Appendix J

SEPP 65 Assessment Report

Engineering Design &
Assurance Technical Partner

Associated Development

Appendix J
SEPP 65 Report

Sydney
Metro
West

Sydney Olympic Park

SEP 2022 REV E

REVISION	DATE	SUITABILITY CODE	TEAMBINDER DOCUMENT NUMBER	TB REVISION
Rev when approved	21/09/2022	S4	SMWSTEDS-SMD-OLP-SN400-AR-RPT-044001	E

Approval Record

FUNCTION	POSITION	NAME	DATE
Author	Team Leader	Alen Spahic	AS
Technical Checker	Project Leader	Anthony Chow	AC
Technical Reviewer	Principal in Charge	John Prentice	JP
Coordinator	Senior Environmental Advisor	Jonathan Cook	JC
Approver	EDS Design Director SMW	Adrian Garnero	AG

Amendment Record

DATE	REVISION	AMENDMENT DESCRIPTION	AUTHOR
17/12/2021	A	DRAFT 1 ISSUE	AS
25/02/2022	B	DRAFT 2 ISSUE	AS
25/03/2022	C	DRAFT 3 ISSUE	AS
14/04/2022	D	FINAL ISSUE	AS
21/09/2022	E	FINAL ISSUE WEB ACCESSIBLE	AS

Contents 3

0.0 Executive Summary

This SEPP65 Report supports a Concept State Significant Development Application (Concept SSDA) submitted to the Department of Planning and Environment (DPE) pursuant to part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The Concept SSDA is made under section 4.22 of the EP&A Act.

Sydney Metro is seeking to secure concept approval for an over station development (OSD) and adjacent station development (ASD) on an area defined as Site 47 within the Central Precinct of Sydney Olympic Park (referred collectively as the 'proposed development'). The proposed development will comprise of one new commercial and retail building (Building 1) above the Sydney Olympic Park metro station and two residential accommodation buildings (Buildings 2 and 3) with retail and commercial space, adjacent to the Sydney Olympic Park metro station.

The Concept SSDA seeks consent for a building envelope and mixed-use purposes, maximum building height, a maximum gross floor area (GFA), pedestrian and vehicular access, circulation arrangements and associated car parking and the strategies and design parameters for the future detailed design of development.

The SEPP65 Report provides a compliance summary for residential part of the proposed development, assessing it against SEPP 65 Design principals and Apartment Design Guidelines requirements. The results demonstrate that residential uses are designed to achieve required standard.

This report is a proof-of-concept design compliancy and could be used as a guidance for future designers and developers in achieving required residential standard for the proposed development.

1.0 Introduction

1.1 Sydney Metro West

Sydney Metro West will double rail capacity between Greater Parramatta and the Sydney Central Business District (CBD), transforming Sydney for generations to come. The once in a century infrastructure investment will have a target travel time of about 20 minutes between Parramatta and the Sydney CBD, link new communities to rail services and support employment growth and housing supply.

Stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD).

Sydney Metro West station locations are shown in Figure 1.1.

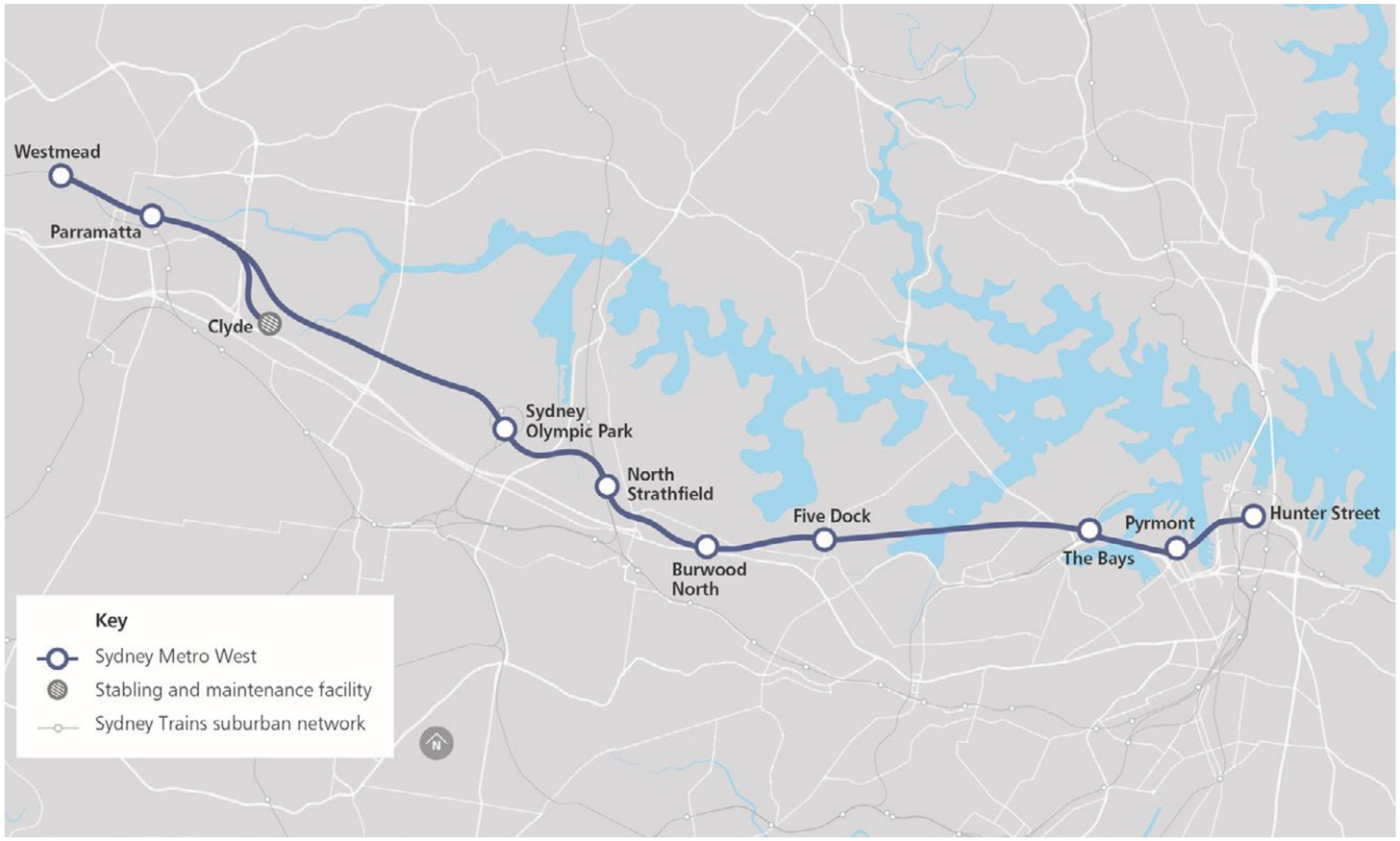


Figure 1.1 Sydney Metro West

1.2 Background and planning context

Sydney Metro is seeking to deliver Sydney Olympic Park metro station under a two part planning approval process. The station fit-out infrastructure is to be delivered under a Critical State Significant Infrastructure (CSSI) application subject to provisions under division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act), while the over and adjacent station developments are to be delivered under a State Significant Development (SSD) subject to the provisions of part 4 of the EP&A Act.

1.2.1 Critical State Significant Infrastructure

The State Significant Infrastructure (SSI) planning approval process for the Sydney Metro West metro line, including delivery of station infrastructure, has been broken down into a number of planning application stages, comprising the following:

- Concept and Stage 1 CSSI Approval (SSI-10038) – All major civil construction works between Westmead and The Bays including station excavation, tunnelling and demolition of existing buildings (approved 11 March 2021)
- Stage 2 CSSI Application (SSI- 19238057) – All major civil construction works between The Bays and Hunter Street Station (under assessment)
- Stage 3 CSSI Application (SSI- 22765520) – Tunnel fit-out, construction of stations, ancillary facilities and station precincts between Westmead and Hunter Street Station, and operation and maintenance of the Sydney Metro West line (under assessment).

1.2.2 State Significant Development Application

The SSDA will be undertaken as a staged development with the subject Concept State Significant Development Application (Concept SSDA) being consistent with the meaning under section 4.22 of the EP&A Act and seeking conceptual approval for a building envelope, land uses, maximum building heights, a maximum gross floor area, pedestrian and vehicle access, vertical circulation arrangements and associated car parking. A subsequent Detailed SSD/s is to be prepared by a future development partner which will seek consent for detailed design and construction of the development.

1.3 Purpose of the report

This SEPP65 Report supports a Concept SSDA submitted to the Department of Planning and Environment (DPE) pursuant to part 4 of the EP&A Act. The Concept SSDA is made under section 4.22 of the EP&A Act.

This report has been prepared to specifically respond to the Secretary's Environmental Assessment Requirements (SEARs) issued for the concept SSDA on 18 February 2022 which states that the environmental impact statement (EIS) is to address the following requirements:

ITEM	SEARs requirement	Where addressed in report
4. Environmental Amenity	Provide an assessment of the development against SEPP 65 and the Apartment Design Guideline.	This report

2.0 The site and proposal

2.1 Site location and description

The site is located within Sydney Olympic Park and is situated within the City of Parramatta Local Government Area. The site is in the Central Precinct of Sydney Olympic Park and defined as Site 47 in the Proposed SOP Master Plan (Interim Metro Review). The broader metro site is bound by Herb Elliot Avenue to the north, Olympic Boulevard to the west and Figtree Drive to the south as shown in Figure 1 2.

As described in Table 1 1, the site comprises part of Lot 59 in DP 786296 and Lot 58 in DP 786296, and comprises approximately 11,407m2 of land.

Table 1 1 Site legal description

Street Address	Legal Description
5 Figtree Drive, Sydney Olympic Park	Lot 58 in DP 786296
7 Figtree Drive, Sydney Olympic Park	Lot 59 in DP 786296

Figure 1 2 Sydney Olympic Park metro station location precinct

2.2 Overview of this proposal

The Concept SSDA will seek consent for three building envelopes and the delivery of Precinct Street A as detailed in Table 1-2 and Figure 1-3.

Table 1 2 Sydney Olympic Park proposed development overview

Item	Description
Land use	Building 1: Commercial and retail
	Building 2: Commercial, retail and residential
	Building 3: Commercial, retail and residential
Building Height (RL) / Number of storeys	Building 1: 120.20 / 21 storeys
	Building 2: 116.90 / 27 storeys
	Building 3: 171.50 / 45 storeys
Gross Floor Area (m2)	Building 1: 28,517
	Building 2: 12,089
	Building 3: 27,384
	TOTAL: 68,000
Car parking spaces	358

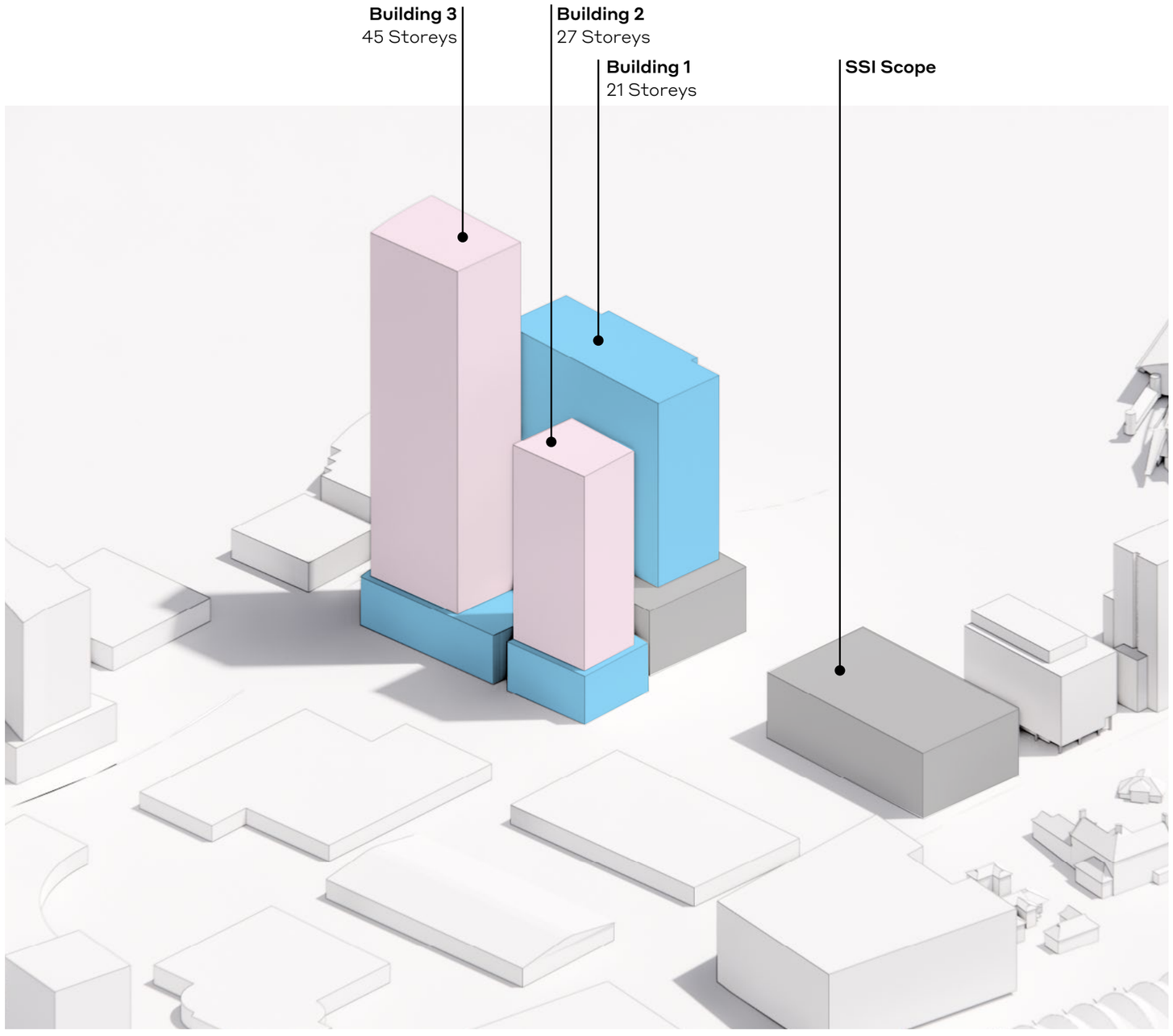
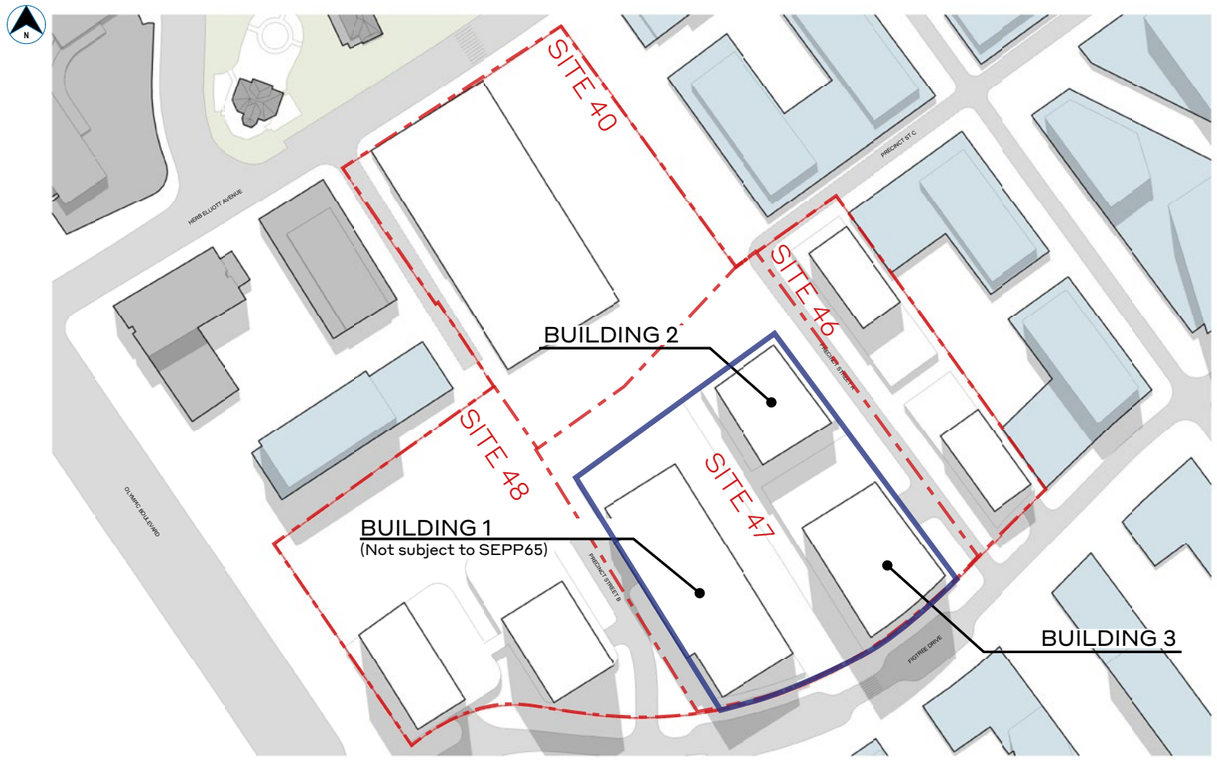


Figure 1 3 - Proposed Concept SSDA development and CSSI scope

3.0 Project overview

The Sydney Olympic Park development is part of proposed Sydney Metro West underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs. Sydney Metro West stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and the Sydney CBD. Further planning is underway to determine the locations of the Pyrmont and Sydney CBD stations.

This paper is assesing performance of residential component of the development and its compliance with SEPP65 Design Guidelines. Adjacent diagram demonstrates extents of Site 47, subject to SSD Application. "Building 2" and "Building 3" are proposed as residential towers and therefore subject of this assessment. Building 2 is a 23 levels residential tower located on 4 levels podium while Building 3 is 41 levels tower located on 4 levels podium. Podiums are allocated to host commercial and retail typologies and therefore are not subject to this assessment.



3.1 SEPP65 Design statement

Principle 1: Context and neighbourhood character

Good design responds and contributes to its context. Context relates to the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions.

Responding to context involves identifying the desirable elements of an area's existing or future character. Well designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.

Response:

SOPA Masterplan 2030 is rethinking the Central Precinct as an active heart of Sydney Olympic Park. A vibrant, diverse town centre with a range of complementary civic, retail, commercial, community, and entertainment uses.

The Concept Design is responding to the SOPA Masterplan vision by providing activation to every interface of the development, connecting to the central park on the north, Precinct Street A on the east, and Figtree Drive with bus interchange on the south. A vibrant human-scale public domain is created along the promenade and laneway where the main entrances to the station and developments are located via adjoining small-scale plazas. A series of retail opportunities have been identified to support the future town centre needs.

Additionally, following SOPA Masterplan vision, the concept design is creating a diverse spatial offering throughout the development ranging from vibrant public spaces at the ground to elevated semi-public and private open spaces at podiums. These are building upon the historically strong connection to nature and the country, Homebush being a meeting place and major food source for both Indigenous people and European settlers.

Principle 2: Built form and scale

Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings.

Good design also achieves an appropriate built form for a site and the building's purpose, in terms of building alignments, proportions, building type, articulation and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

Response:

The development consists of 3 individual towers, 1 above the station and 2 residential on the adjacent site. A 2 storey station, with 4 storey station services, serves as a podium to the 21 storey commercial building, accessible by an elevated lobby integrated with the station roof. Two towers, a 27 storey high north and 45 storey high south, with 4 level high podiums are forming the adjacent site development with consolidated carpark servicing for the whole development.

Responding to the SOPA Masterplan proposed built form while reflecting on the adjacent heritage precinct, the Concept Design intends to create a human scale environment while providing the high density proposed by SOPA's vision. Heights of park-facing buildings are reduced from the maximum 45 storeys to 21 and 27, podiums are broken into smaller elements with the promenade and laneway being open to the sky, as well as podium heights limited to 4 levels in order to create a fine-grain public domain with good solar and ventilation aspects. By breaking down podium built-form and lowering the height of the northern tower, the Concept Design intends to create a human scale environment both inside of the development but also along adjacent streets and open public plazas.

Southern towers of the development are proposed to reflect the density vision proposed in the new SOPA 2030 Masterplan. Design consideration has then been put into mitigating wind effects on the public domain by providing sufficient tower setbacks and analysing tower forms to allow for required public domain solar access.

Principle 3: Density

Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context.

Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.

Response:

The proposed density responds to the SOPA Masterplan aspiration and alignment with Greater Sydney Commission's 2018 Greater Sydney Region Plan - A Metropolis of Three Cities, where Sydney Olympic Park was identified as a Key Strategic Centre within Greater Sydney Regional Plan, well placed between River City and Harbour City. Development is located above the proposed Sydney Olympic Park Metro Station, 1 of 9 Metro stations along the Sydney Metro West Line connecting Sydney CBD with Paramatta. The Metro station is planned to cater for 23,000 residents, 34,000 workers and 5,000 students living and working in the precinct and support events varying in size and typology.

The mixed-use development is proposed to serve as a major central city destination, responding to the needs of the future community. Sufficient level of amenity is delivered through the community centre adjacent to the central plaza, fine grain commercial podium catering for diverse commercial typologies (i.e., health suites, post office, local start-ups with an incubator or co-working spaces), retail at the ground, office tower and residential towers with residential amenity spaces and elevated semi-public and private open areas.

SOPA Masterplan 2030 (Metro Interim Review) has recommended FSR on Site 47 to be 7:1 with maximum GFA of 80 196 m^2. However, during design process and consultation with Sydney Metro's Design Advisory Panel and SOPA, one of the main design strategies was set to create a human scale environment by reducing tower heights around central park and directly adjacent to Abattoir precinct. Therefore, FSR has been reduced to 5.96:1 with maximum GFA reduced to 68 000 m^2. Even though the built form has been reduced to increase solar access and reduce structural load, programme density is considered as essential to achieving a successful and active precinct.

Principle 4: Sustainability

Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials, and deep soil zones for groundwater recharge vegetation.

Response:

Building upon a historically strong connection to country and open space in the precinct, with heritage wetlands and vast parklands, connection to nature has been set as one of the primary design principles. Diverse communal, private, and semi-private open spaces are considered essential for achieving an active precinct and an engaged community. The built form has been set up to open towards the east allowing a cool summer breeze to provide natural ventilation for the precinct on summer days, while the built form is blocking cold western winds and providing protection during winter months.

Access to daylight, use of solar energy, and natural ventilation have been identified to have an essential role for the future town centre. A range of strategies, from the use of PV panels in shading elements on the commercial tower as well as on building roofs and façades to extensive recycling of rainwater, have been identified to provide sustainable outcomes for the development. The use of timber elements in the façade, recycled brick, or other natural materials is strongly encouraged.

In the concept design, passive design, and lower energy use have been encouraged through natural ventilation with 70% of the apartments having dual aspect façade orientation. Most of the apartments are arranged around north-eastern and north-western façades providing high solar access to about 80% of living areas. The risk of overheating in summer is reduced by green balconies that use major shading elements bringing parklands deep into the development.

Specific sustainability targets and rating requirements for Site 47 have been outlined in Ecologically Sustainable Development Report. Minimum rating requirements are set to 5 Star Green Star Buildings or equivalent (refer table 41 / 4.1 Minimum Sustainability Rating Requirements in Ecologically Sustainable Development Report) for both commercial and residential part of the development.

Principle 5: Landscape

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood.

Good landscape design enhances the development's environmental performance by retaining positive natural features which con-tribute to the local context, co-coordinating water and soil management, solar access, micro-climate, tree canopy, habitat values, and preserving green net-works. Good landscape de-sign optimizes usability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity, provides for practical establishment and long term management.

Response:

Landscaped areas have a special focus in the SOPA Masterplan 2030 and Place Design Public Domain Framework. The city centre is built around the Central Park which acts as the core for the precinct, connecting to both the Abattoir Precinct in the north and Olympic Boulevard to the west via the Marshalling Plaza. The concept design is proposing a high level of integration with landscape areas at ground level, providing activation to the central park, plazas along the promenade, and a shared landscaped zone at Precinct Street A. SOPA Place Framework set a minimum tree canopy coverage requirement for the precinct to 30% at Marshalling Plaza, 10% at Station Plaza, 15% in Town Centre Plaza, 30% in Town Centre Park, and 20% along precinct streets. Even though precinct landscape is subject to the approval of the Stage 3 CSSI application, through design process Site 47 reference design has been coordinated with landscape precinct design approach ensuring SOPA Place Framework requirements have been achieved.

Building up on precinct landscape integration and strong connection to nature, the design proposes elevated, landscaped semi-private and private areas on top of the podiums to serve as communal open spaces. Elevated gardens on top of the adjacent development podium will provide amenity to residents while the station roof garden is envisaged to serve as an office tower forecourt with an option to be connected to the residential development by bridges. Mid-level communal areas are envisaged as open areas celebrating views over Sydney Olympic Park and the Western Sydney Plains.

Principle 6: Amenity

Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being.

Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, and ease of access for all age groups and degrees of mobility.

Response:

The Concept Design residential layouts have been designed to maximise the proportion of dual aspect units with provision of natural ventilation as well as solar access to most of the units. Given the location of the building, apartments will enjoy a variety of outlooks over Sydney Olympic Park, Western Sydney suburbs, and the Blue Mountains. Balconies are designed as an extension of the indoor areas connecting apartments with the outlook. Proposed generous communal corridors also have access to natural light and ventilation.

Private open space is designed to provide additional amenities to residents of the two buildings. Additionally, extensive indoor residential amenities had been provided at the top podium level. Connecting the residential development with the station roof garden area would further enhance residential amenity provisions and is therefore strongly encouraged.

Principle 7: Safety

Good design optimizes safety and security, within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety.

A positive relationship between public and private spaces is achieved through clearly defined secure access points and well lit and visible areas that are easily maintained and appropriate to the location and purpose.

Response:

The mixed-use character of the development is significantly contributing to the safety in the precinct. Diversified uses are providing 24 hours surveillance to all public domain areas as well as buildings and metro entries. The Concept Design proposes podiums to be broken into finer grain elements stepping back on higher levels, opening promenade to the sky and views from the residential towers helping to provide necessary passive surveillance in night hours.

The residential lobbies address the highly activated Precinct Street A, envisaged as one of the primary pedestrian streets in the new City Centre. Additionally, residential towers on both sides of Precinct Street A are providing necessary passive surveillance during night hours. Additionally, delineation of public, semi public, semi private and private amenity creates different degrees of security and ownership of spaces.

Retail along the street is envisaged to provide vibrant activities at all times of the day. Strategically located landscaping elements and the use of resistant materials will deter vandalism and graffiti on ground-level walls.

Principle 8: Housing diversity and social interaction

Good design achieves a mix of apartment sizes, providing housing choices for different demographics, living needs and household budgets.

Well designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people, providing opportunities for social interaction amongst residents.

Response:

The Concept Design proposed mixed-use development including retail at ground level, fine grain commercial and community spaces in the podium, as well as residential and office spaces, creating a vibrant and diverse precinct. The diverse offering is set to provide multiple opportunities for social integration, servicing for future community needs. Open public spaces at the ground, as well as elevated semi-private and communal open areas, offer a good setting for a range of social activities creating an active and engaged community.

A total of 316 units is providing a diverse residential offering of the Concept Design. A mix of 1 bedroom, 2 bedroom, and 3 bedroom apartments is provides housing choices for different demographics and living needs. Such a divers range of units results in an opportunity to integrate affordable and social housing into the development mix. Residential amenity spaces in the top podium level are providing necessary communal spaces for community engagement and social integration.

Principle 9: Aesthetics

Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures.

The visual appearance of well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.

Response:

The focus of the concept design was creating a human-scale built form that responds to both, heritage precincts on the north, and SOPA Masterplan proposed high density on the south. Additionally, achieving fine grain built form in podium levels has been set as one of the major design principles. This approach resulted in a balanced composition of elements that reflects the context and blends into the future City Centre skyline.

The use of local and natural materials has been strongly encouraged through design principles set in the concept design. A mixed-use character of the development results in the opportunity for use of various materials, colours, and implementation strategies. Façades are envisaged to directly reflect the use of the building resulting in a balanced built form.

Design is directly responding to the context by setting a connection to nature as one of the design principles. 'Green' elements are used in podiums and façades bringing surrounding parklands into the apartments and encourage biophilic design principles. Towers layouts are designed to respond to the context celebrating views while providing privacy.

3.2 ADG Compliance summary

Introduction

The concept design for the residential scheme has been reviewed for compliance with key SEPP 65 Apartment Design Guidelines in order to validate the suitability of the use to the envelope.

Listed below are the key ADG sections that require consideration for high rise residential apartment planning:

- Visual privacy
- Solar and daylight analysis
- Natural ventilation
- Ceiling heights
- Apartment size and layout
- Private open space and balconies
- Communal open space
- Common circulation and spaces
- Storage

Visual privacy

Objective 3F-1. Adequate building separation distances are to be shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy.

Design Criteria

1. Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows:

Building Height	Habitable rooms & balconies	Non-habitable rooms
Up to 12m (4 storey)	6m (12m)	3m (6m)
Up to 25m (5-8 storey)	9m (18m)	4.5m (9m)
Over 25m (9+ storey)	12m (24m)	6m (12m)

The concept design achieves all required separations between buildings 2 and 3 (28m), between buildings 2,3 and 1 (30m) but also between proposed buildings on adjacent sites 46 and 48 (28m and 24m respectively). Therefore, the concept design scheme is compliant with ADG Visual Privacy requirements.

Visual privacy has been the main design objective during layout design of both residential towers. Apartment are organised to minimise overlooking.

As demonstrated in the text response and Figure 1.2.1 the concept design achieves compliance with the above criteria.

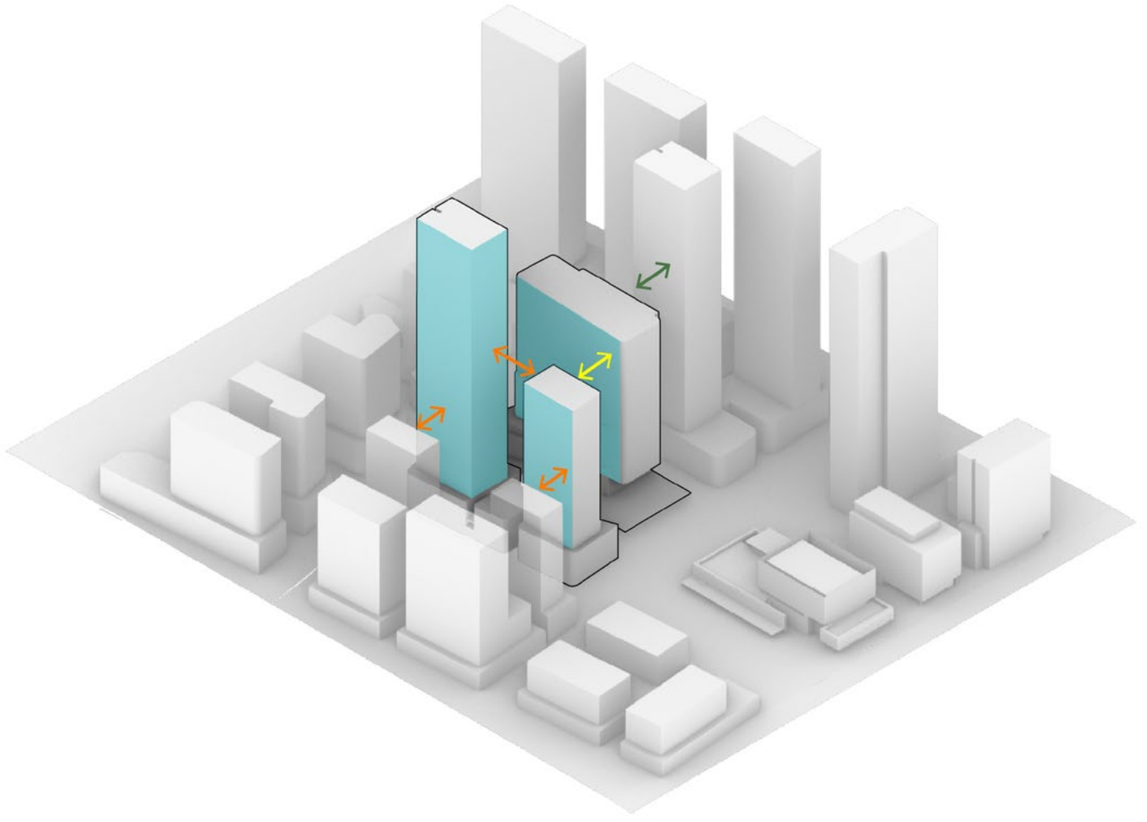


Figure 1.2.1 - Building Seperation

Solar access

The Apartment Design Guide 2015, Part 4A-1, stipulates the minimum amount of sunlight that should be received in habitable rooms and private open space.

The minimum amount of light acceptable to be included in calculations is 1sq.m of direct sunlight, measured at 1m above floor level, for a minimum of 15 minutes. The calculation needs to be made with the building in the correct global location and orientation, but also within it's known surrounding context – topological and built-form.

Solar access to residential towers has been assessed inclusive of future development proposed by SOPA Masterplan 2030. Included diagrams demonstrate solar access for each facade of two residential buildings using 15 minutes increments on 0.5x0.5m grid. For more detail assessment refer to following pages assessing individual buildings performance.

Design Criteria (dense urban context)	Development Performance	Complies
Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid winter in Sydney Metropolitan Area and in the New Castle and Wollongong local government area.	Building 2 - Approximately 75% of apartments received 2 hours or more of direct sunlight. Building 3 - Approximately 80% of apartments received 2 hours or more of direct sunlight.	✓ ✓
A maximum of 15% of apartments in a building receive no direct sunlight between 9am and 3pm at mid winter.	Building 2 - No apartments receive no direct sunlight. Building 3 - No apartments receive no direct sunlight.	✓ ✓

As demonstrated in the table and the adjacent figures, the concept design achieves compliance with the above criteria.

Figure 1.2.2 - Northern View

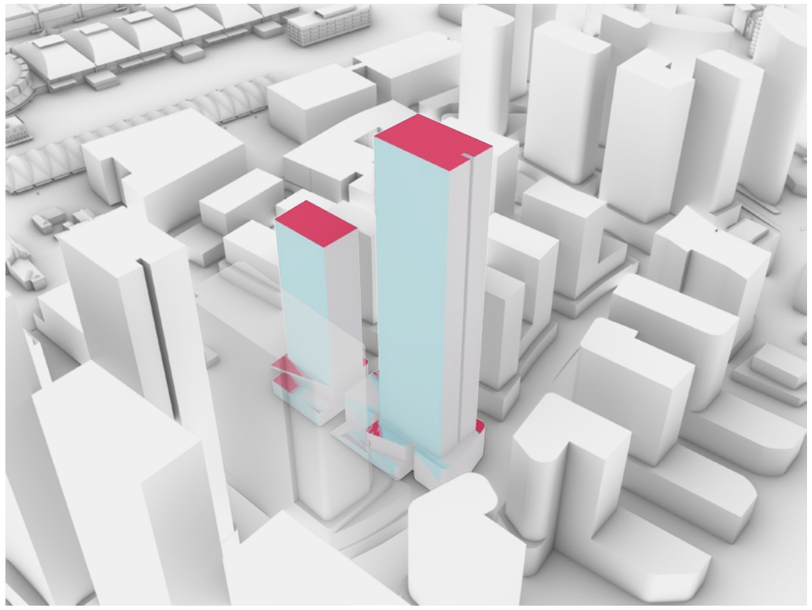
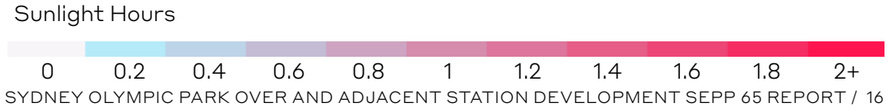


Figure 1.2.3 - Southern View



Natural ventilation

Objective 4B-3. The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents.

Design Criteria

1. At least 60% of apartments are naturally ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allow adequate natural ventilation and cannot be fully enclosed.

As demonstrated in adjacent diagrams, the concept design scheme is achieving more then 60% natural cross ventilation requirement. 75% apartments (15 out of 20; 3 / 4 per level) in the first nine storeys (Levels 4 to 8) of Building 2 are cross-ventilated, while there are 66% apartments (20 out of 30; 4/6 per level) in Building 3.

Furthermore, all apartments including those at the first nine storeys have balconies and can therefore be adequately ventilated.

As demonstrated in the above text and adjacent figures, the concept design achieves compliance with the above criteria.

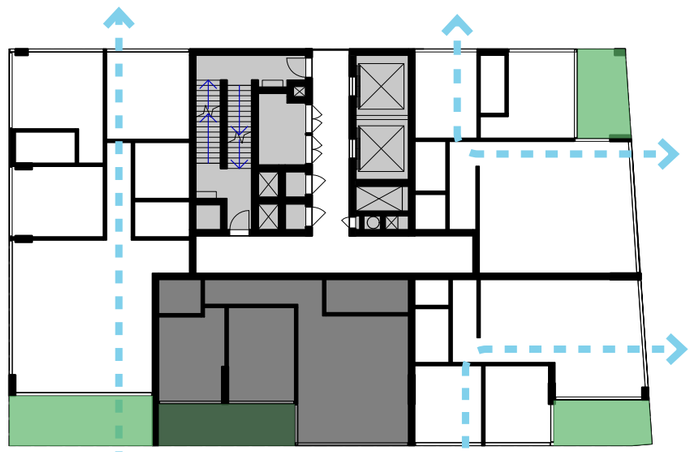


Figure 1.2.4 - Building 2 Natural Ventilation

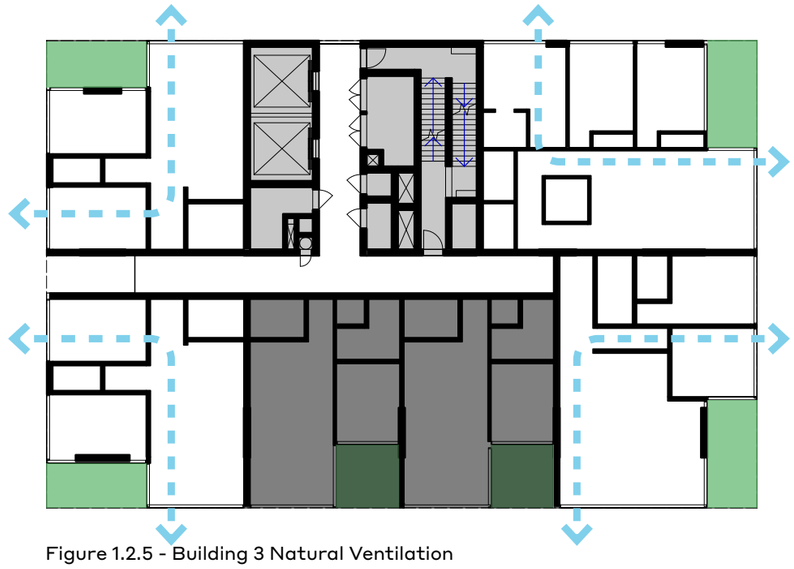


Figure 1.2.5 - Building 3 Natural Ventilation

Ceiling heights

Objective 4C-1. Ceiling height achieve sufficient natural ventilation and daylight access.

Design Criteria

1. Measured from finishes floor level to finishes ceiling level, minimum ceiling heights are:

Habitable Rooms	2700mm
Non-Habitable Rooms:	2400mm

Building 2 and 3 Dimensions

Typical floor habitable rooms	2700mm
Assumptions:	
MEP zone*	200mm
Structural Zone*	300mm
Floor to Floor Height	3200mm

*subject to final engineering coordination

As demonstrated in the above table and adjacent diagram, the concept design achieves compliance with the above criteria.

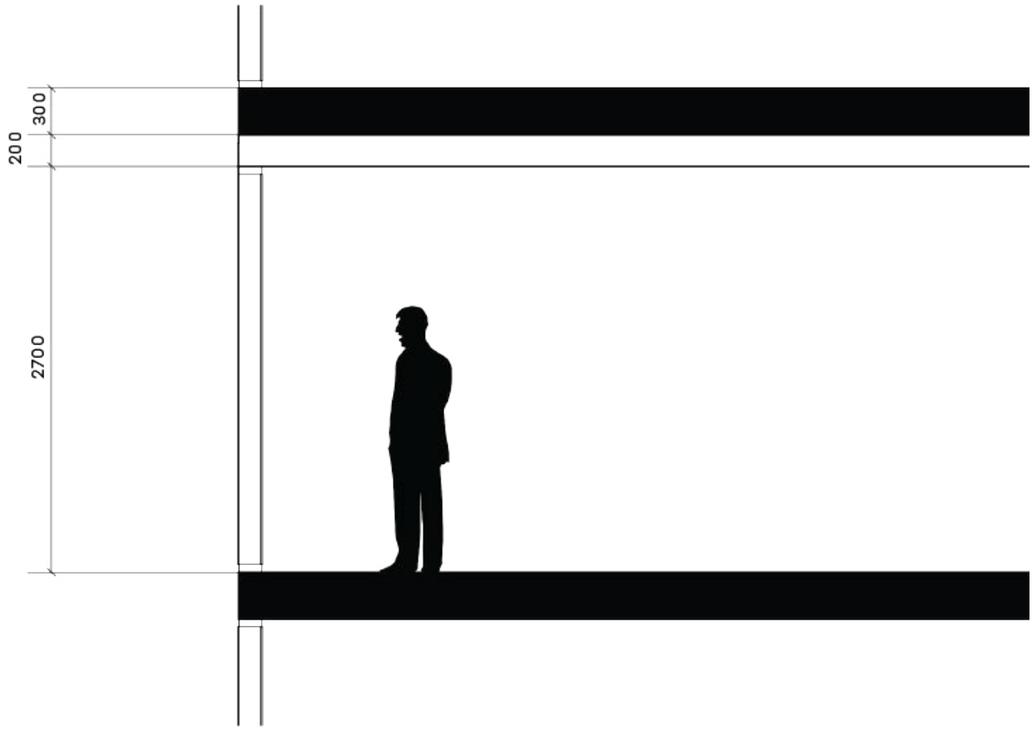


Figure 1.2.6 - Typical Level Section

Apartment size and layout

Objective 4D-1. The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity.

Design Criteria

1. Apartments are required to have the following minimum internal areas:

Apartment Type	Minimum internal area
Studio	35m²*
1 Bedroom	50m²*
2 Bedroom	70m²*
3 Bedroom	90m²*

*An additional 5m² is added to the minimum requirement for each additional bathroom past the first.

As demonstrated in tables 1.2.1 and 1.2.2 as well as figures 1.2.7 and 1.2.8, the concept design achieves compliance with the above criteria.

2. Every habitable room must have a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight and air may not be borrowed from other rooms.

The concept design allows for compliance of the above criteria to be further expanded on in detail design.

Private open space and balconies

Objective 4E-1. Apartments provide appropriately sized private open space and balconies to enhance residential amenity.

Design Criteria

1. Apartments are required to have primary balconies as follows:

Dwelling Type	Minimum Area	Minimum Depth
Studio	4m²	
1 Bedroom	8m²	2m
2 Bedroom	10m²	2m
3 Bedroom	12m²	2.4m

As demonstrated in tables 1.2.1 and 1.2.2 as well as figures 1.2.7 and 1.2.8, the concept design achieves compliance with the above criteria.

Building 2

Unit No.	Type	Location	Area (m²)	ADG Min. (m²)	Balcony Area (m²)	ADG Min. (m²)
Unit 1	3 Bed	L4-25	**126**	90 (95)	**16**	12
Unit 2	2 Bed	L4-25	**80**	70 (75)	**12**	10
Unit 3	2 Bed	L4-25	**79**	70 (75)	**10**	10
Unit 4	2 Bed	L4-25	**92**	70 (75)	**10**	10

(Area requirement including extra bathrooms)

Table 1.2.1

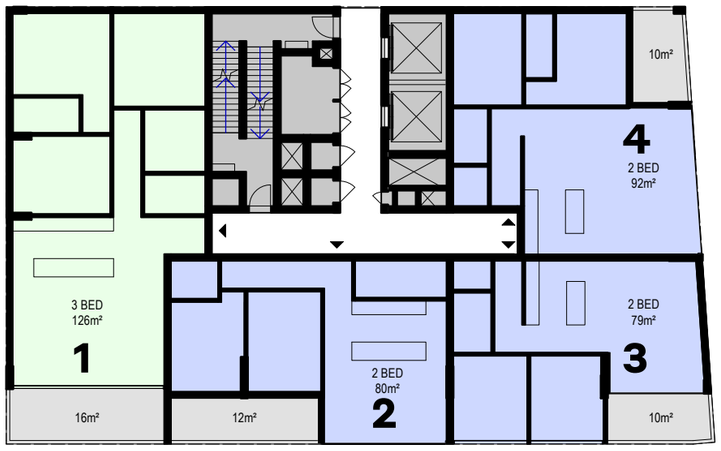


Figure 1.2.7

Building 3

Unit No.	Type	Location	Area (m²)	ADG Min. (m²)	Balcony Area (m²)	ADG Min. (m²)
Unit 1	2 Bed	L4-23, 26-44	**81**	70 (75)	**10**	10
Unit 2	2 Bed	L4-23, 26-44	**81**	70 (75)	**10**	10
Unit 3	1 Bed	L4-23, 26-44	**61**	50	**8**	8
Unit 4	1 Bed	L4-23, 26-44	**61**	50	**8**	8
Unit 5	2 Bed	L4-23, 26-44	**101**	70 (75)	**12**	10
Unit 6	3 Bed	L4-23, 26-44	**116**	90 (95)	**12**	12

(Area requirement including extra bathrooms)

Table 1.2.2

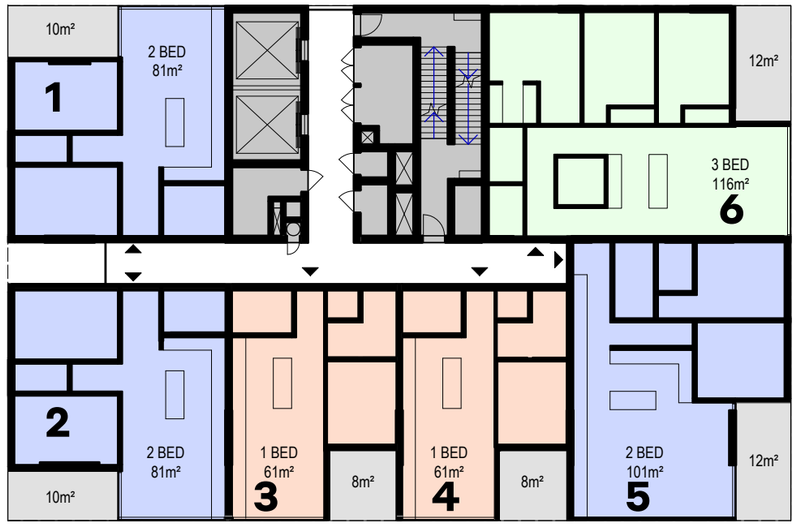


Figure 1.2.8

Apartment dimensions

Objective 4D-2. Environmental performance of the apartment is maximised.

Design Criteria

1. Habitable room depths are limited to a maximum of 2.5x the ceiling height.

2. In open plan layouts (where living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window.

As demonstrated in the adjacent figures, the concept design achieves compliance with the above criteria.

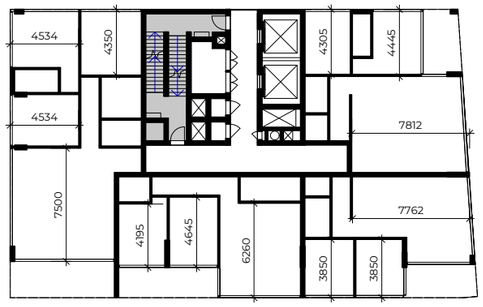


Figure 1.2.9

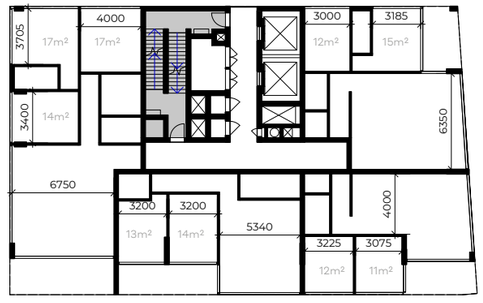


Figure 1.2.10

Objective 4D-3. Apartment layouts are designed to accommodate a variety of household activities and needs.

1. Master bedrooms have a minimum area of 10m² and other bedrooms 9m² (excluding wardrobe space)

2. Bedrooms have a minimum dimension of 3m (excluding wardrobe space)

3. Living rooms or combined living/dining rooms have a minimum width of: -3.6m for studio and 1 bedroom apartments -4m for 2 and 3 bedroom apartments.

4. The width of cross-over or cross through apartments are at least 4m internally to avoid deep narrow apartment layouts. The concept design test layouts demonstrate more than adequate opportunity to meet this objective.

As demonstrated in the adjacent figures, the concept design achieves compliance with the above criteria.

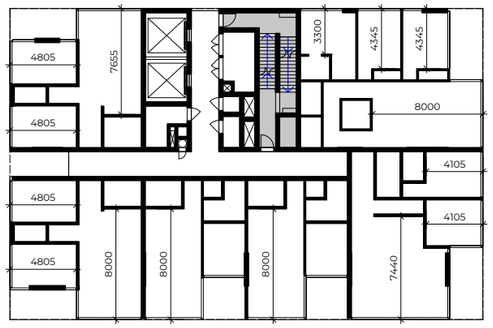


Figure 1.2.11

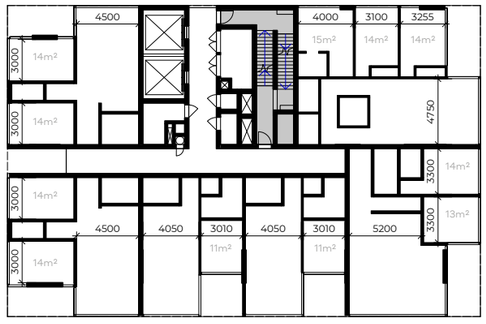


Figure 1.2.12

Common circulation and spaces

Objective 4F-1. Common circulation spaces achieve good amenity and properly service the number of apartments.

Design Criteria

1. The maximum number of apartments off a circulation core on a single level is eight.

Each level of Building 2 has 4 apartments off of the circulation core.

Each level of Building 3 has 6 apartments off of the circulation core.

2. For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40.

The concept design for Building 2 has 88 apartments sharing two lifts that are accessed from Precinct Street A.

Building 3 has 228 apartments sharing two lifts (with provision for a third) that are accessed from the promenade between Building 1 and Buildings 2/3 as well as Precinct Street A.

These lifts will be designed with the speed and capacity to provide adequate levels of service for each of the buildings.

Coordination with VT engineers has been undertaken during concept design ensuring required performance is achieved.

Communal open space

Objective 3D-1. An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping.

Design Criteria

1. Communal open space has a minimum area equal to 25% of the site.

2. Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid winter).

The concept design shows communal space located on both tower rooftops, at level 27 plant in B2 and on the podium rooftops. This combined space is equal to 30% of the site area and more than 50% of its combined area receives 2 hours or more sunlight during the Winter Solstice between 9am and 3pm.

As demonstrated in the text response above, the concept design achieves compliance with the above criteria.

Storage

Objective 4G-1. Adequate, well designed storage is provided in each apartment.

Design Criteria

1. In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided:

Dwelling Type	Storage Size Volume
Studio	4m³
1 Bedroom	6m³
2 Bedroom	8m³
3+ Bedroom	10m³

Sufficient storage will be primarily achieved by providing storage units adjacent to each parking space in the basement, in large storage areas in the basement but also in each apartment through storage rooms and joinery units.

As demonstrated in the text response above, the concept design achieves compliance with the above criteria.

3.3 ADG Analysis

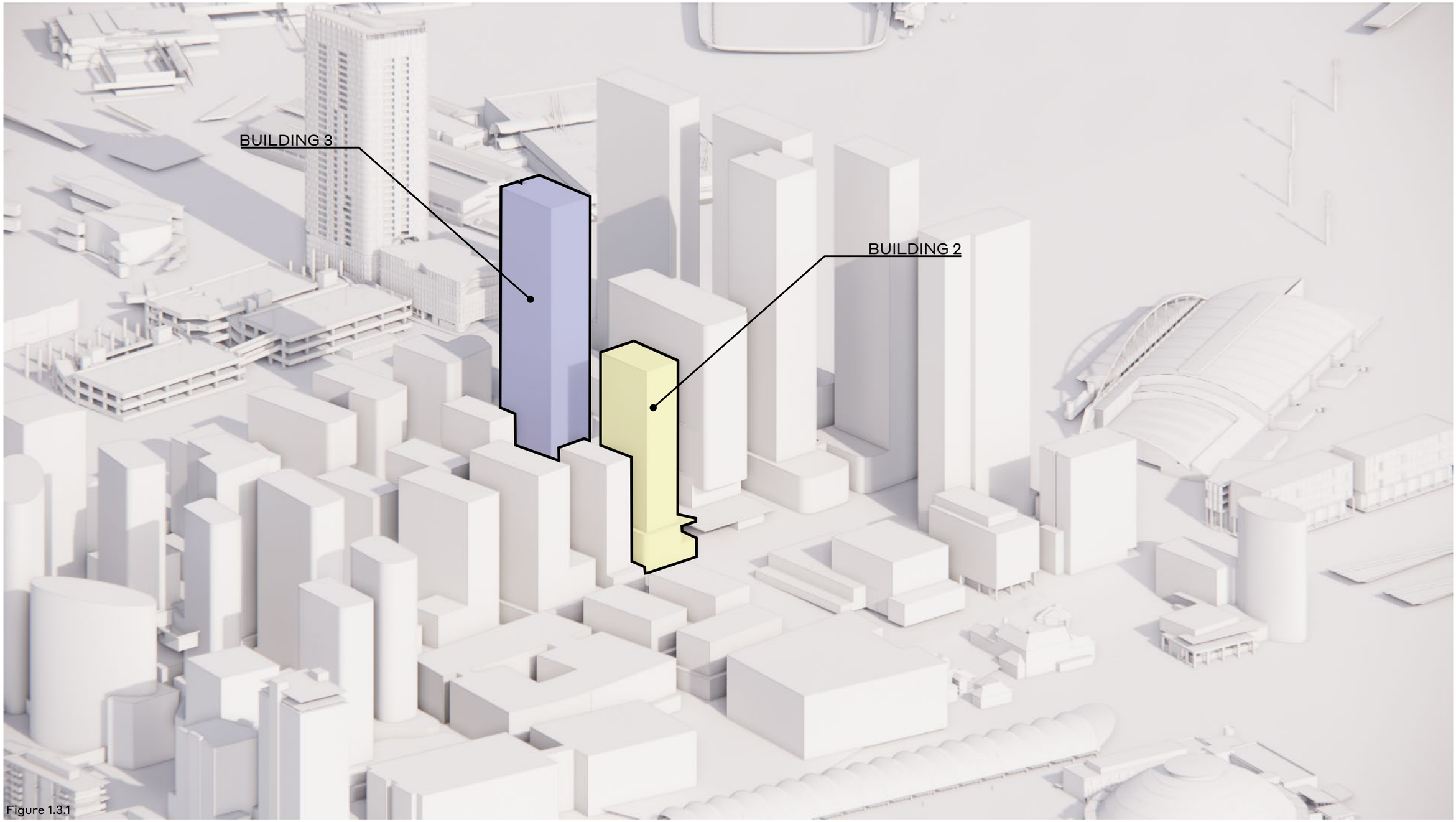


Figure 1.3.1

3.3 ADG Analysis - Building 2

3.3.1 Solar access - Building 2 | Massing assessment

Building 2

Objective 4A-1.

The proposed design should optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open spaces, as per 4A Solar and daylight access.

4A-1.1 Living rooms and private open spaces of at least 70% of apartments receive minimum 2 hours direct sunlight between 9am and 3 pm on 21 June.

Complies, 75% of apartments receive more than 2 hours of sunlight.

4A-1.2 Not applicable in this site location.

4A-1.3 A maximum of 15% of apartments in a building receive no direct sunlight between 9am and 3pm on 21 June.

Complies, all of the apartments receive at least minimum required direct sunlight.

As demonstrated in the following figures 1.3.2-1.3.9, the concept design achieves compliance with the above criteria.

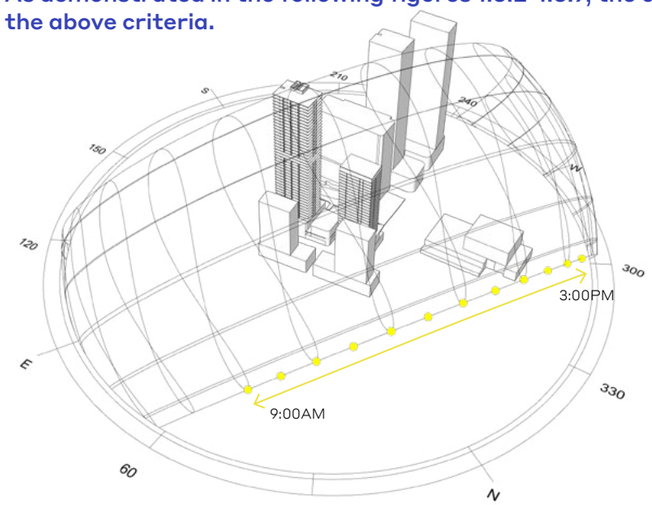


Figure 1.3.2 - Sunlight Diagram

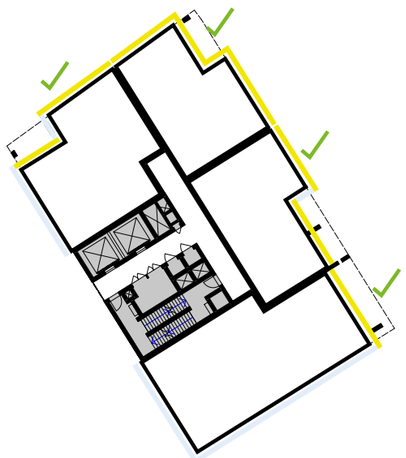


Figure 1.3.3 - Building 2 Sunlight Access Plan

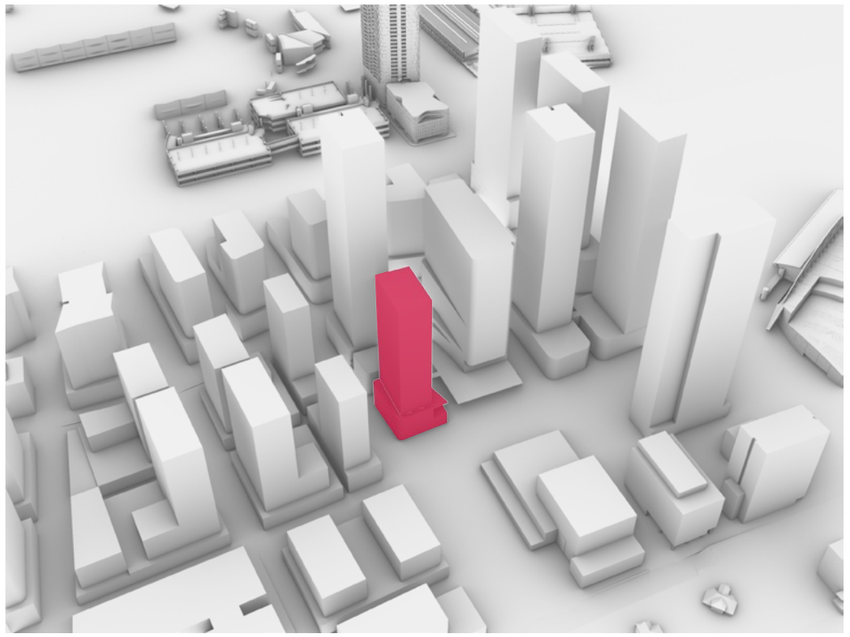


Figure 1.3.4 - Northern View

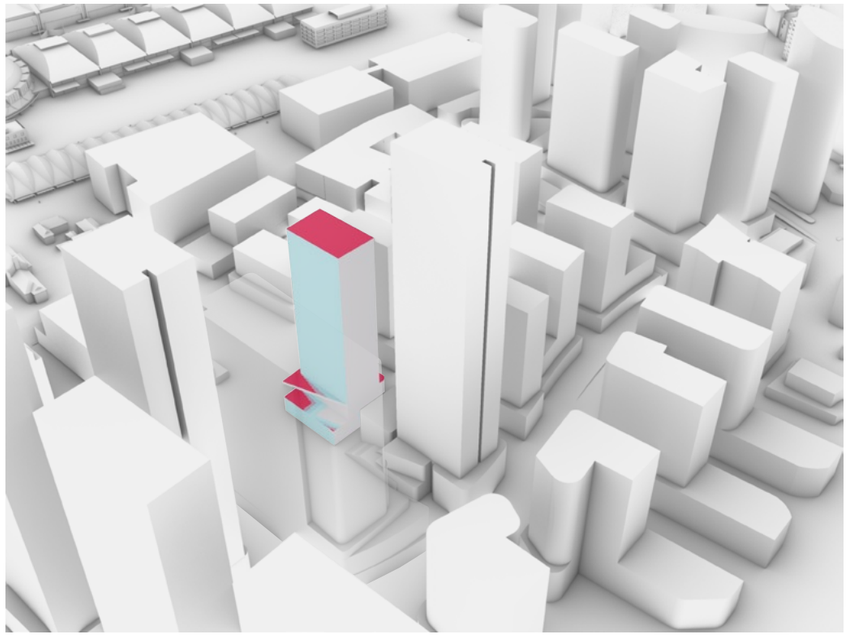


Figure 1.3.5 - Southern View

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.3.2 Solar access - Building 2 | Sun views

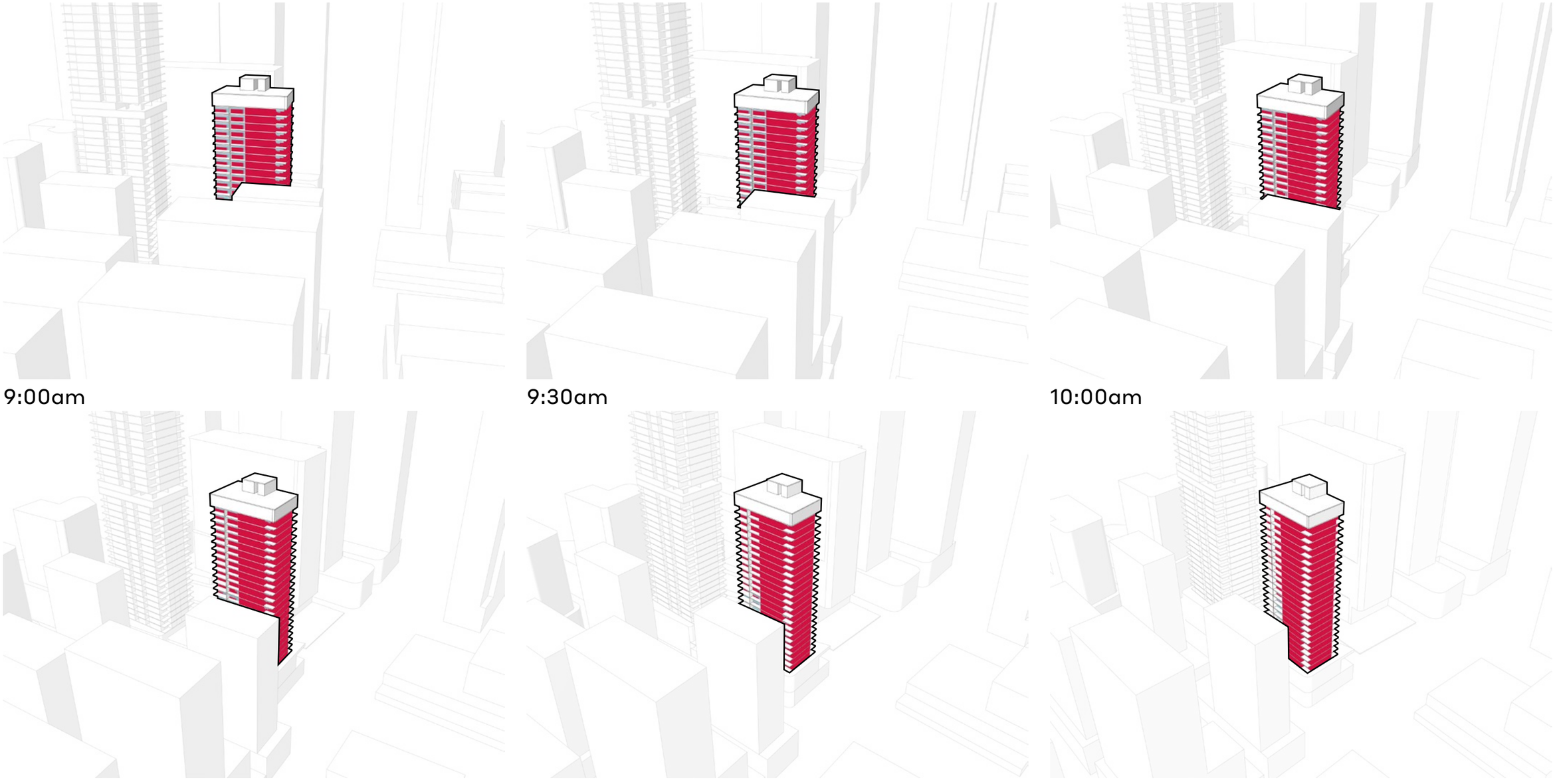


Figure 1.3.6 - Building 2 Sun Eye Views

3.3.2 Solar access - Building 2 | Sun views

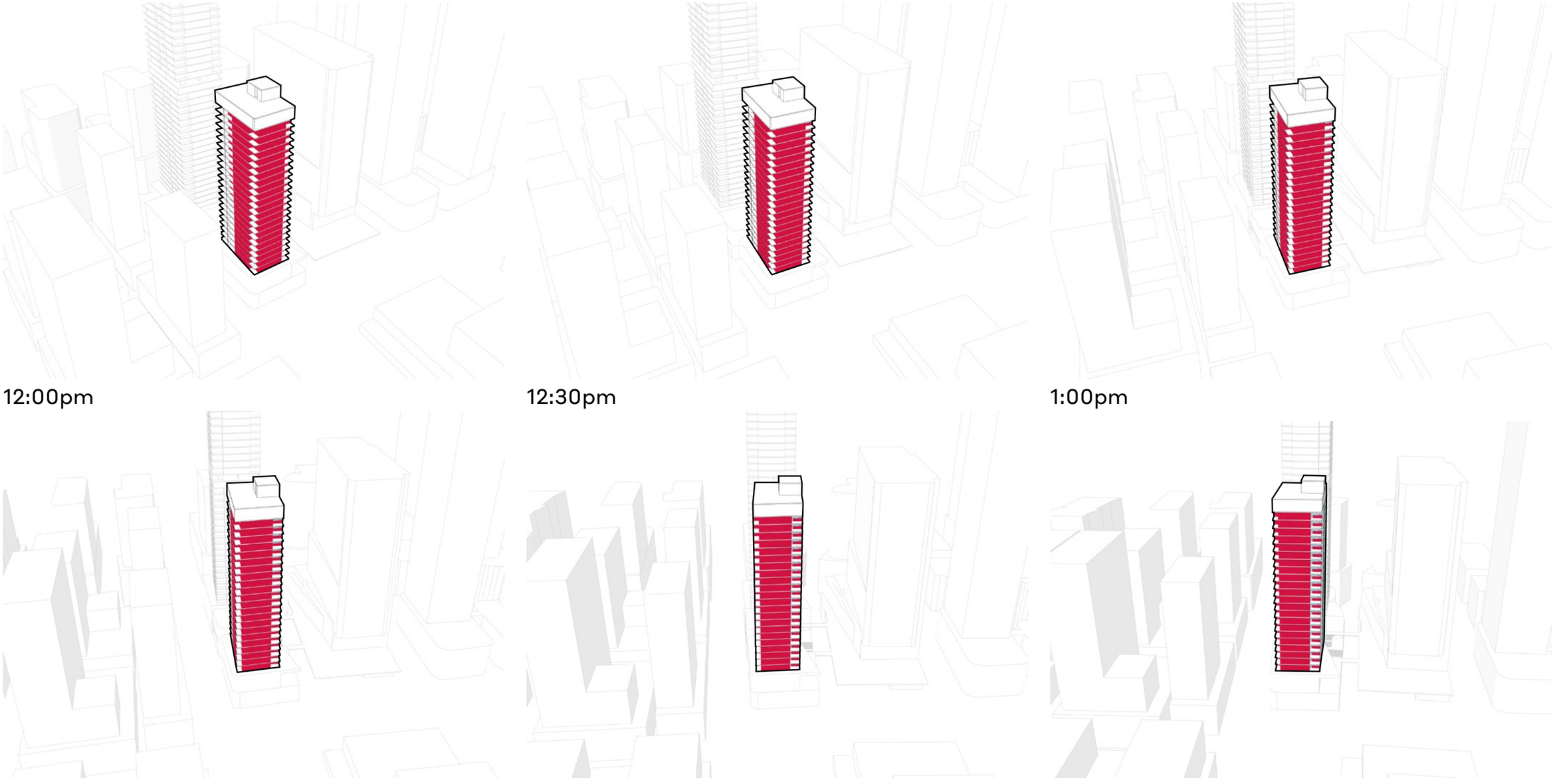
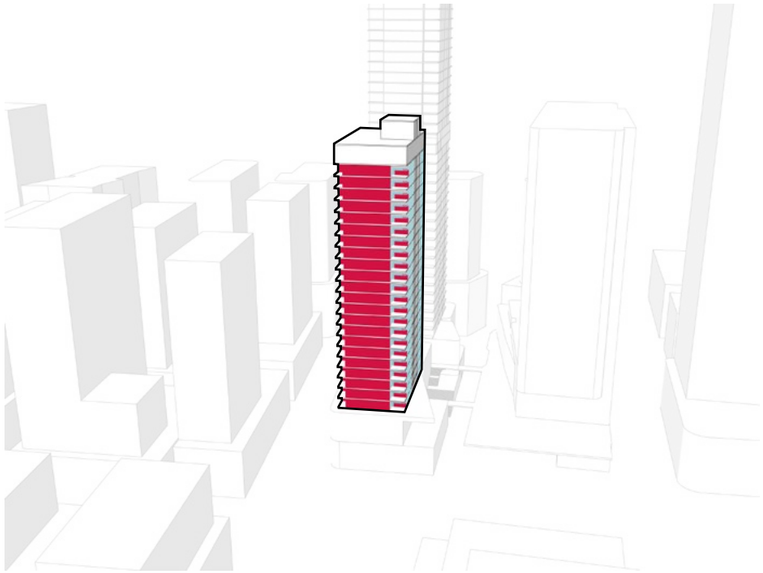


Figure 1.3.6 - Building 2 Sun Eye Views

3.3.2 Solar access - Building 2 | Sun views



3:00pm

Figure 1.3.6 - Building 2 Sun Eye Views

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.3.3 Solar access - Building 2 | Plan diagram concept design

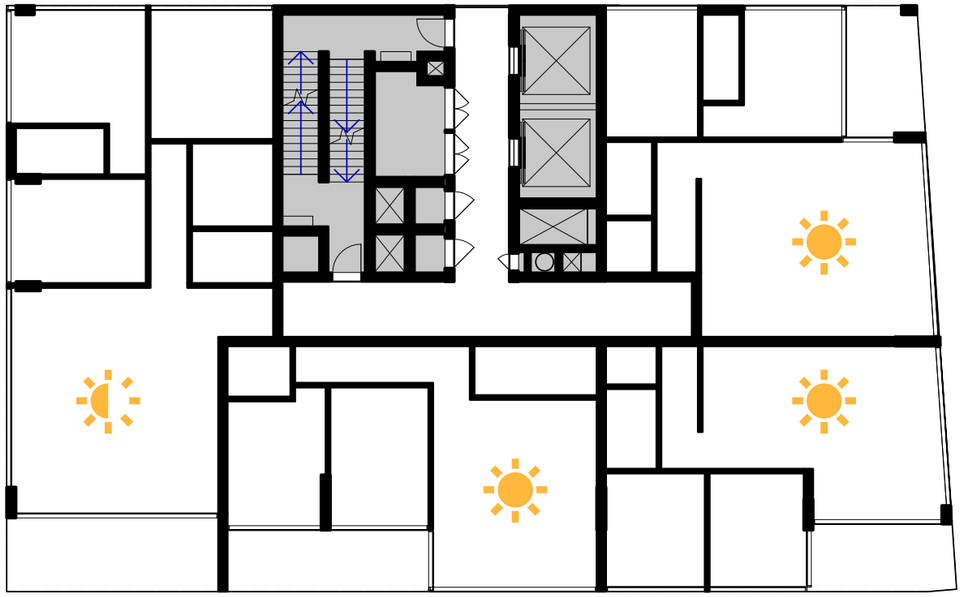


Figure 1.3.7 - Building 2 Solar Access Plan 2

The Apartment Design Guide 2015, Part 4A-1, stipulates the minimum amount of sunlight that should be received in habitable rooms and private open space. In order to verify a high level of compliance with the standard and inform the detailed design, a detailed solar access study was performed with specialist software.

This analysis was carried out for June 21 from 9:00 am to 3:00 pm. The model includes the surrounding context with the correct orientation and geolocation.

The analysis was carried out on a grid of 0.5m at each floor level at 15min interval.

The results indicate that all apartments with windows oriented NE and NW will receive a good level of sunlight in excess of that required by the ADG. The apartments oriented SW will receive less than 2 hours of solar access as well as some NE facing apartments that are either blocked by other structures or deeper balconies. None of the these apartments however receive no solar access.

Solar Access Summary

	no. Apartments	Percentage(%)
Receiving more than 2hr solar access	66	75%
Receiving less than 2hr solar access	22	25%
Receiving less than 15 min solar access	0	0%

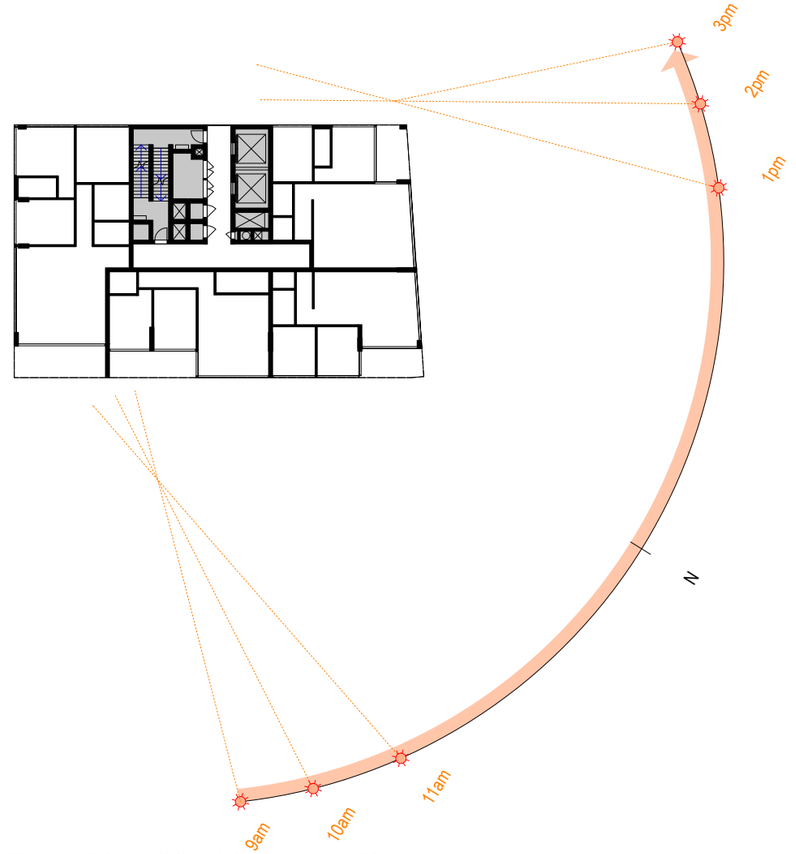
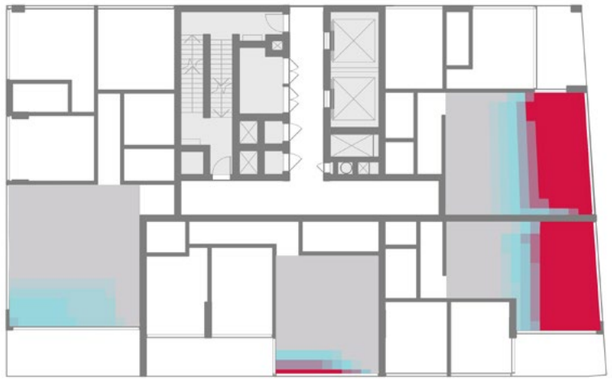


Figure 1.3.8 - Building 2 Solar Access Plan 3

3.3.4 Solar access - Building 2 | Detailed solar access analysis concept design



Level 4-10

Level 11

Level 12

Level 13

Level 14

Level 15-25

Figure 1.3.9 - Building 2 Solar Hours Plans

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.3.5 Environmental performance - Building 2 | Room depth concept design

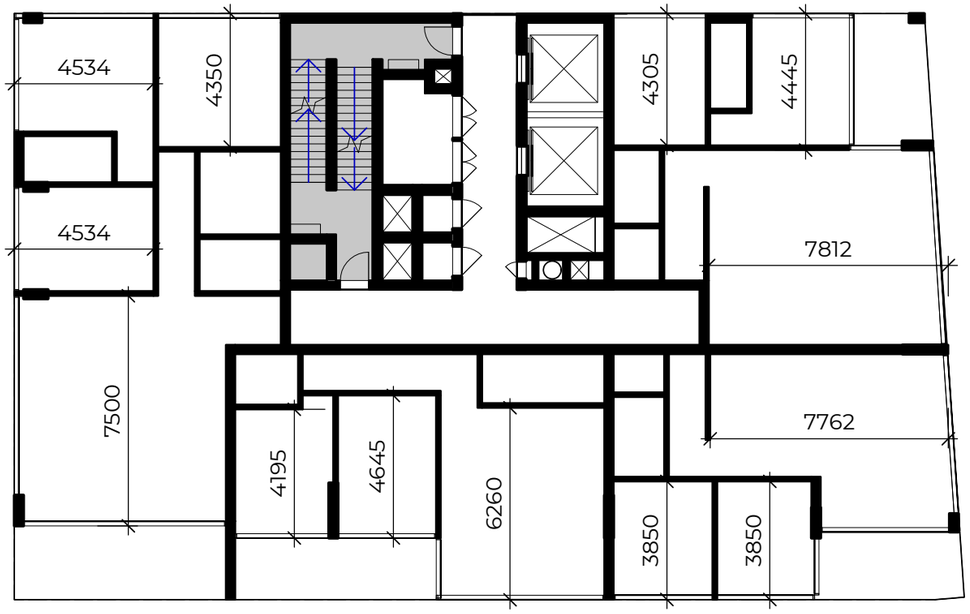


Figure 1.3.10 - Building 2 Room Depths

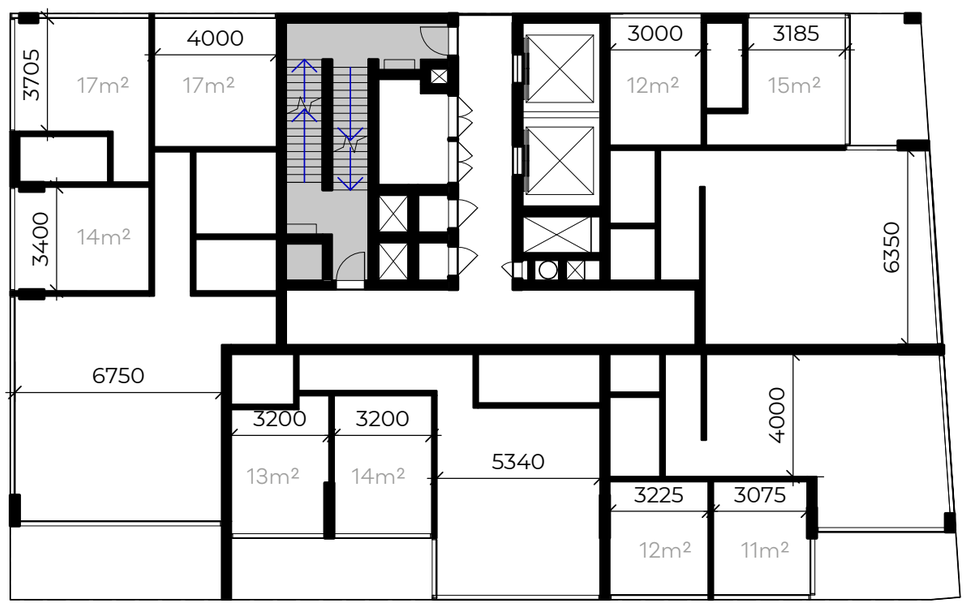


Figure 1.3.11 - Building 2 Room Areas and Dimensions

Objective 4D-2. Environmental performance of the apartment is maximised

Design Criteria

1. Habitable room depths are limited to a maximum of 2.5x the ceiling height

Complies, the maximum room depths are within the above threshold.

2. In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window.

Complies, the maximum room depth for open plan apartments is 8m or less.

Objective 4D-3. Apartment layouts are designed to accommodate a variety of household activities and needs.

Design Criteria

1. Master bedrooms have a minimum area of 10m² and other bedrooms 9m² (excluding wardrobe space)

2. Bedrooms have a minimum dimension of 3m (excluding wardrobe space)

3. Living rooms or combined living/dining rooms have a minimum width of: -3.6m for studio and 1 bedroom apartments -4m for 2 and 3 bedroom apartments.

Complies, the room dimensions and areas are exceeding or meeting these minimum thresholds.

3.3.6 Environmental performance - Building 2 | Natural ventilation analysis concept design

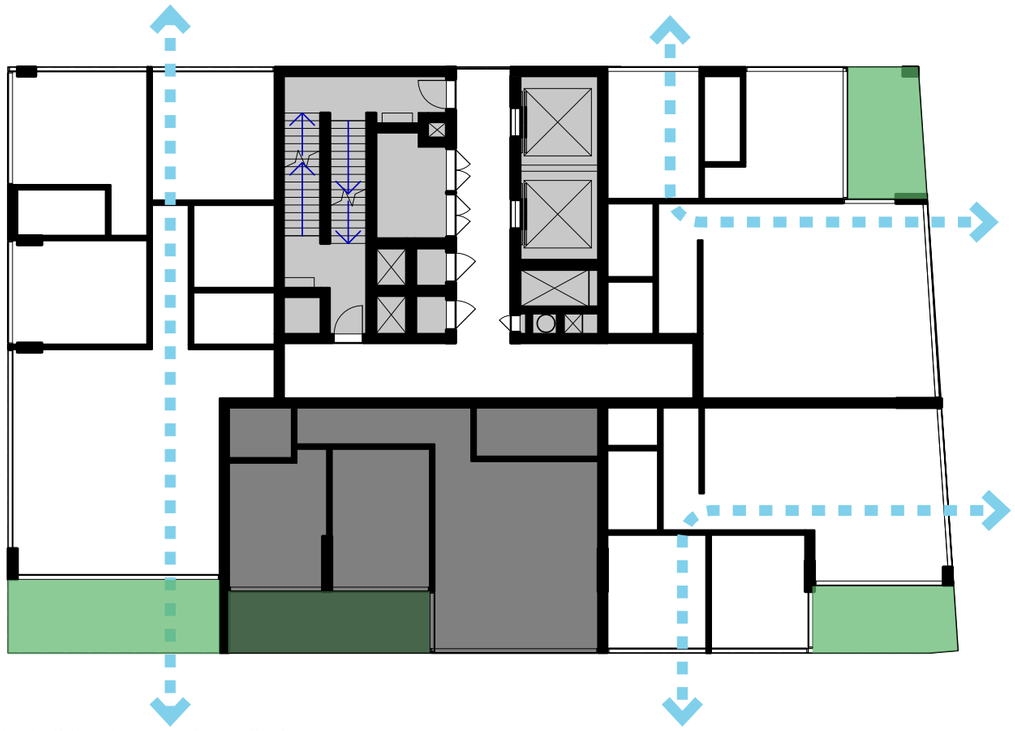


Figure 1.3.12 - Building 2 Natural Ventilation

Objective 4B-3. The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents.

Design Criteria

1. At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building.

Complies, 75% of apartments receive natural cross ventilation.

2. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

All apartments have balconies which allow for natural ventilation.

3.4 ADG Analysis - Building 3

3.4.1 Solar access - Building 3 | Massing assessment

Building 3

Objective 4A-1.

The proposed design should optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open spaces, as per 4A Solar and daylight access.

4A-1.1 Living rooms and private open spaces of at least 70% of apartments receive minimum 2 hours direct sunlight between 9am and 3 pm on 21 June.

Complies, 80% of apartments receive more than 2 hours of sunlight.

4A-1.2 Not applicable in this site location.

4A-1.3 A maximum of 15% of apartments in a building receive no direct sunlight between 9am and 3pm on 21 June.

Complies, all of the apartments receive at least minimum required direct sunlight.

As demonstrated in the following figures 1.4.1-1.4.8, the concept design achieves compliance with the above criteria.

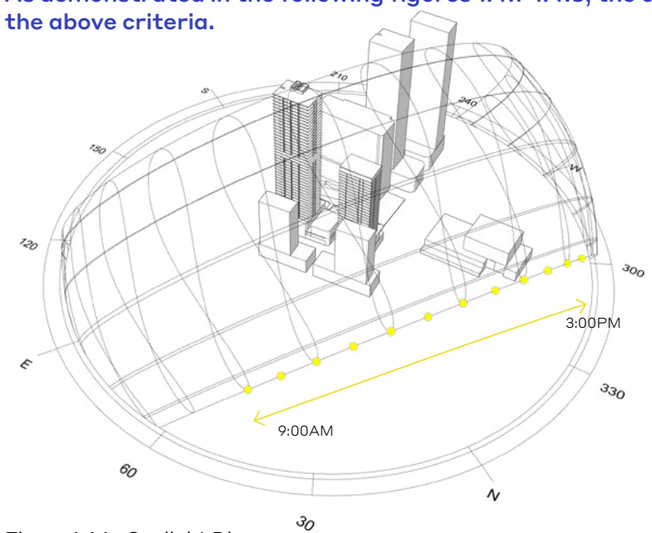


Figure 1.4.1 - Sunlight Diagram

Figure 1.4.2 - Building 3 Sunlight Access Plan

Figure 1.4.3- Northern View

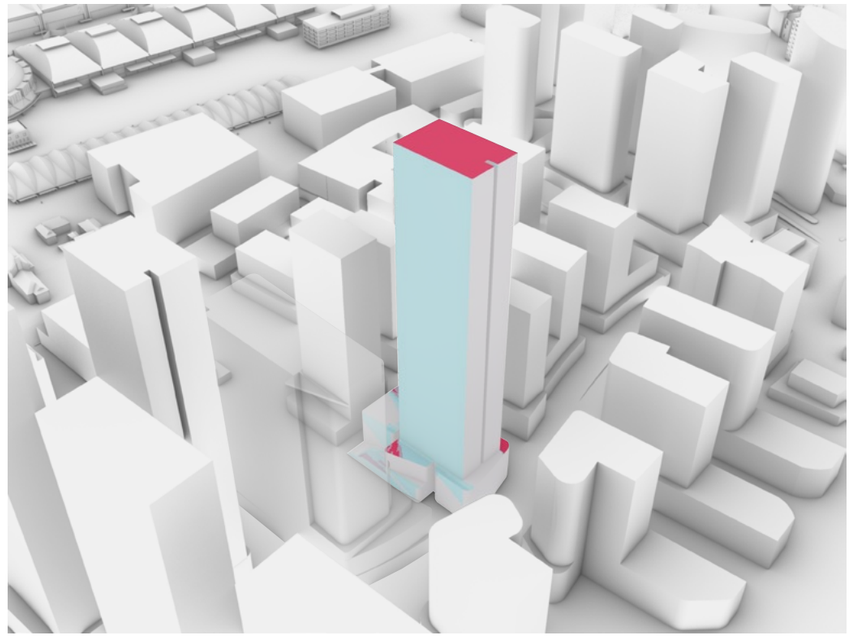
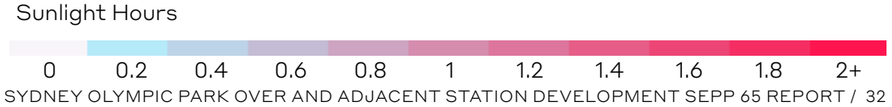


Figure 1.4.4- Southern View



3.4.2 Solar access - Building 3 | Sun views

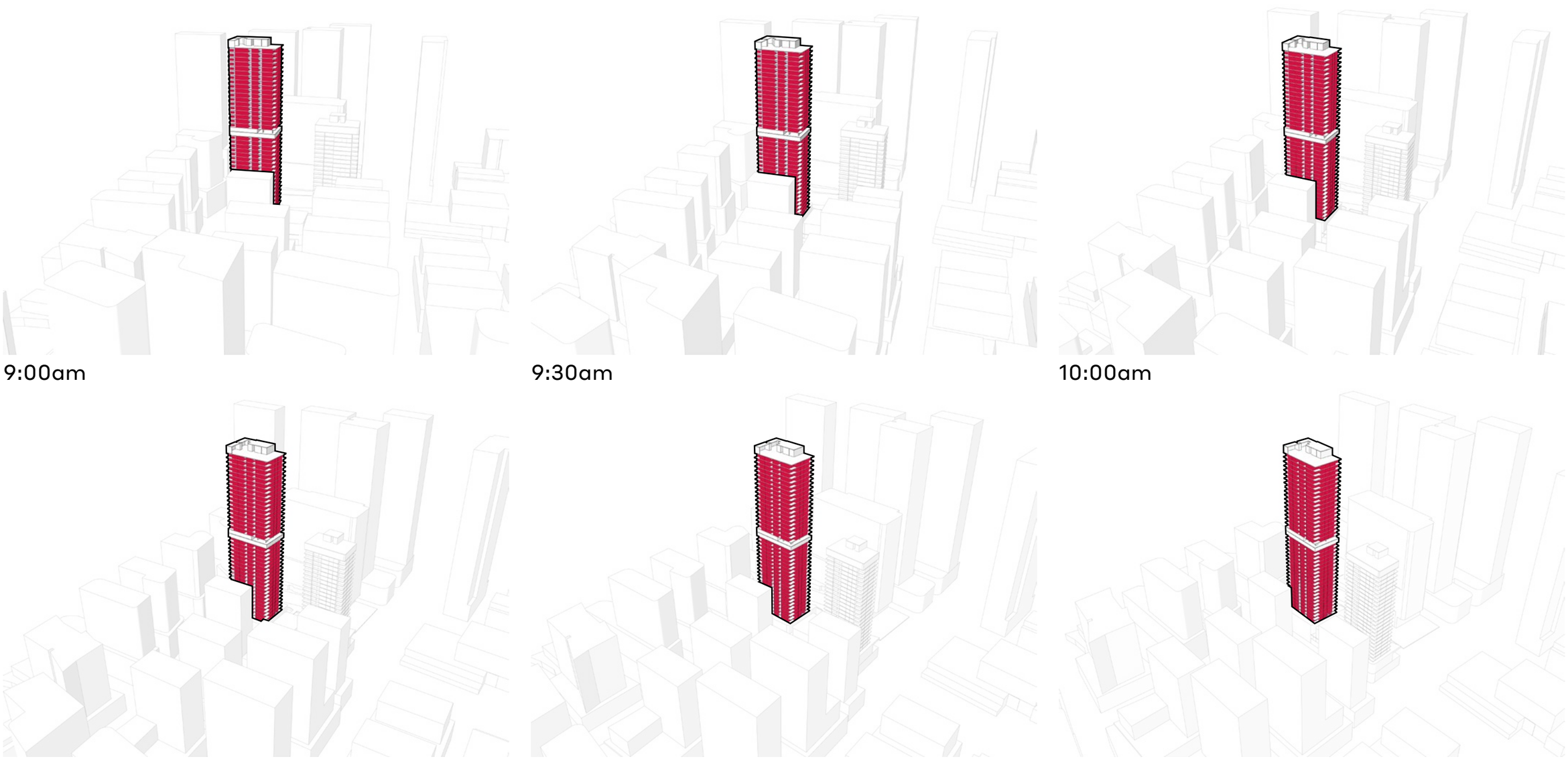


Figure 1.4.5 - Sun Eye Views

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.4.2 Solar access - Building 3 | Sun views

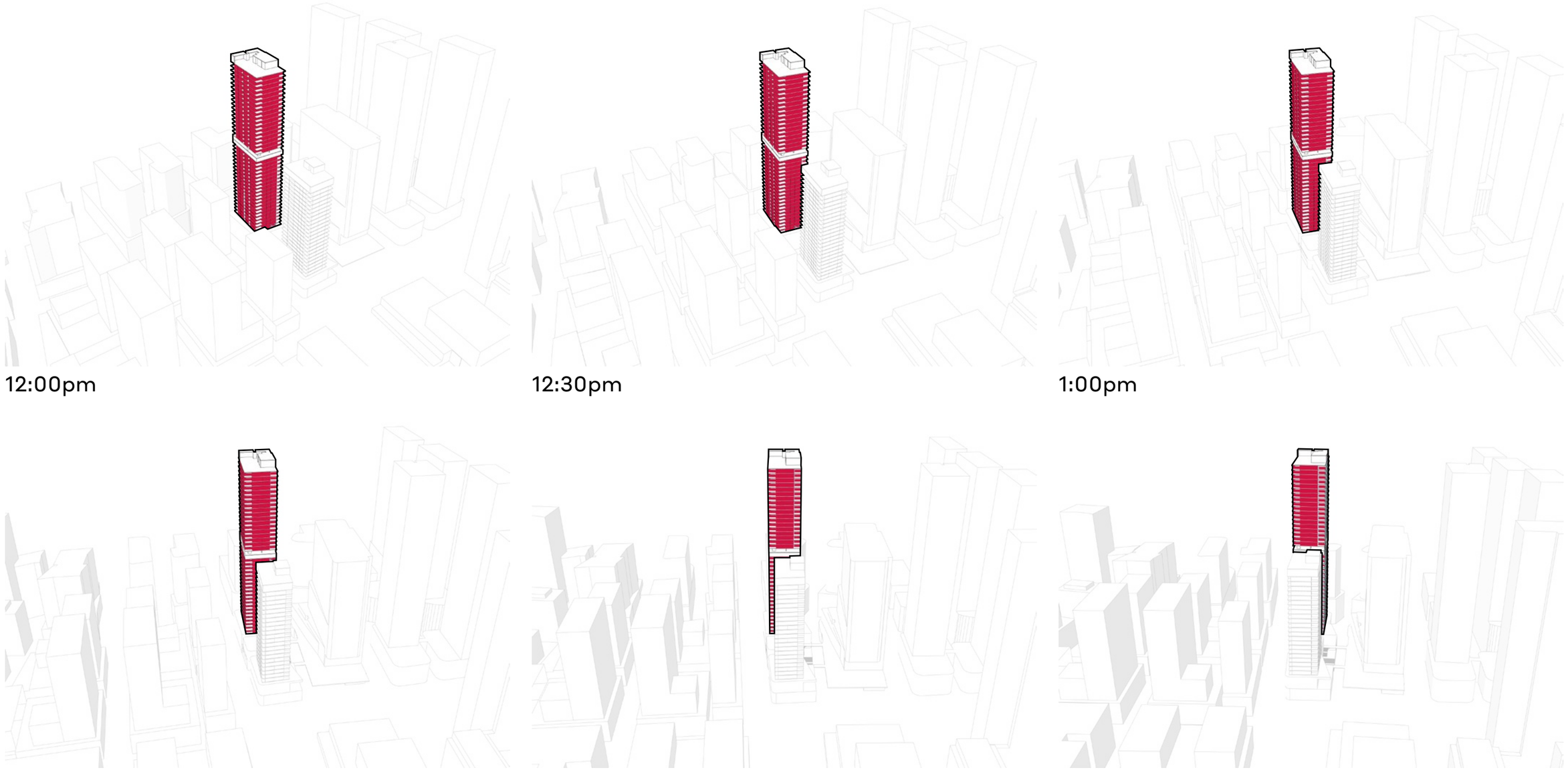
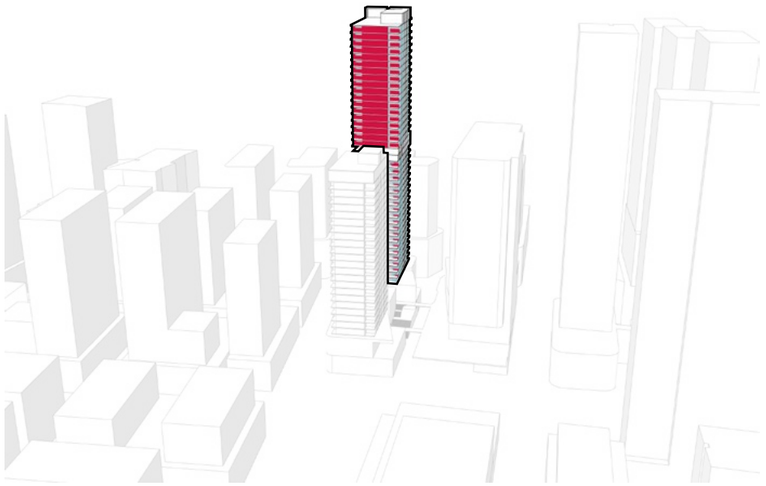


Figure 1.4.5 - Sun Eye Views

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.4.2 Solar access - Building 3 | Sun views



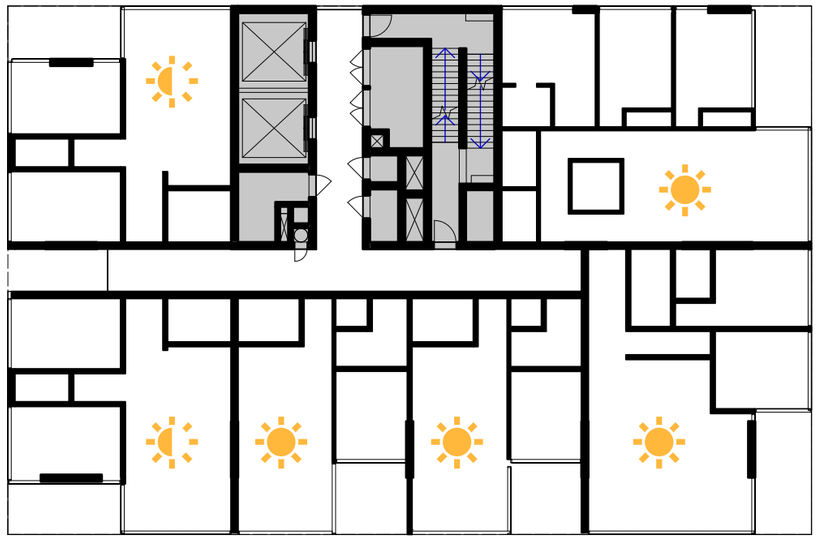
3:00pm

Figure 1.4.5 - Sun Eye Views

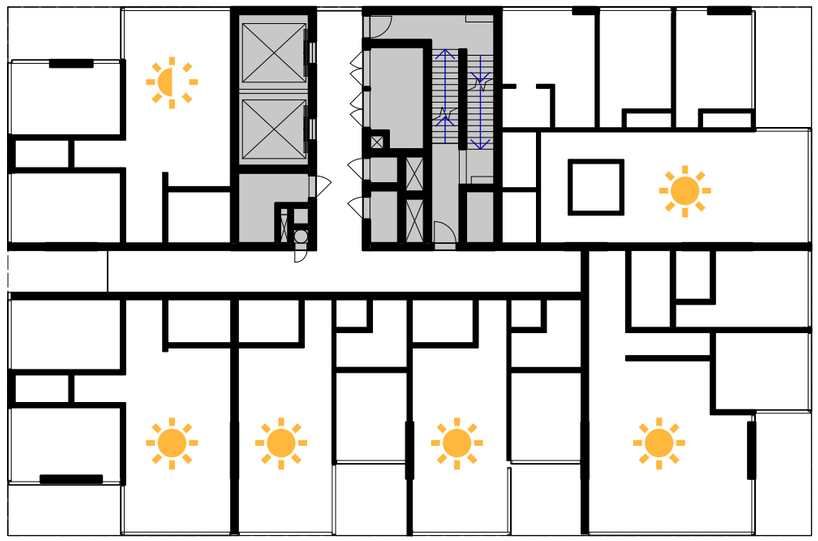
Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.4.3 Solar access - Building 3 | Plan diagram concept design



Level 4-11



Level 12-23, 26-43

Figure 1.4.6 - Building 3 Solar Access Plan 2

Solar Access Summary

	no. Apartments	Percentage(%)
Receiving more than 2hr solar access	182	80%
Receiving less than 2hr solar access	46	20%
Receiving less than 15 min solar access	0	0%

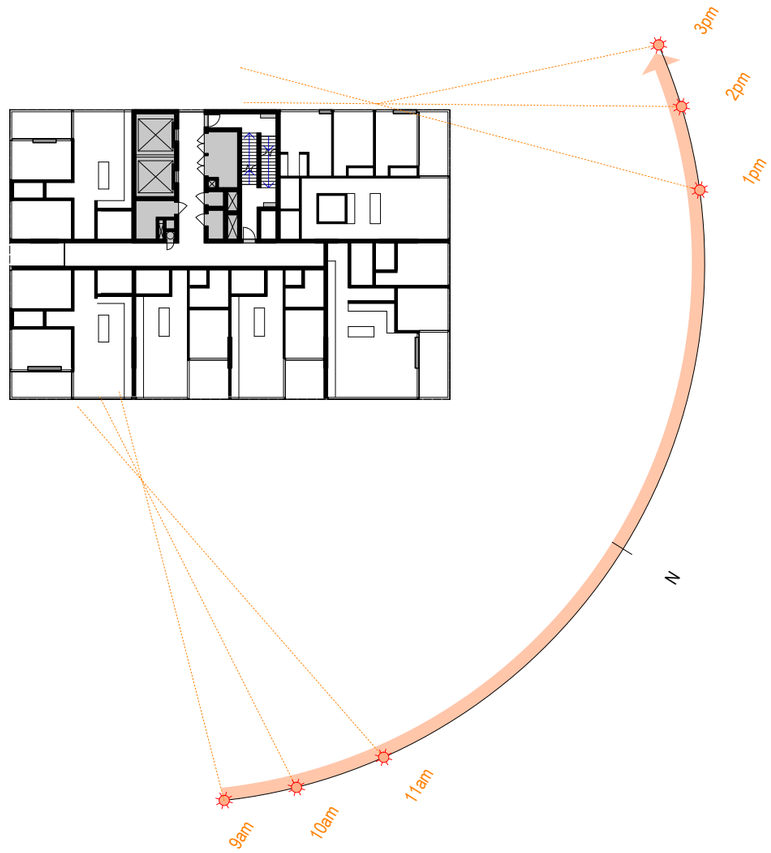
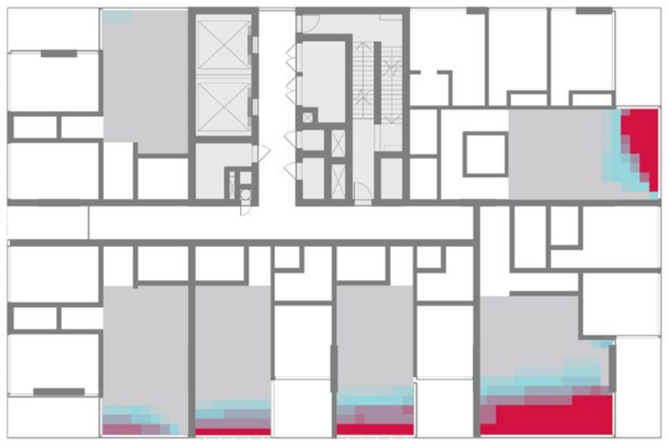
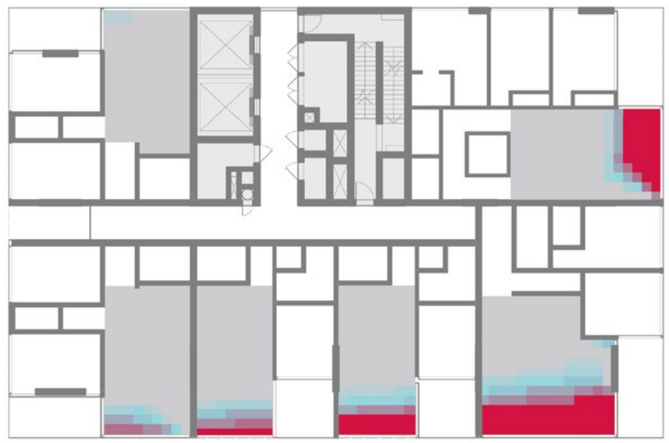


Figure 1.4.7 - Building 3 Solar Access Plan 3

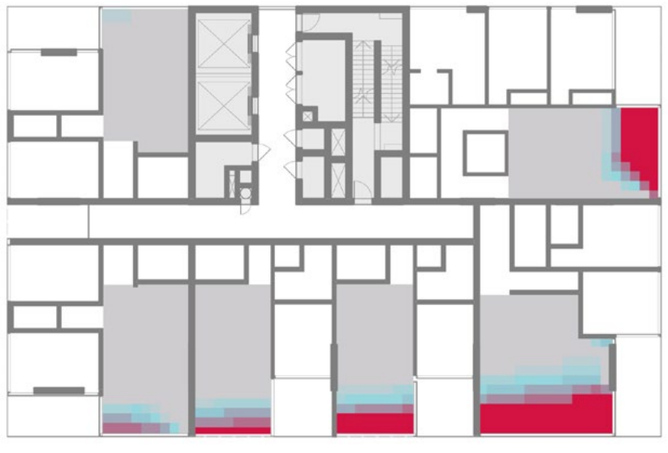
3.4.4 Solar access - Building 3 | Detailed solar access analysis concept design



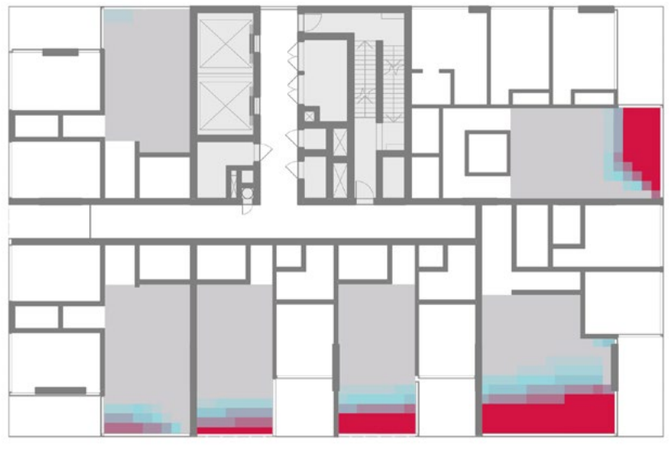
Level 4-7



Level 8



Level 9



Level 10

Figure 1.4.8 - Building 3 Solar Hours Plans

The Apartment Design Guide 2015, Part 4A-1, stipulates the minimum amount of sunlight that should be received in habitable rooms and private open space. In order to verify a high level of compliance with the standard and inform the detailed design, a detailed solar access study was performed with specialist software.

This analysis was carried out for June 21 from 9:00 am to 3:00 pm. The model includes the surrounding context with the correct orientation and geolocation.

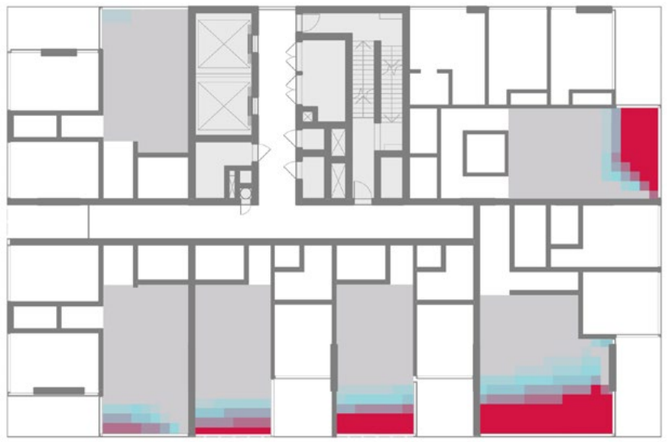
The analysis was carried out on a grid of 0.5m at each floor level at 15min interval.

The results indicate that all apartments with windows oriented NE and NW will receive a good level of sunlight in excess of that required by the ADG. The apartments oriented SW will receive less than 2 hours of solar access as well as some NE facing apartments that are either blocked by other structures or deeper balconies. None of the these apartments however receive no solar access.

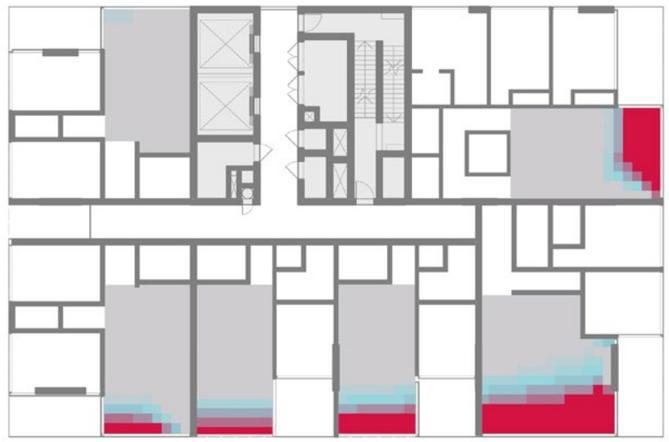
Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.4.4 Solar access - Building 3 | Detailed solar access analysis concept design

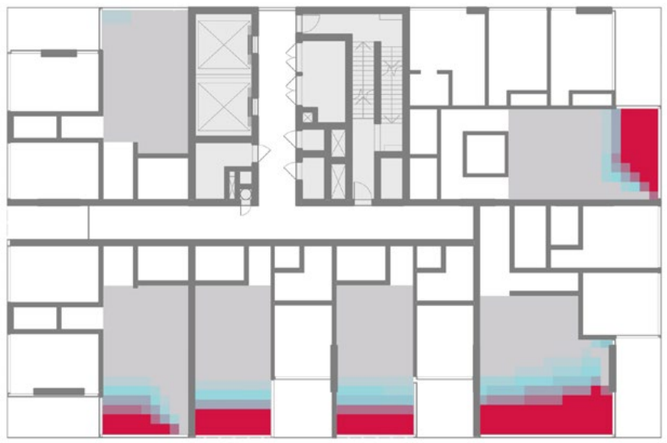


Level 11



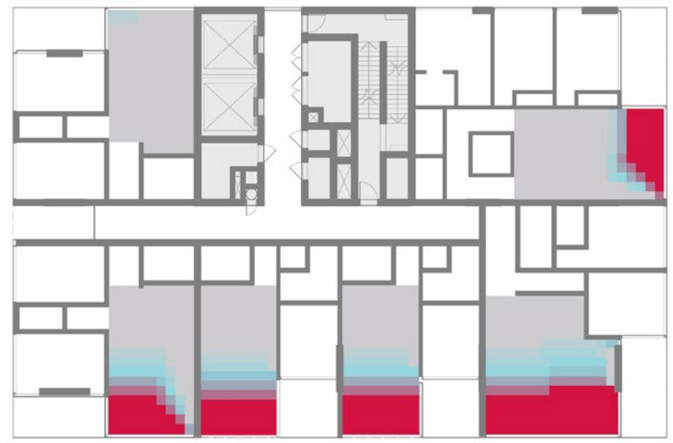
Level 12

Level 13



Level 14

Level 15



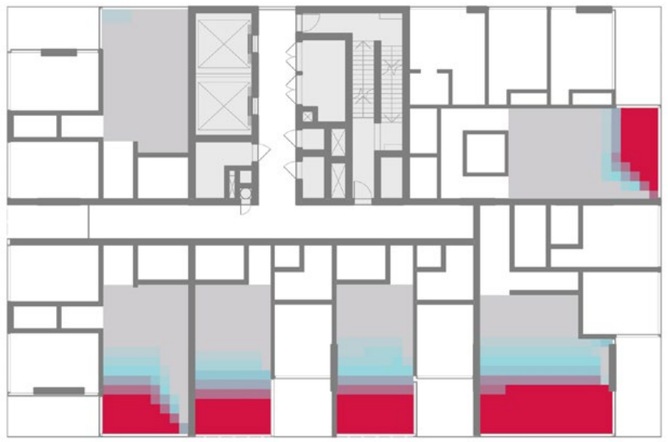
Level 16

Figure 1.4.8 - Building 3 Solar Hours Plans

Sunlight Hours

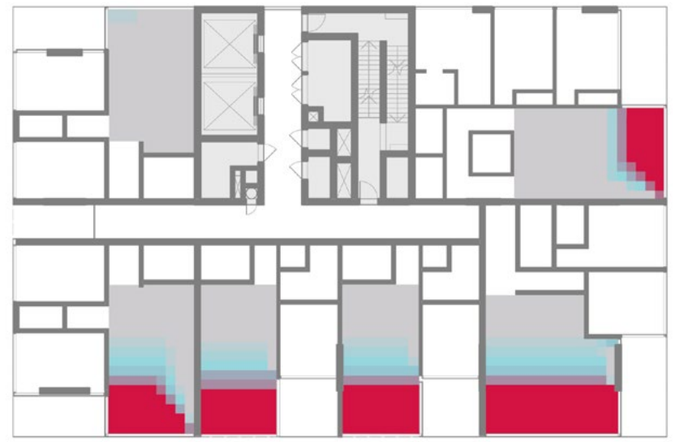
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.4.4 Solar access - Building 3 | Detailed solar access analysis concept design



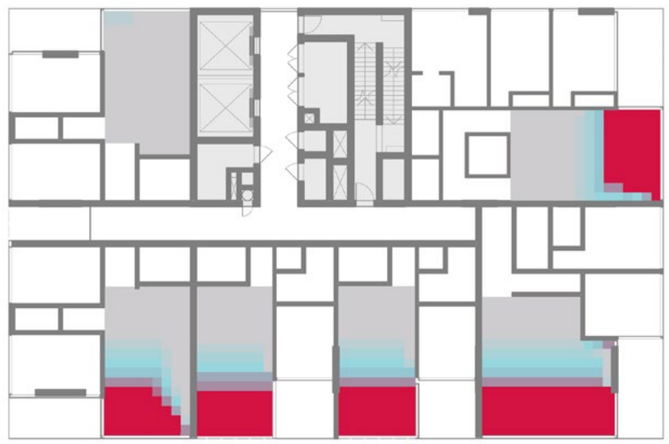
Level 17

Level 18-20

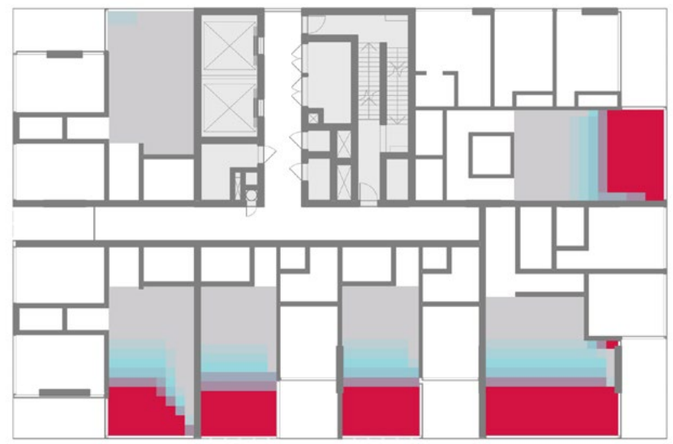


Level 21

Level 22



Level 23



Level 26-43

Figure 1.4.8 - Building 3 Solar Hours Plans

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

3.4.5 Environmental performance - Building 3 | Room depth concept design

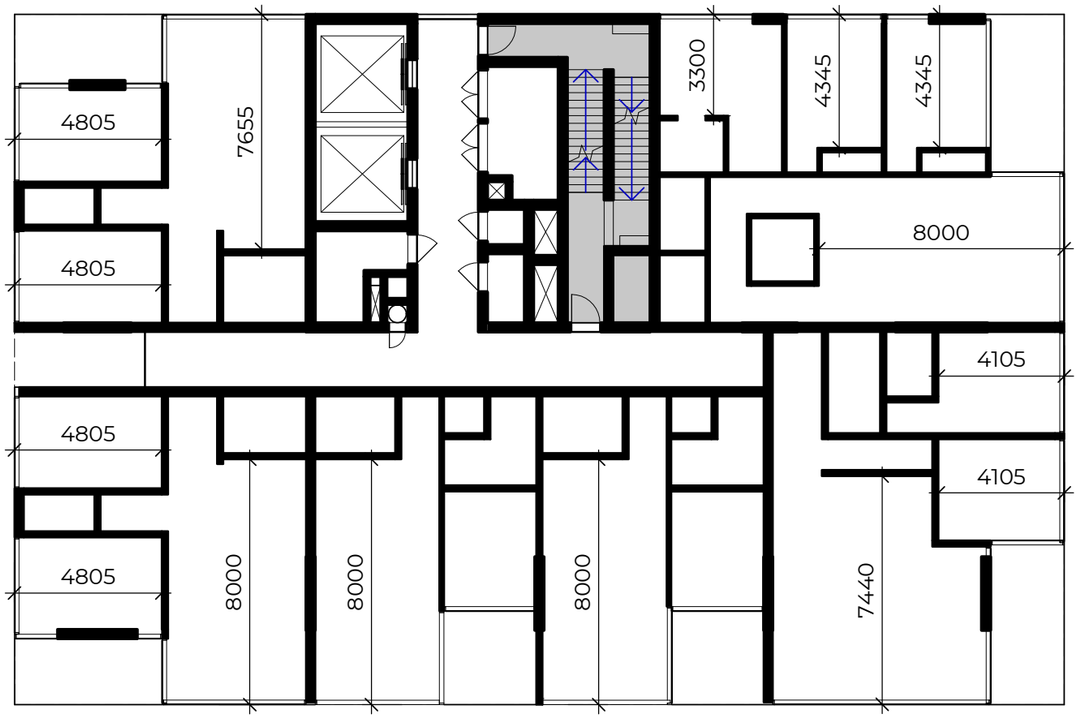


Figure 1.4.9 - Building 3 Room Depths

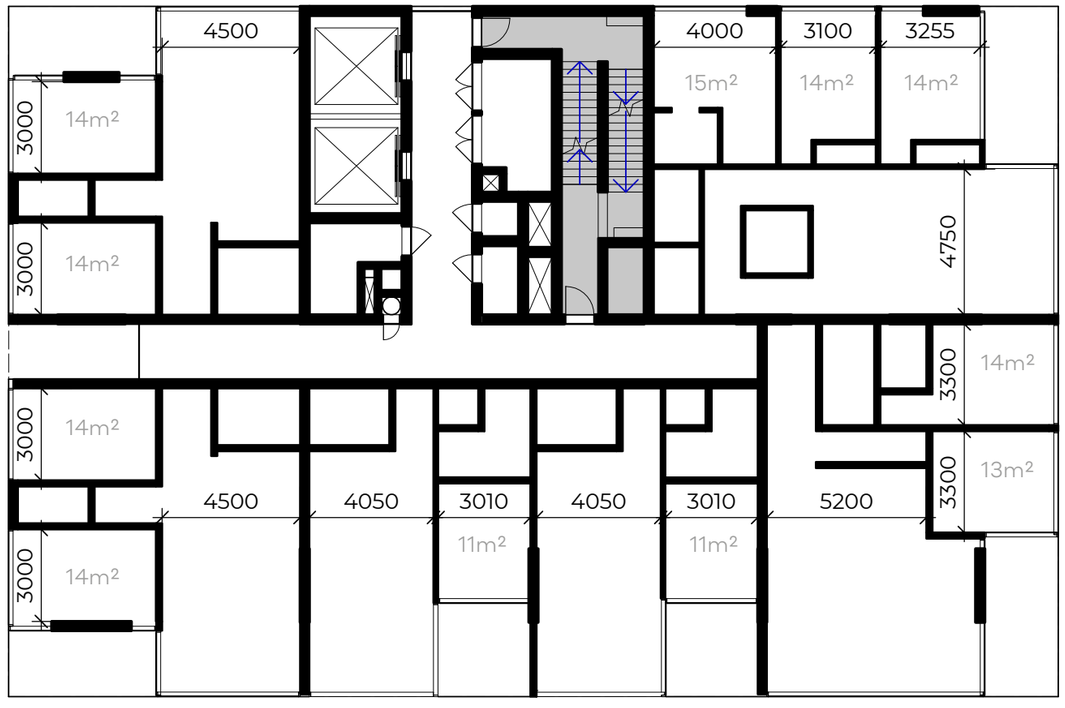


Figure 1.4.10 - Building 3 Room Areas and Plans

Objective 4D-2. Environmental performance of the apartment is maximised

Design Criteria

1. Habitable room depths are limited to a maximum of 2.5x the ceiling height

Complies, the maximum room depths are within the above threshold.

2. In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window.

Complies, the maximum room depth for open plan apartments is 8m or less.

Objective 4D-3. Apartment layouts are designed to accommodate a variety of household activities and needs.

Design Criteria

1. Master bedrooms have a minimum area of 10m² and other bedrooms 9m² (excluding wardrobe space)

2. Bedrooms have a minimum dimension of 3m (excluding wardrobe space)

3. Living rooms or combined living/dining rooms have a minimum width of: -3.6m for studio and 1 bedroom apartments -4m for 2 and 3 bedroom apartments.

Complies, the room dimensions and areas are exceeding or meeting these minimum thresholds.

3.4.6 Environmental performance - Building 3 | Natural ventilation analysis concept design

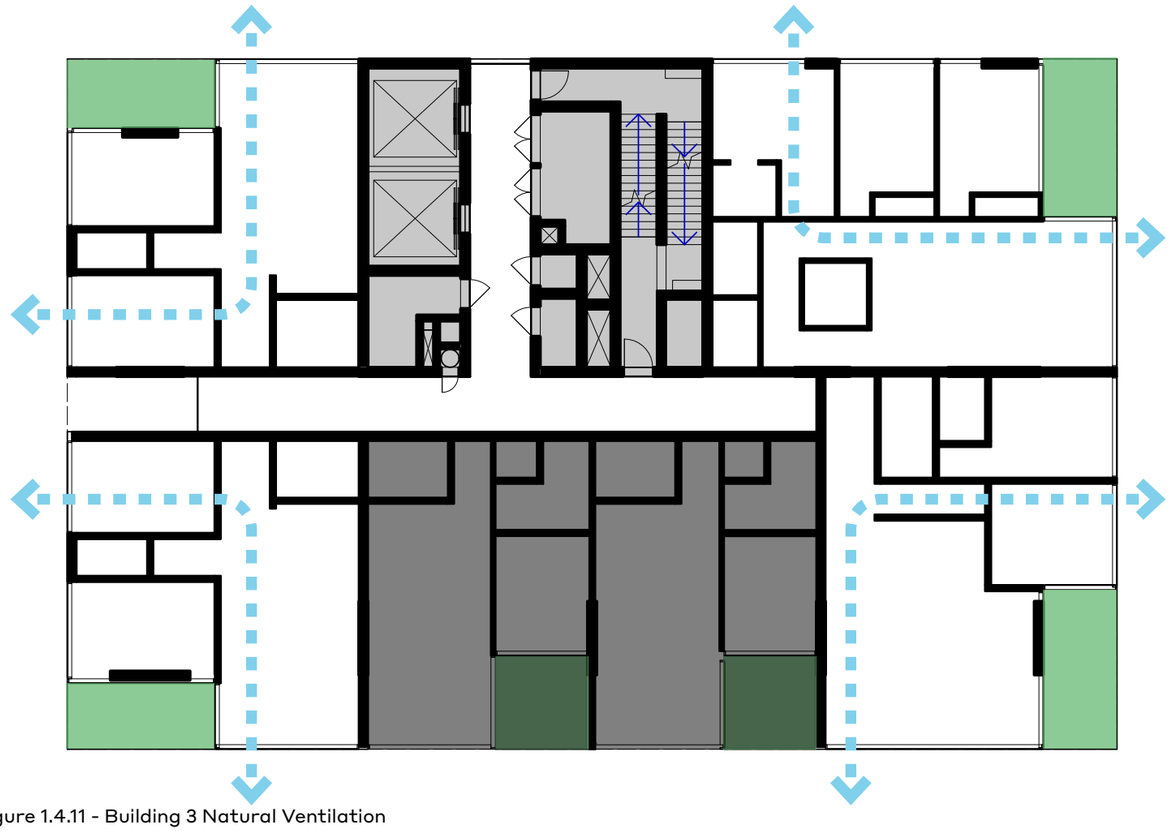


Figure 1.4.11 - Building 3 Natural Ventilation

Objective 4B-3. The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents.

Design Criteria

1. At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building.

Complies, 66% of apartments receive natural cross ventilation.

2. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

Complies, all apartments have balconies which allow for cross ventilation.

3.5 ADG Analysis - Communal open space

3.5.1 Solar access | Communal open space concept design

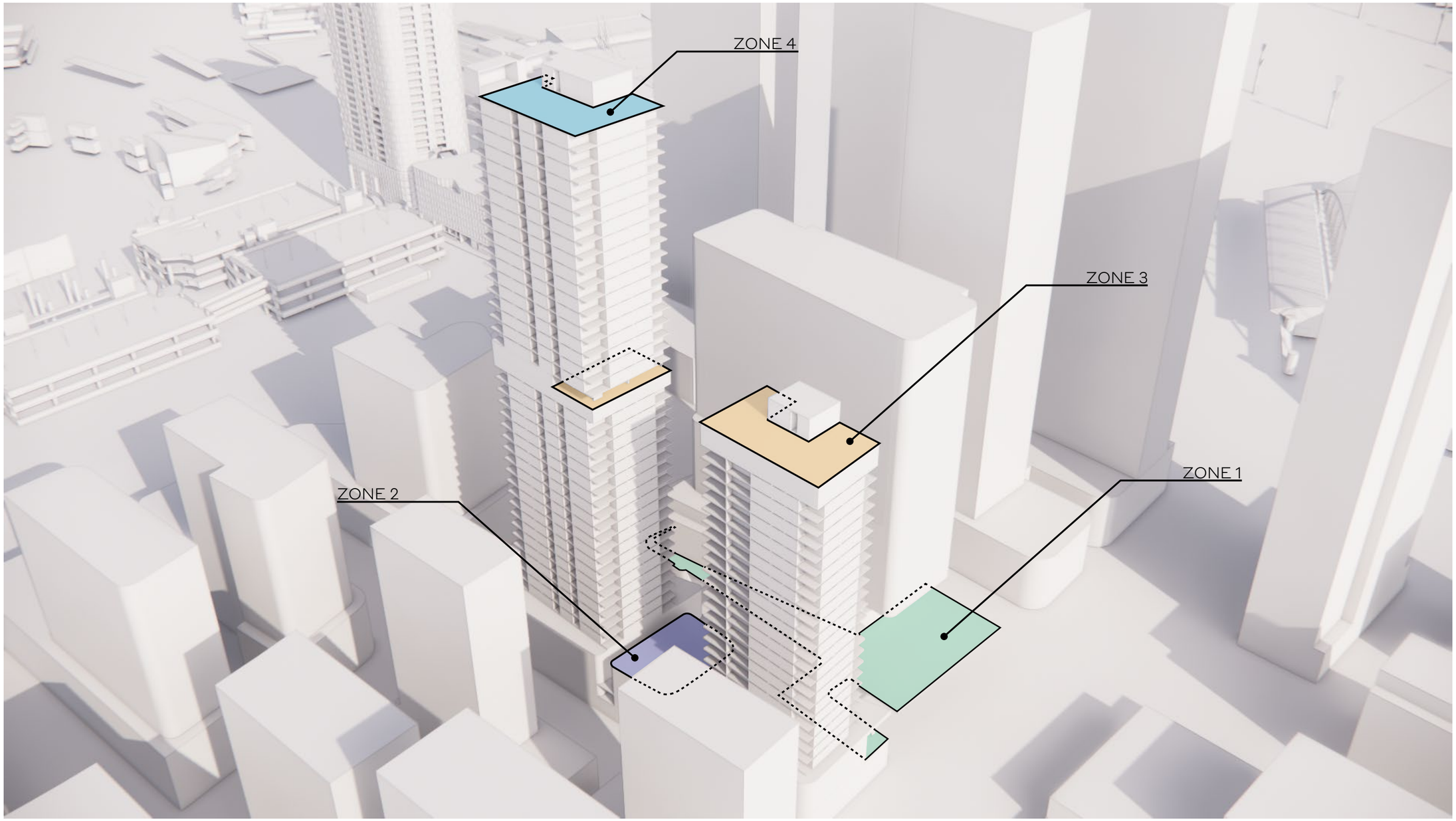


Figure 1.5.1 - Communal Space Overview

3.5.1 Solar access | Communal open space concept design

Objective 3D-1. An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping.

Design Criteria

1. Communal open space has a minimum area equal to 25% of the site.

Total Site Area: 11,407m²
Total Communal Area: 3,487m²
Area Percentage: 30%

Complies with the above criteria.

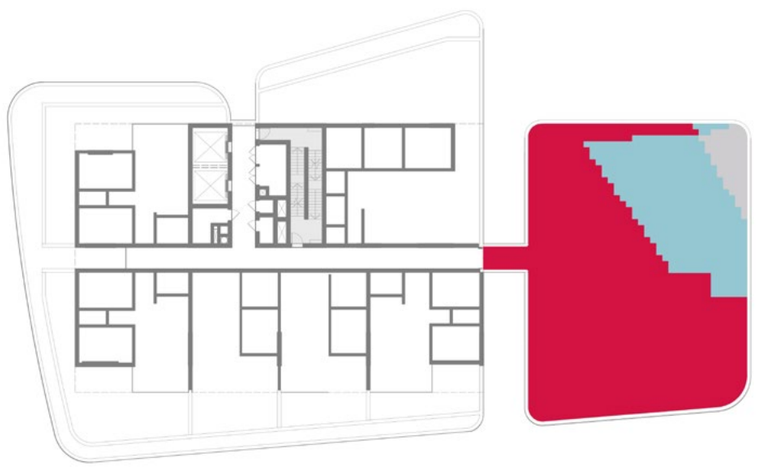
2. Developments achieve a minimum of 50% direct sunlight to the principle usable part of the communal open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid winter).

85% of the communal open space achieves at least 2 hours of sunlight between 9am and 3pm on 21 June.

Complies with the above criteria shown in the text response and Figure 1.5.2.

Figure 1.5.2 - Communal Solar Hours

3.5.1 Solar access | Communal open space concept design

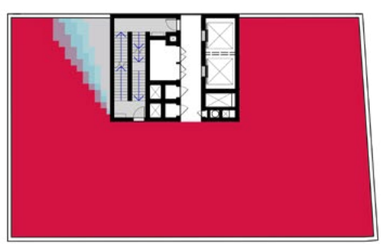


Building 3

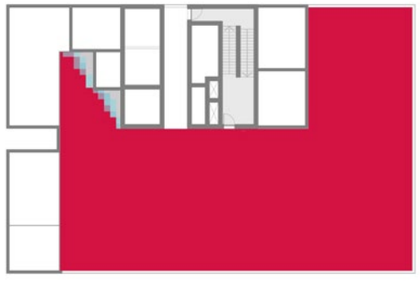
Zone 2 - Level 4 Podium

Building 3

Zone 3 - Level 27 Plant Level and Rooftop



Building 2



Building 3

Zone 4 - Level 45 Rooftop

Figure 1.5.2 - Communal Solar Hours

Sunlight Hours

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2+

4.0 Conclusion

In the previous chapter, this report demonstrated compliancy of the residential component of the proposed development with 9 SEPP65 Design Principles and Apartment Design Guidelines.

SEPP65 Design Principles addressed in this report are:

- Principle 1: Context and neighbourhood character
- Principle 2: Built form and scale
- Principle 3: Density
- Principle 4: Sustainability
- Principle 5: Landscape
- Principle 6: Amenity
- Principle 7: Safety
- Principle 8: Housing Diversity and Social interaction
- Principle 9: Aesthetics

ADG Design Guidelines addressed in this report are:

- Visual Privacy
- Solar Access
- Natural Ventilation
- Ceiling Heights
- Apartment size and layout
- Private open space and balconies
- Apartment dimensions
- Common circulation and spaces
- Communal open space