achieves the criteria set.

_Please refer to Memo prepared by Stantec for further clarification.

	Cross Ventilated Apartments (not noise effected)	Cross Ventilated Apartments (with Acoustic Ventilator)	Total No. of Cross Ventilated Apartments
Level 08	1/8	5/8	6/8
Level 07	1/8	5/8	6/8
Level 06	1/8	5/8	6/8
Level 05	1/8	5/8	6/8
Level 04	1/8	5/8	6/8
Level 03	1/8	5/8	6/8
	6/48	30/48	36/48
	12.5%	**62.5%**	**75%**

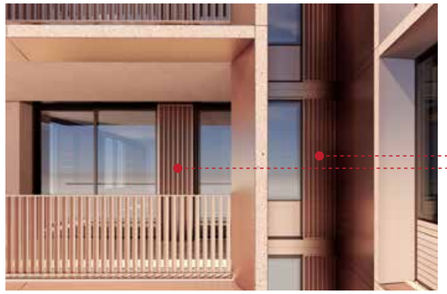
Noise affected spaces to a typical level

Noise affected rooms/ apartments

Acoustic plenum

Internal

Vent into the interior of the apartment



External

Integrated within facade design

COMMUNAL OPEN SPACE

Amenity - Central Residential Building

21. Communal open space - Communal outdoor space is underprovided at 186sqm on level 22. According to the application, this equates to 7.5% of the site area, in contrast to the minimum 25% minimum recommended under Objective 3D-1 of the ADG. The wind analysis concludes that the terrace only achieves 'walking' comfort criteria in summer, and 'standing' conditions for the winter period. Neither is acceptable – the communal open space should be suitable for 'sitting' activities.

Response

_The applicable site area of the Central Building is 2,460sqm. Whilst the proposed development seeks a departure from the requirement for a communal area equal to 25% of the site, the proposal achieves the objective of the control which is to: Objective 3D-1 An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping.

_The proposed location and quantity of communal open space is considered appropriate on merit for the following reasons:

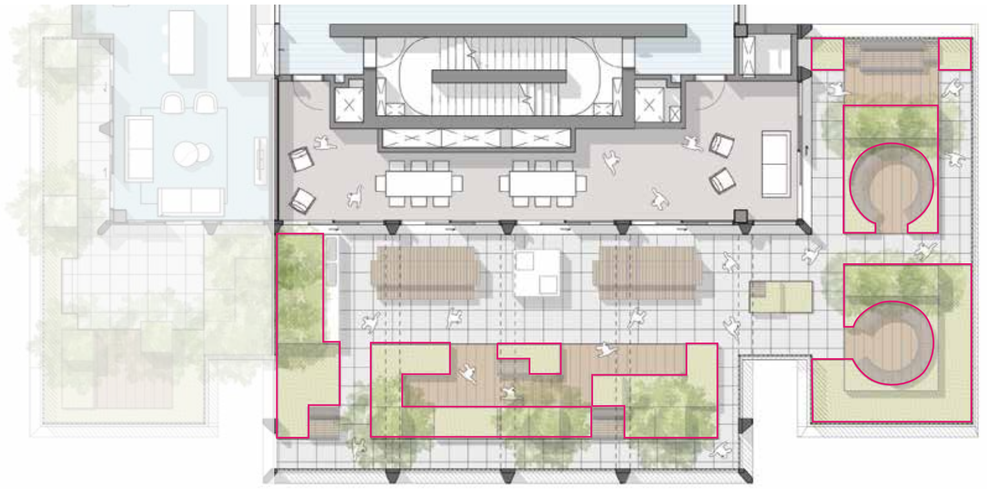
- → It is located on Level 22 and benefits from excellent solar access and view amenity. The large sliding doors opens up the indoor communal area, creating a seamless connection between the indoor and outdoor communal space.
- → It provides direct and accessible access for all residents, including affordable housing residents from a common circulation area. The communal terrace will provide shade and space for undercover activities, landscaped planters and a community garden.
- → Within the immediate vicinity of the proposed building, residents have access to high quality public spaces and amenities both within the WMQ site and surrounding neighbourhood.
- → Communal open space area has been maximised, the podium rooftop is provided for the play space of the childcare centre, and considering this and the site area, the roof top space is adequate for the development

_The form, massing and design of the rooftop including the communal open space and plant room is constraint by overshadowing requirement to Alexandria Park. The communal open space is designed to maximise functionality and usability with the integration of planters.

_The design of the communal open space considers the wind environment, where furniture is located, they are setback and planters are located in front to minimise wind impact.

_Please refer to Memo prepared by RWDI for further clarification on wind.

WMQ site wide public domain plan



Extent of perimeter planters

Shared Rooftop Terrace Plan

PRIVATE OPEN SPACE

Amenity - Central Residential Building

22. Private open space – 3-bedroom apartment balconies have less than the minimum 2.4m width (see apartment AXX05 on levels 20-21) as approximately 2 metres is provided. Insufficient room is provided to cater for furniture placement for the larger apartment and to allow space for other activities, contrary to Objective 4E-1 of the ADG.

Response

_Due to building envelope and massing constraint, without creating additional overshadowing to Alexandria Park, achieving the 2.4m depth will require pushing the glazing line into the apartment, severely compromising the internal layout and functionality.

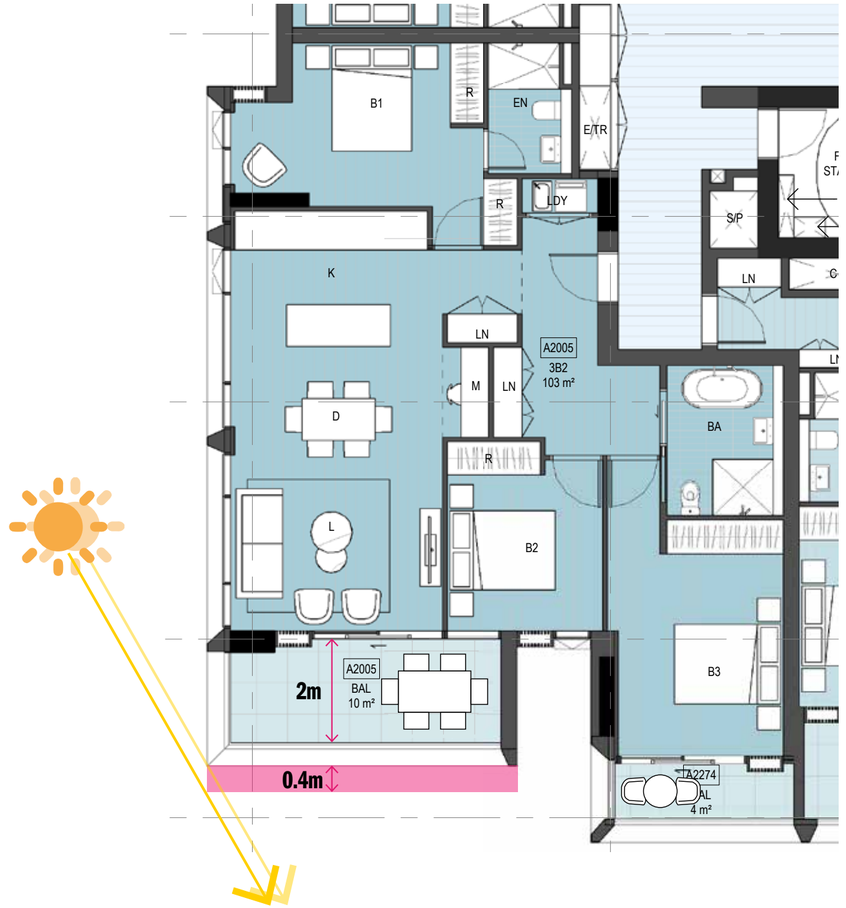
_By pushing out the balcony, the additional depth will impact solar access to the adjacent west apartment.

_The 3 bedroom apartments on level 20 and 21 are designed to balance internal layout functionality, balcony size and functionality and overall architectural articulation.

_2 balconies are provided in this apartment, one adjacent to the living room and the other adjacent to the east and west bedroom with a total area of 14sqm, exceeding the minimum required area.

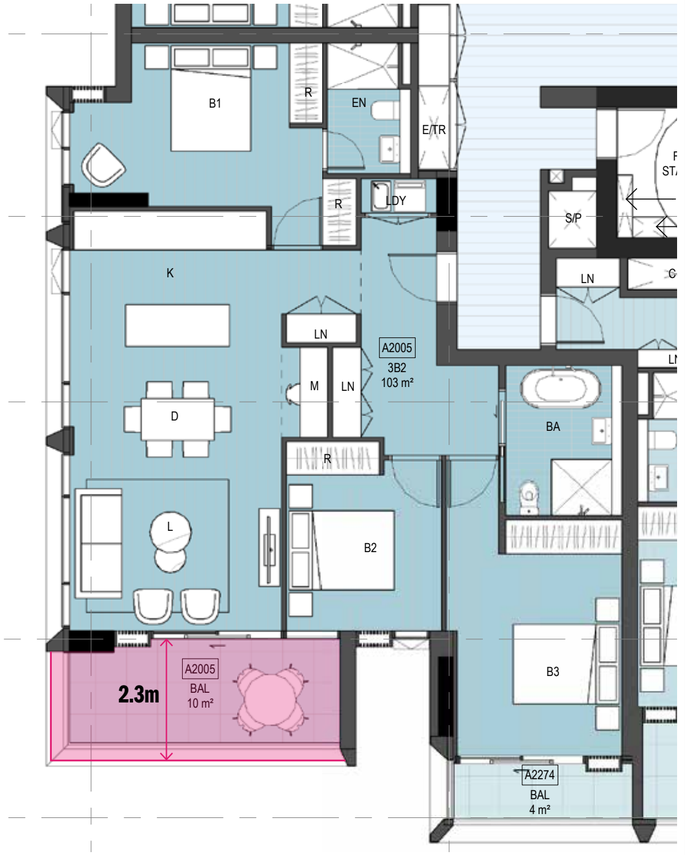
_The balcony adjacent to the living room is able to accommodate a table for 4-6 chairs which is consistent with the design intent of ADG.

_Balcony balustrade location and edge detail to be explored to improve the depth of balcony.



Alexandria Park Overshadowing

_The massing of the building can not be adjusted to allow a deeper balcony without creating additional overshadowing to Alexandria Park.



Balcony Edge Detail

_Balcony baulstrade location and edge detail to be further explored in Design Development to provide a deeper balcony.

_By pushing the balustrade towards the edge of balcony can potentially achieve a 2.3m deep balcony.

STORAGE

Amenity - Central Residential Building

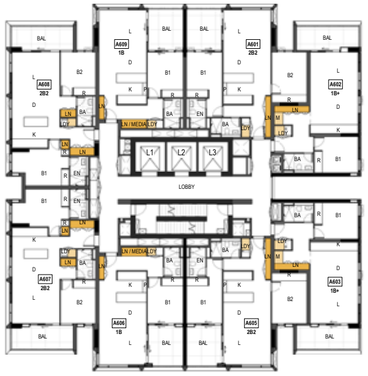
23. Storage – A lack of verification is included in the application. Please request a typical storage diagram for each type of apartment.

Response

_Storage diagrams are provided for the typical levels of the residential tower.

1 A1050 L03 - BLD2 - STORAGE PLAN
1 : 200

2 A1050 L04-05 - BLD2 - STORAGE PLAN
1 : 200



3 A1050 L06-07 - BLD2 - STORAGE PLAN
1 : 200

Storage within apartments

4 A1050 L08-19 - BLD2 - STORAGE PLAN
1 : 200

5 A1050 L20-21 - BLD2 - STORAGE PLAN
1 : 200

6 A1050 L22 - BLD2 - STORAGE PLAN
1 : 200

STORAGE

Response

_Storage schedule has been updated to reflect the diagrams.

_All apartments within the Central Precinct residential building meets the ADG storage requirement.

Level	Apartment Number	Type	ADAPTABLE 15% in accordance to AS 4299 Class C	LIVABLE SILVER LEVEL 20% as per LHA (Livable Housing Guidelines - latest edition) (Adaptable apartments are counted as Liveable Silver Level)	Internal Storage (m3 per apartment)	Internal Storage Required	Basement Storage (m3 per apartment) PROVIDED (at least 50% of the required storage storage is to be located within the apartment	Total	Total Required	Compliance
3	A301	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A302	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A303	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A305	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A306	1 Bed			**3.75**	3	**4.45**	8.2	6	✓
	A307	2 Bed			**8.67**	4	**0**	8.67	8	✓
	A308	2 Bed			**8.67**	4	**0**	8.67	8	✓
	A309	1 Bed			**3.75**	3	**4.45**	8.2	6	✓
4	A401	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A402	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A403	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A405	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A406	1 Bed			**3.75**	3	**4.45**	8.2	6	✓
	A407	2 Bed			**8.67**	4	**0**	8.67	8	✓
	A408	2 Bed			**8.67**	4	**0**	8.67	8	✓
	A409	1 Bed		1	**3.02**	3	**4.45**	7.47	6	✓
5	A501	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A502	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A503	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A505	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A506	1 Bed			**3.75**	3	**4.45**	8.2	6	✓
	A507	2 Bed			**8.67**	4	**0**	8.67	8	✓
	A508	2 Bed			**8.67**	4	**0**	8.67	8	✓
	A509	1 Bed	1		**3.02**	3	**4.45**	7.47	6	✓
6	A601	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A602	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A603	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A605	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A606	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A607	2 Bed			**7.15**	4	**4.45**	11.6	8	✓
	A608	2 Bed			**7.15**	4	**4.45**	11.6	8	✓
	A609	1 Bed			**6.03**	3	**0**	6.03	6	✓
7	A701	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A702	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A703	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A705	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A706	1 Bed			**6.03**	3	0	6.03	6	✓
	A707	2 Bed			**7.15**	4	**4.45**	11.6	8	✓
	A708	2 Bed			**7.15**	4	**4.45**	11.6	8	✓
	A709	1 Bed			**6.03**	3	**0**	6.03	6	✓
8	A801	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A802	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A803	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A805	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A806	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A807	2 Bed		1	**4.03**	4	**4.45**	8.48	8	✓
	A808	2 Bed		1	**4.03**	4	**4.45**	8.48	8	✓
	A809	1 Bed			**6.03**	3	**0**	6.03	6	✓
9	A901	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A902	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A903	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A905	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A906	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A907	2 Bed		1	**4.03**	4	**4.45**	8.48	8	✓
10	A908	2 Bed		1	**4.03**	4	**4.45**	8.48	8	✓
	A909	1 Bed			**6.03**	3	**0**	6.03	6	✓
11	A1001	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1002	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1003	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1005	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1006	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1007	2 Bed		1	**4.03**	4	**4.45**	8.48	8	✓
	A1008	2 Bed		1	**4.03**	4	**4.45**	8.48	8	✓
	A1009	1 Bed			**6.03**	3	**0**	6.03	6	✓
12	A1101	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1102	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1103	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1105	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1106	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1107	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1108	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1109	1 Bed			**6.03**	3	**0**	6.03	6	✓
13	A1201	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1202	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1203	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1205	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1206	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1207	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1208	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1209	1 Bed			**6.03**	3	**0**	6.03	6	✓
14	A1301	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1302	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1303	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1305	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1306	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1307	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1308	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1309	1 Bed			**6.03**	3	**0**	6.03	6	✓
15	A1401	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1402	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1403	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1405	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1406	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1407	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1408	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1409	1 Bed			**6.03**	3	**0**	6.03	6	✓
16	A1501	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1502	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1503	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1505	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1506	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1507	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1508	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1509	1 Bed			**6.03**	3	**0**	6.03	6	✓
17	A1601	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1602	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1603	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1605	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1606	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1607	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1608	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1609	1 Bed			**6.03**	3	**0**	6.03	6	✓
18	A1701	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1702	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1703	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1705	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1706	1 Bed			**6.03**	3	**0**	6.03	6	✓
	A1707	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1708	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1709	1 Bed			**6.03**	3	**0**	6.03	6	✓
19	A1801	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1802	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
	A1803	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
	A1805	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1806	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
	A1807	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1808	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1809	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
20	A1901	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1902	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
	A1903	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
	A1905	2 Bed			**4.3**	4	**4.45**	8.75	8	✓
	A1906	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
	A1907	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1908	2 Bed	1		**4.03**	4	**4.45**	8.48	8	✓
	A1909	1 Bed			**6.03**	3	**4.45**	10.48	6	✓
21	A2001	2 Bed			**4.58**	4	**4.45**	9.03	8	✓
	A2002	2 Bed			**4.58**	4	**4.45**	9.03	8	✓
	A2003	2 Bed			**6.27**	4	**4.45**	10.72	8	✓
	A2005	3 Bed	1		**6.33**	5	**6.3**	12.63	10	✓
	A2006	3 Bed	1		**6.33**	5	**6.3**	12.63	10	✓
	A2007	2 Bed			**6.27**	4	**4.45**	10.72	8	✓
22	A2101	2 Bed			**4.58**	4	**4.45**	9.03	8	✓
	A2102	2 Bed			**4.58**	4	**4.45**	9.03	8	✓
	A2103	2 Bed			**6.27**	4	**4.45**	10.72	8	✓
	A2105	3 Bed	1		**6.33**	5	**6.3**	12.63	10	✓
	A2106	3 Bed	1		**6.33**	5	**6.3**	12.63	10	✓
	A2107	2 Bed			**6.27**	4	**4.45**	10.72	8	✓
	A2201	3 Bed			**8.34**	5	**6.3**	14.64	10	✓
	A2202	3 Bed			**6.34**	5	**6.3**	12.64	10	✓
Total			150	23 (15%)			30 (20%)			

RESPONSE TO SUBMISSION
FLOOD PLANNING

FLOOD PLANNING

Public Domain

80. The reason given for the non-compliance is the relatively small areas of retail floor space available does not allow for adequate DDA compliant ramping form the surrounding Botany road public domain level. This reasoning is not supported and given this is a new development with no site constraints, compliance with the required flood planning levels should be achieved. The depth of flooding in the proposed retail space of up to 500mm during the 1% AEP storm is not acceptable.

Further comments were provided by Environmental Energy and Science Group (EES).

Response

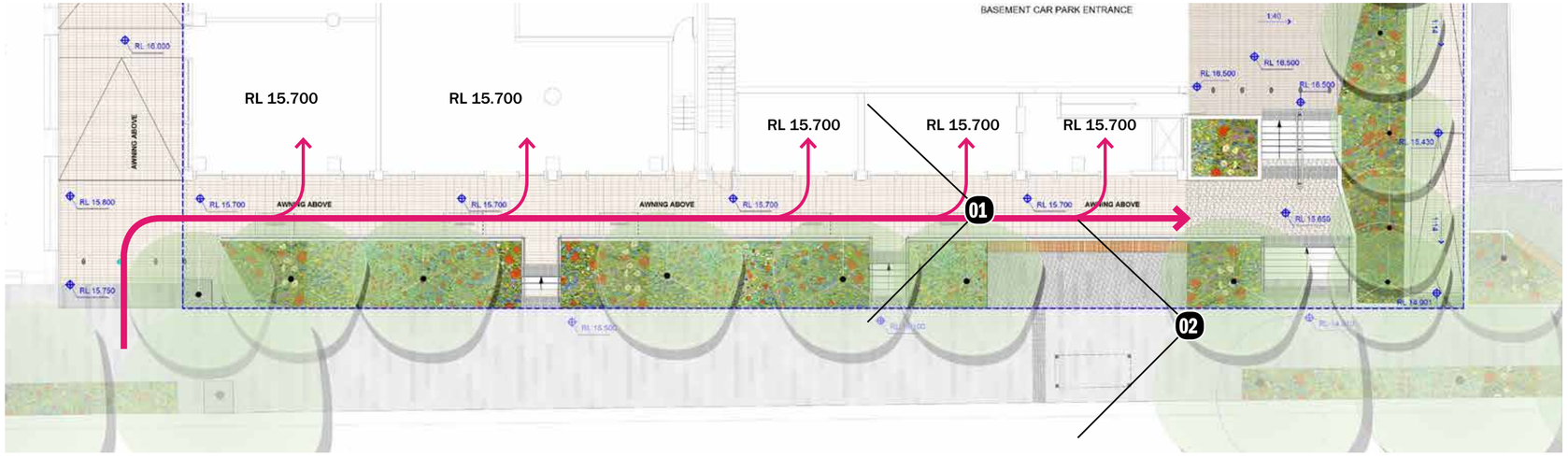
_To respond to the flooding constraint for Botany Road, an alternative design for Botany Road retail tenancies and adjacent footpath proposes to raise the retail tenancies along Botany Road in Building 2 to the flood planning level of 15.7m AHD. Stairs are proposed as a result of this.

_The key design intent is to maximise activation along Botany Road. The raised retail tenancies that are situated above the flooding level would be more desirable to potential tenants, in-turn contributing to the vibrancy of the area.

_Pedestrian modelling was undertaken and the introduction of stairs will not materially change the pedestrian queuing environment, or impact pedestrians walking along Botany Road.

_The design complies with DDA requirement, providing equitable access into the Botany Road retail area from the northern end of building 2 adjacent to Grit Lane.

_ Please refer to Memo prepared by WSP for further clarification on pedestrian modelling.



Alternative Botany Road Building 2 Interface Plan Diagram

DDA path of travel

RESPONSE TO SUBMISSION
CHILDCARE

CHILDCARE

Central Precinct SSD

7. the proposed size and capacity of servicing and amenities to accommodate the demands of the childcare centre.

Response

_Adjacent diagrams illustrate the proposed size and capacity of the indoor and outdoor play areas, as well as the storage area. The proposed areas comply with the minimum requirements.

Minimum Play Areas

Indoor and outdoor play areas comply with the requirements of minimum 3.25sqm of indoor space per child and 7sqm of simulated outdoor space.

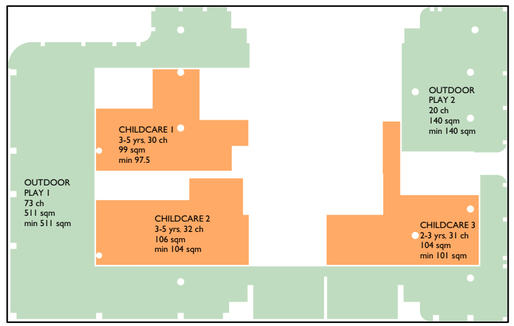
Total indoor play space = 486.6sqm

Total simulated outdoor play space = 1026sqm

Minimum Storage Areas

Storage areas comply with the minimum areas required per child for indoor and outdoor storage and are located to ensure ease of supervision and access.

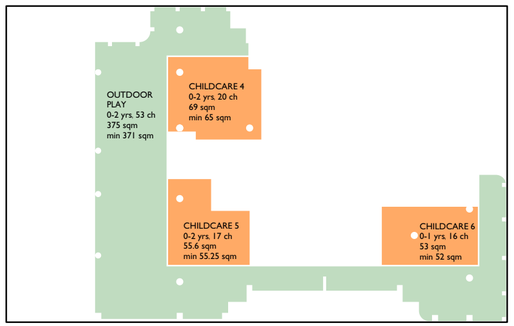
INDOOR / OUTDOOR AREAS - FIRST FLOOR



TOTAL 1F OUTDOOR PLAY
651 sqm

TOTAL 1F INDOOR PLAY
309 sqm

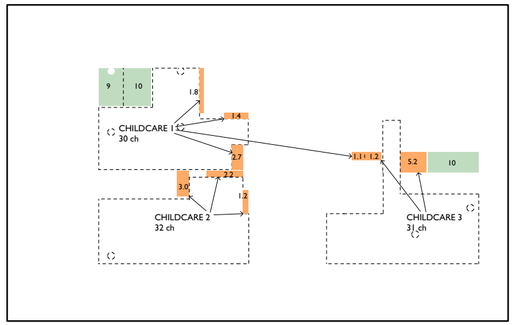
INDOOR / OUTDOOR AREAS - SECOND FLOOR



TOTAL 2F OUTDOOR PLAY
375 sqm

TOTAL 2F INDOOR PLAY
177.6 sqm

STORAGE - FIRST FLOOR



CHILDCARE 1 INDOOR STORE
7.0 sqm (min 6.0)

CHILDCARE 1 OUTDOOR STORE
9.0 sqm (min 9.0)

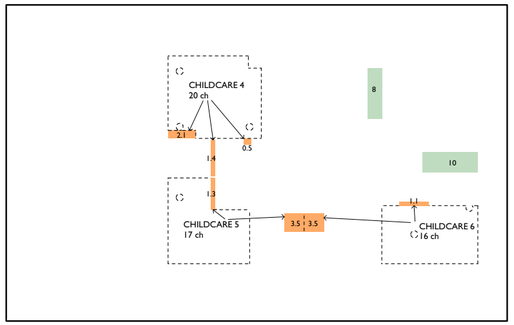
CHILDCARE 2 INDOOR STORE
6.4 sqm (min 6.4)

CHILDCARE 2 OUTDOOR STORE
10.0 sqm (min 9.6)

CHILDCARE 3 INDOOR STORE
6.4 sqm (min 6.2)

CHILDCARE 3 OUTDOOR STORE
10.0 sqm (min 9.3)

STORAGE - SECOND FLOOR



CHILDCARE 4 INDOOR STORE
4.0 sqm (min 4.0)

TOTAL SHARED OUTDOOR STORE
18.0 sqm (min 15.9)

CHILDCARE 5 INDOOR STORE
4.8 sqm (min 3.4)

CHILDCARE 6 INDOOR STORE
4.6 sqm (min 3.2)

CHILDCARE

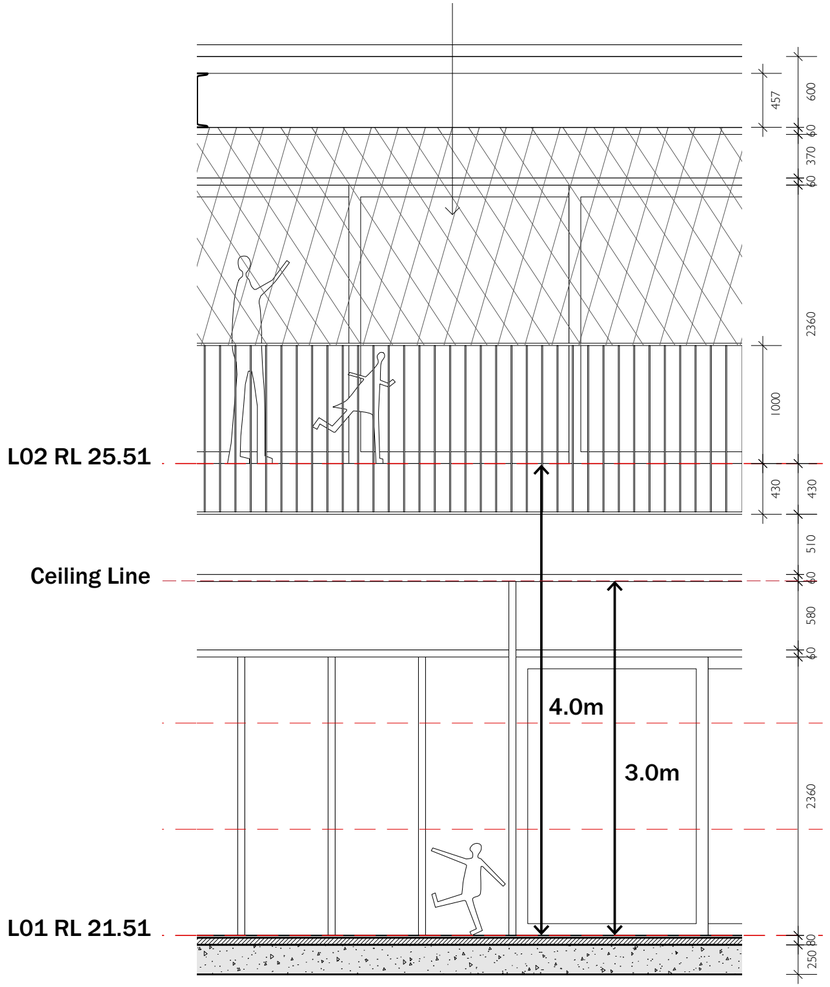
Response

_The floor to ceiling height of the childcare is proposed to be 3m to maximise light and ventilation.

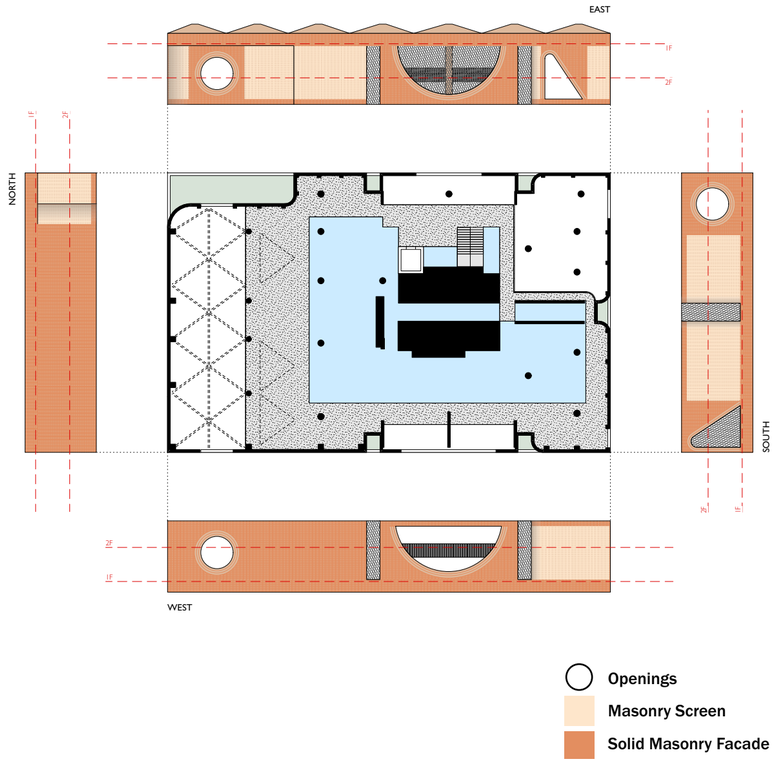
_Large openings on east and west catches morning and afternoon sun. The permeable masonry screen allows dappled light to the interior of the podium, while providing shade and privacy.

_The permeable facade also allows fresh air and ventilation to the simulated play space and the interior of the podium levels.

_Refer to Memo prepared by Childcare by Design for further clarification.



Podium level 1 & 2 section



A number of large openings within the facade and permeable masonry screen allows natural light and ventilation to the interior of the podium.

RESPONSE TO SUBMISSION

DESIGN CHANGES

BOTANY ROAD RETAIL

Responding the flooding constraints, retail tenancies along Botany Road has been modified.

_The finished floor level of the retail tenancies along Botany Road has been raised to the flood planning level of 15.7m AHD. The retail facade has been adjusted accordingly.

_Internal tenancy stairs have been deleted in the revised proposal.

Botany Road Retail Tenancy as Lodged in DA (September 2020)

Revised Botany Road Retail Tenancy (submitted for RtS)