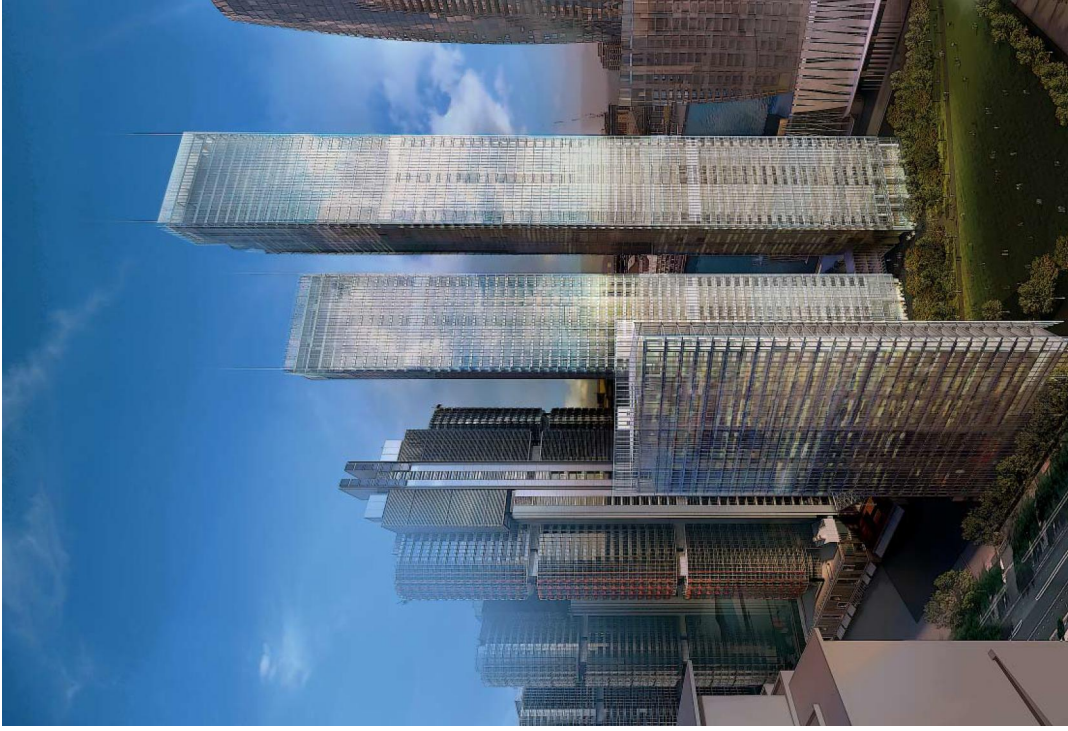
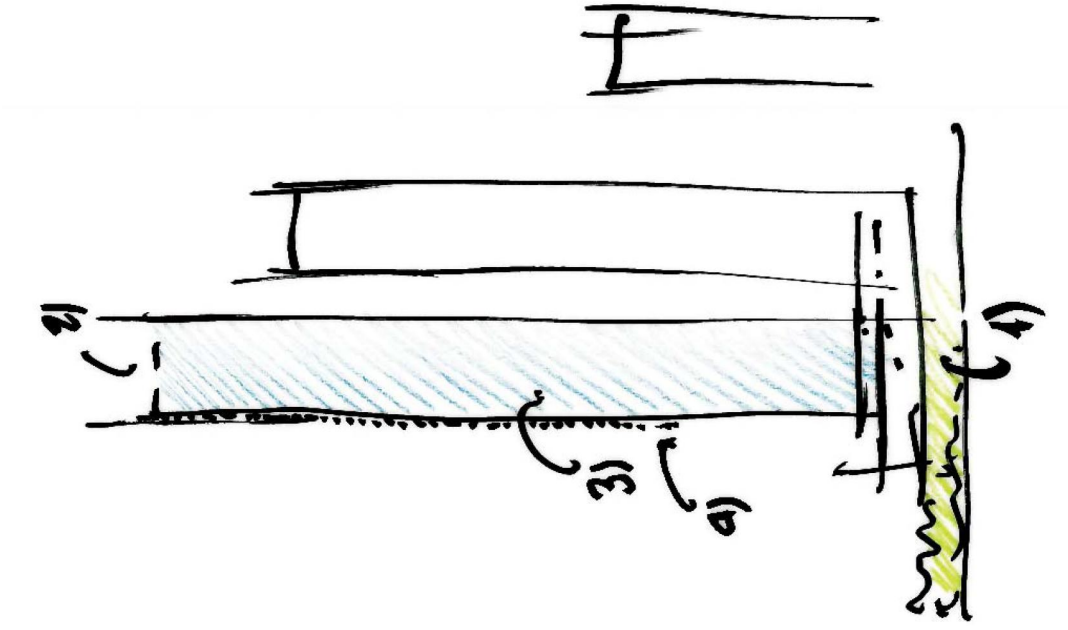
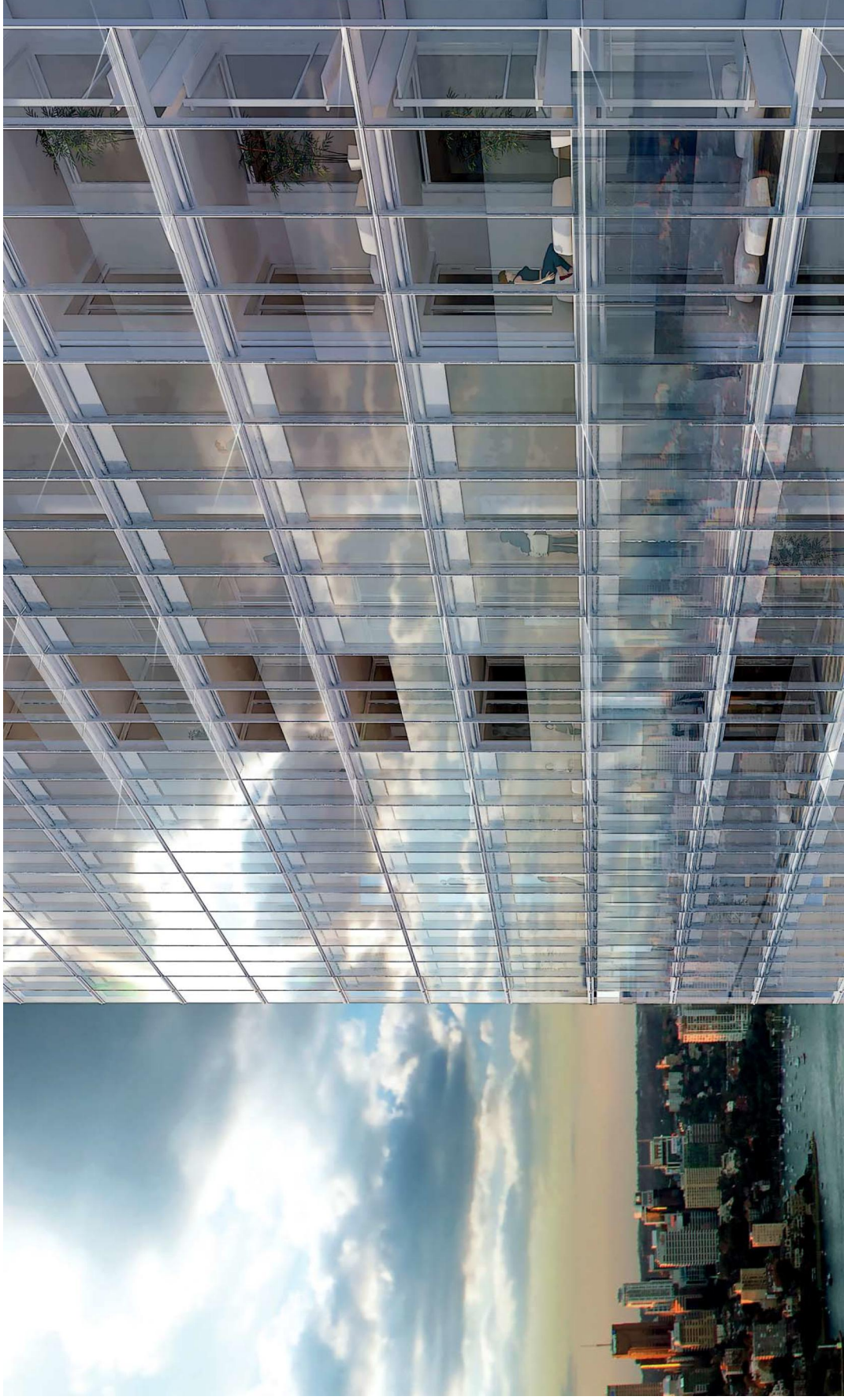




Concept Render of Towers



Renzo Piano Concept Sketch



Facade Concept Render

5.2 Wintergardens

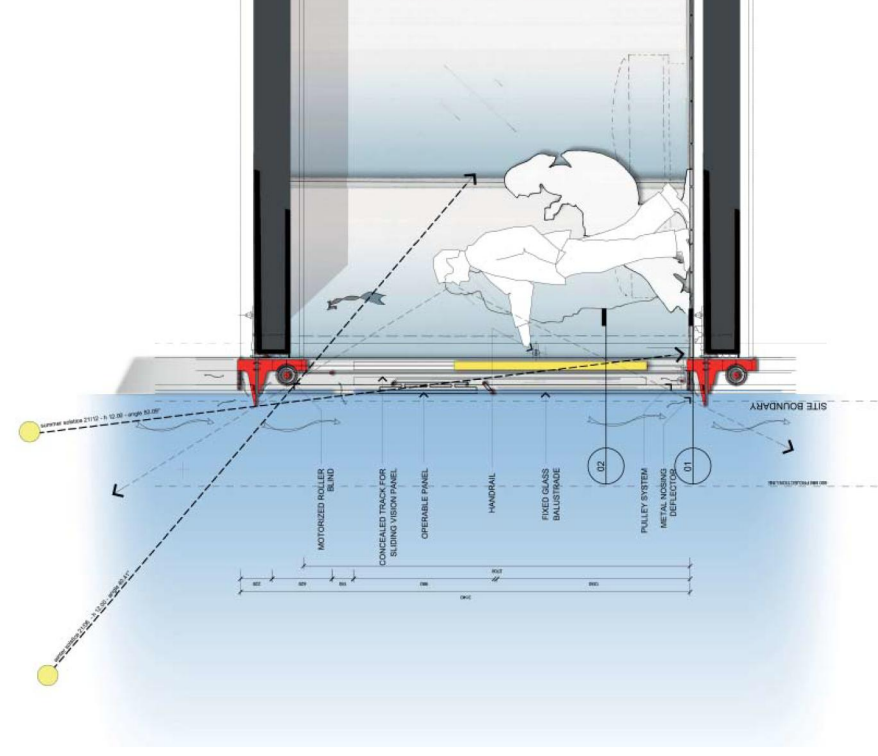
The main façades towards the north and west of towers R4A and R4B and towards the east and north-west for tower R5 will have in their composition a buffer zone in the form of either a balcony or wintergarden.

This space plays an environmental and sustainable role in the design of the apartments by controlling the solar gains of both heat and light, while simultaneously providing protection from the dominant winds and allowing for the capturing of cool ocean breezes.

A single breathing clear glass skin with a roller blind will enclose the wintergardens at the higher levels of R4A and R4B. In this plane a vertical glass panel will slide behind the fixed glass balustrade to allow air to enter into the space.

The Sydney outdoor experience is important, therefore wintergardens are essential in the facade composition. The objective is to create a new experience in urban high-rise living where the resident can adapt the living space to work with the climate and environment around Barangaroo and the Sydney Harbour.

The connection with the outside, a vital part of the Sydney lifestyle, is not only a visual experience with the suggestive views, but a greater holistic way to commune with nature and ones surroundings. Feeling the direct warmth of the sun, the fresh air from the harbour breeze, and sensing the essence of the ocean can be experienced in the living room of a city apartment, even at 200 metres above sea level.



Wintergarden Facade Section Sketch



Wintergarden Facade full scale Mock Up

5.5 Facade Notch and Wing

At the joint between the facades is a deep "notch" with a more opaque surface. This enhances the shadow created by the gap between the planes that are not touching each other. Each notch will react differently depending on its location assuming different levels of transparency and opacity to create privacy. The notches will be materially consistent with the opaque portions of the podium.



One Sydney Harbour Facade Render



One Sydney Harbour Facade at Notch



Notch full scale Mock Up

5.6 Materiality

The clear glass of the entire facade is low iron to avoid the green effect present in normal float glass. The reflectivity will emphasize the lightness of the transparent non coloured material.

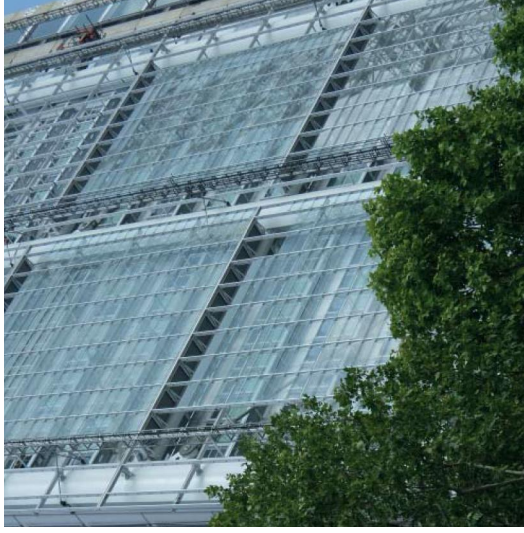
The open cavity facade at the bedroom is relatively small with a roller blind encased with its coloured canister between the two glass layer.

At the wintergarden, where the inner layer is coplanar with the outer pane of the bedroom and the inner layer is made up from a set of sliding doors.

The double layer will add depth and complexity to the first plane with the shadow produced by the light coloured painted aluminium mullions. The wind screen glazed panels attach to the facade with custom stainless steel brackets, and all the other components of the movable elements contribute to the articulation. To highlight the planarity of the outer glass the fixing to the mullion will be achieved with structural silicon. The fabric of the roller blind will be on the same plane throughout the extension of the facade: its outer face will reflect solar radiation while the inner face will allow a high visual transparency with its dark grey colour.

At the cantilevering wing the single glass panel may have a percentage of light grey frit. This will be tested by a research process based on a series of mock ups that will be produced for the main facade types in Genoa and in Sydney during the project phase.

At the notch the colour of the opaque material will be in the range of a medium grey and the same material will expand from there to the opaque portions of the podium.



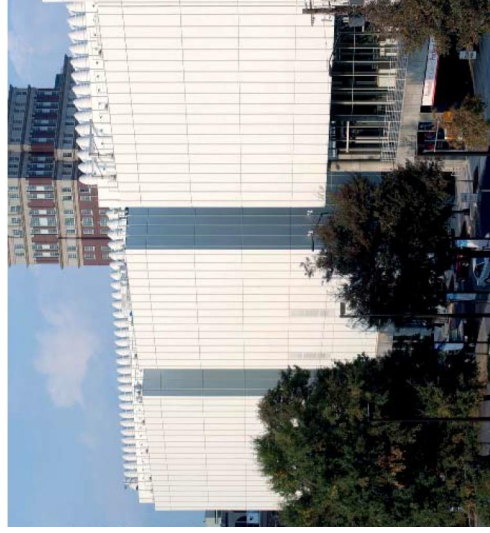
Glass and PV, San Paolo tower, Turin



Wintergarden, Aurora Place, Sydney



Columbia University facade, New York



Metal Cladding, High Museum of Art, Atlanta



Metal Cladding, Chicago Art Institute



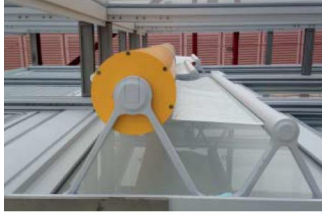
Glass Facade of the shard, London



Facade materiality



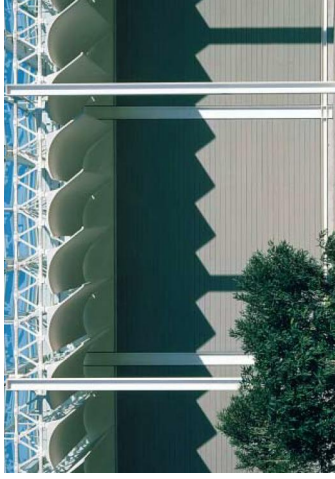
Notch and Wings



Blind casing within facade



Fritted Glass



Facade and Roof Systems



Reflective Blinds



Single Glazed Glass



Facade materiality



Wings

The podium facades will be mostly glazed with large operable storefronts at the retail facade along the public spaces, the glass covered strada and the park. The glass module facing the park side will have a wider dimension.

The opacity will be only where required by the presence of services, fire escape stairs and the access to the car parking and the loading dock below ground. A series of glass canopies will create opportunities for shielded exterior seating areas in front of the retail.

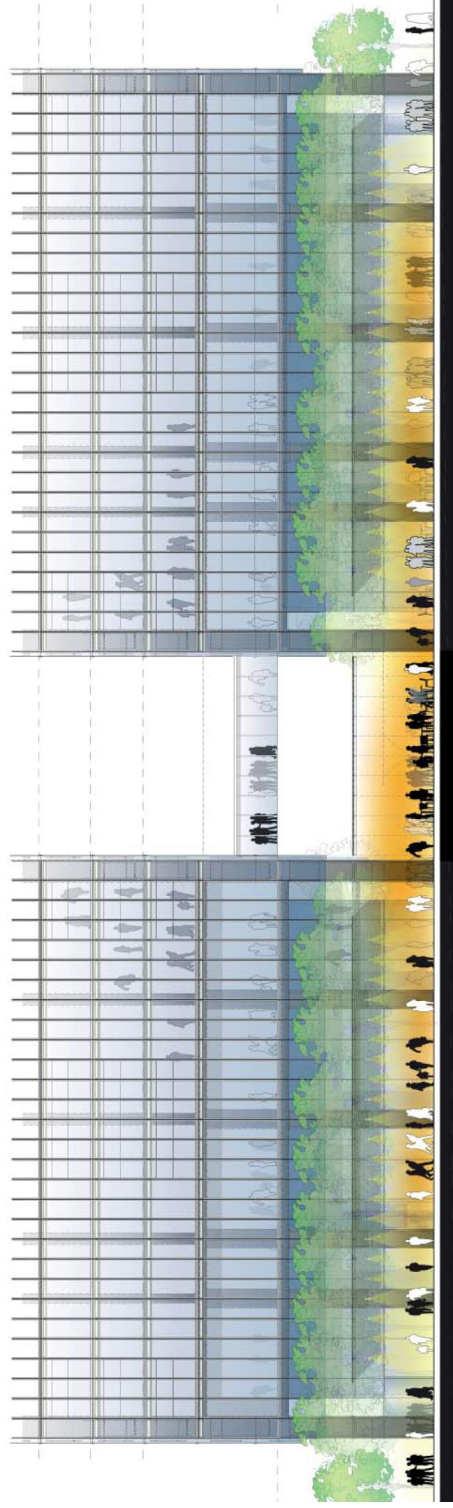
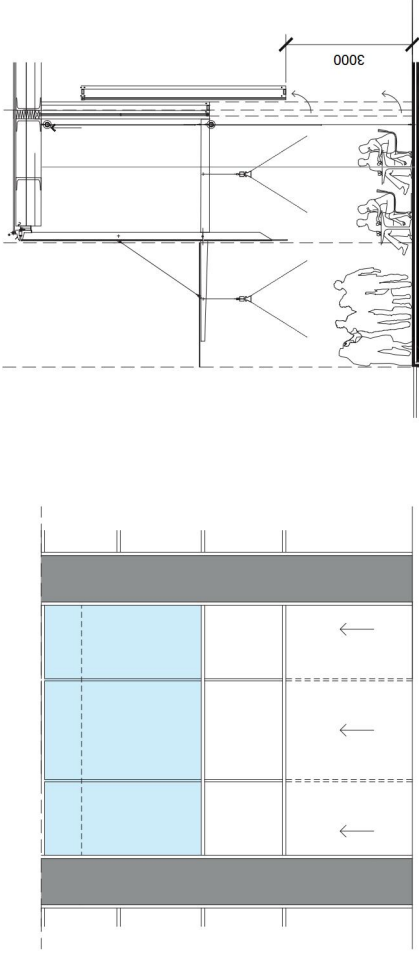
The development of the facades will follow a design research process based on the production of multiple full scale mock ups of the main facade types in both on and off site. A final testing prototype will be made before construction.

These images are from previous mock ups and finished projects developed by RPBW try to give the feeling of the architectural intent behind the three residential towers.

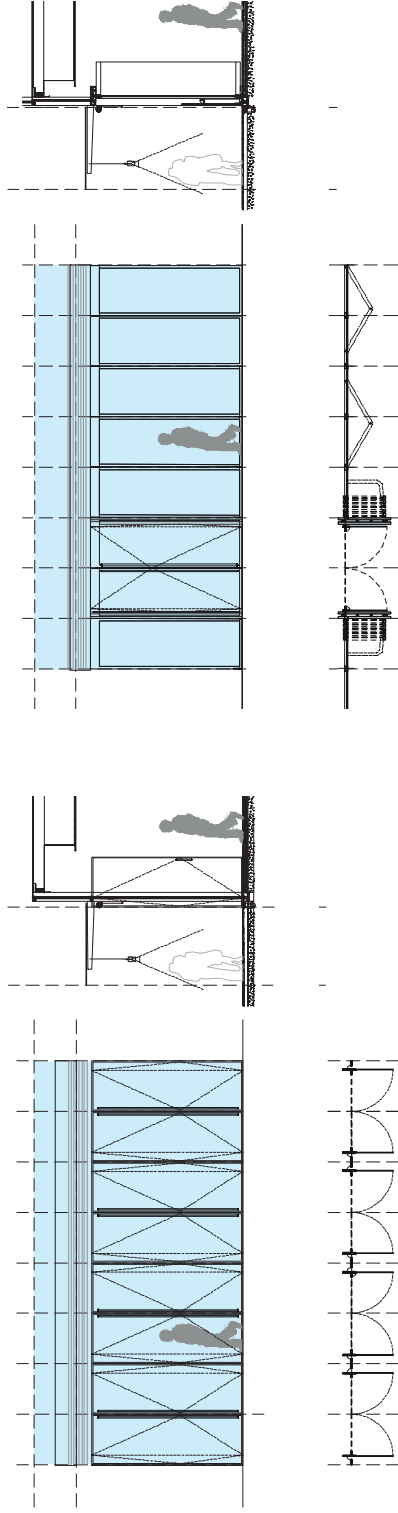
5.7 Shopfront Types

In keeping with the intent of the Built Form Principles and Urban Design Controls of Concept Plan (Mod 8), at the podium level the facades of the lobbies and retail shopfronts aim to break down the boundary between interior and exterior space, activate the building at ground plane and provide unobstructed views of the park and green spaces from the interior of the building. In order to achieve this and provide flexibility to meet for the varying needs of future tenants, the proposed development includes supplementary, interchangeable façade options for the retail shopfronts at ground floor level.

Each façade option features extensive use of clear, low iron glass for the majority of the ground floor with varying operability mechanisms. The podium façade generally adopts the 1200mm rhythm of the tower fenestration, created by the spacing of glazing and mullions, with some modulation in order to articulate entrances and the functionality of internal spaces. In a visual sense, this will contribute to the elegance of the architecture and ensure that the crystalline verticality of the of each tower form is expressed for the full length of the building to meet the ground plane. The lobby entrances illustrated on the architectural drawings feature larger expanses of glazing to express the main entry point and maximise visual connectivity, including glazed rotating doors straddled by glazed swinging doors.



R4A and R4B Park Podium Elevation



Podium retail facade swing doors

Podium retail facade folding or stacking doors

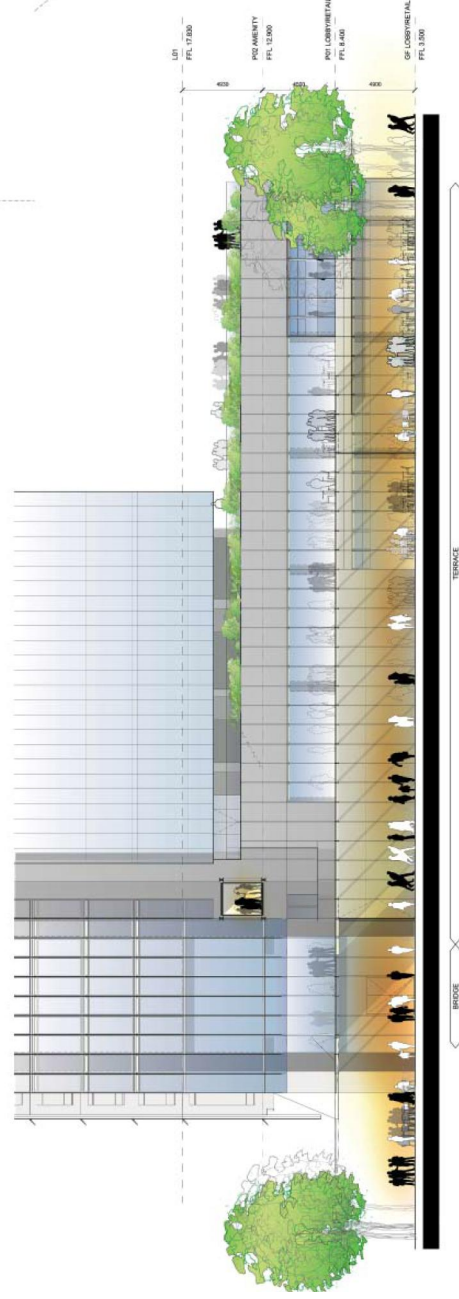
The shopfront facades illustrated on the architectural drawings for each building feature a high proportion of transparent glazing, which is intended to be partially operable. The retail shopfront facades illustrated on the architectural drawings detail two of the proposed range of options:

- An option with glazed folding or stacking doors; and;
- An options with glazed swing doors at regular intervals.

These both provide a structured permeability to the facade that can be readily adjusted according to the function and layout of tenancies and the weather conditions

An additional facade option is illustrated in this report, featuring a glazed lifting sash door to provide for a seamless transition between internal tenancies and the external open space.

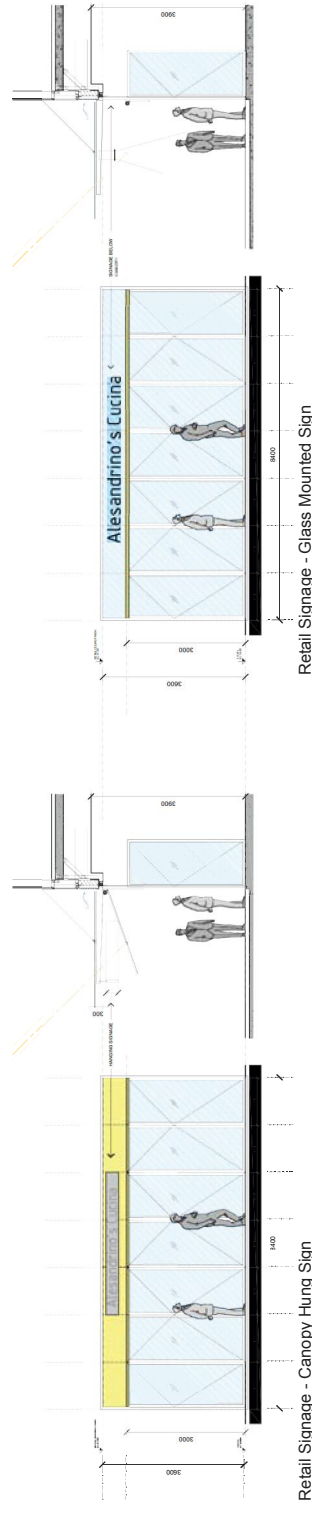
This range of interchangeable facade options will be further developed in discussion with future tenants to optimise functionality and the RPBW architectural intent.



R4B Strada Elevation

5.8 Retail Signage

Along the podium facades there will be signage zones for the varying retail spaces. The signage will become an integrated part of the zone and be allowed in certain areas only to maintain a well-articulated architecture and pedestrian area. Two zones will be designated: a band on the retail glazing, and a hanging sign from the retail canopies, both parallel to the direction of pedestrian traffic and perpendicular to the facades to be legible while moving through the pedestrian spaces.



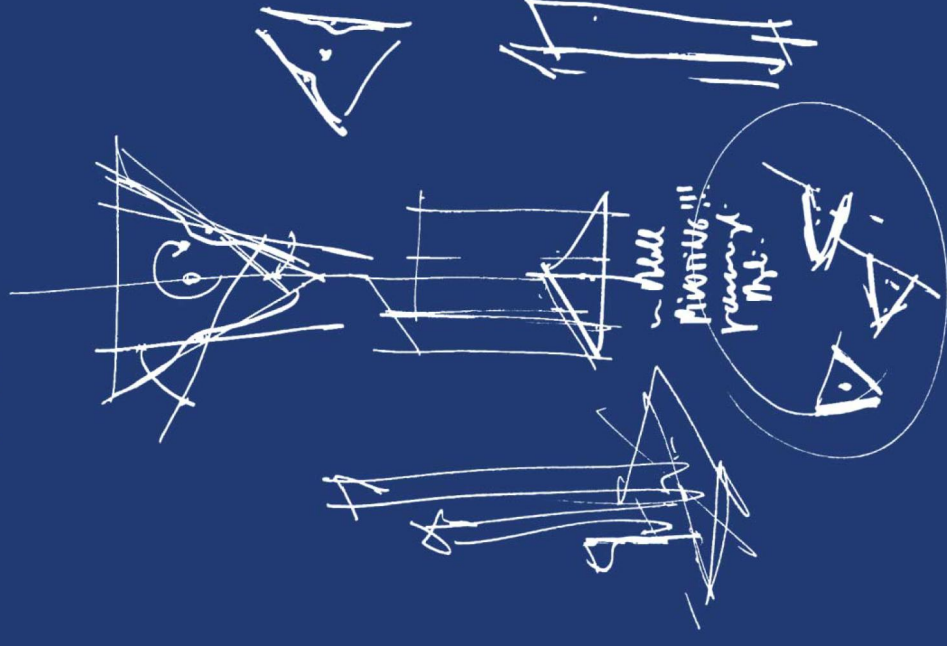
Retail Signage Zone Concept Plan

- Sign on retail glass facade
- Hanging Sign from Canopy
- Feature Signage

6.0

SUSTAINABILITY

SYDNEY



6.1 Sustainability

The One Sydney Harbour residential towers are situated within the Barangaroo South precinct and will thus be part of a community that is:

- Carbon Neutral – highly energy efficient buildings will minimise energy use with residual emissions offset via on and off-site low carbon and renewable energy generation and carbon offsets.
- Water Positive – the precinct will have the capability of exporting an amount of recycled water that is equal to the imported potable water.
- Zero Waste – waste stream separation that maximises recycling, with a zero carbon waste treatment outcome and 80% diversion of operational waste diverted from landfill from day 1, targeting net zero waste to landfill by 2020.

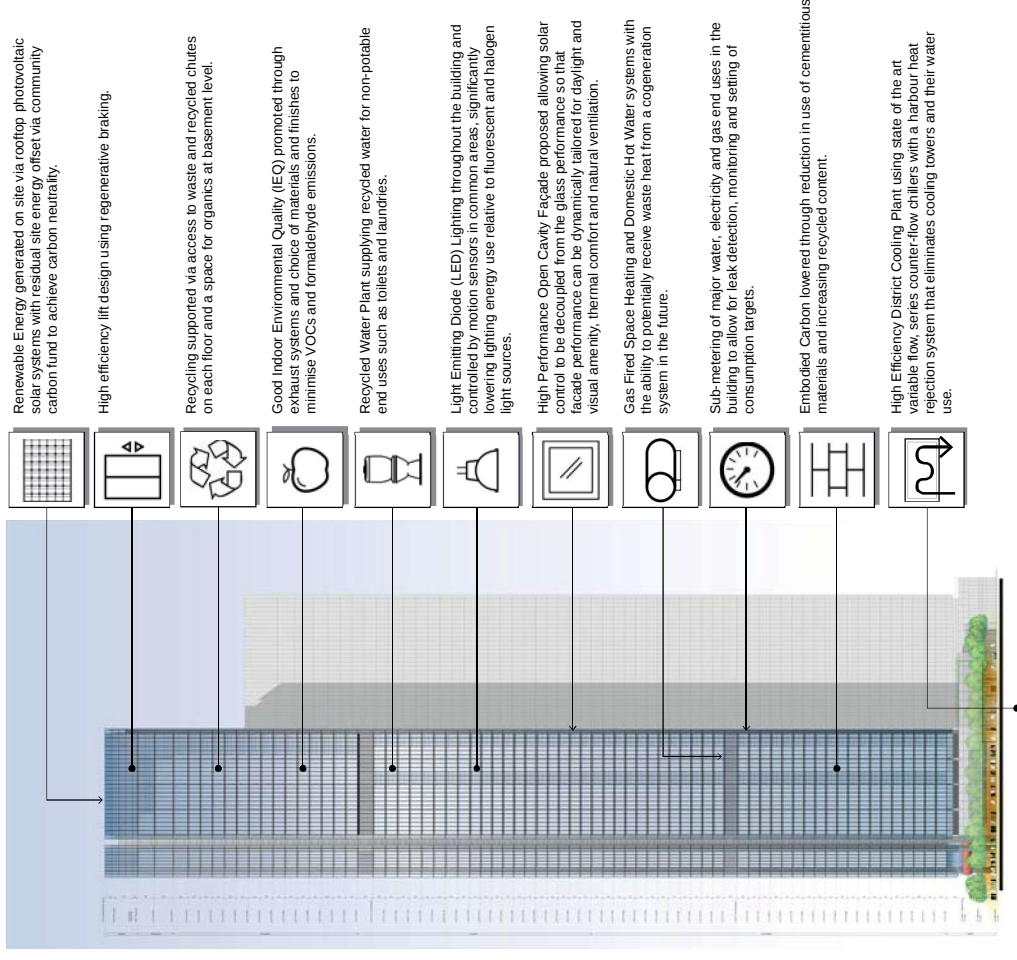
Key initiatives proposed for the development include:

- A crystal façade that maximises views and daylight while providing very high levels of thermal performance.
- Adoption of modern energy efficient lighting and mechanical systems.
- Connection to the precinct sea water cooled district cooling plant.
- Use of solar photovoltaic renewable energy systems.
- Connection to the precinct recycled water plant to reduce both the mains water demand and flows to the mains sewer.
- Selection of materials and finishes to lower the environmental footprint of the building and promote high indoor environmental quality.
- Achieve 5 Star Green Star Multi Unit Residential Design and As-Built ratings for each tower.
- Target a 20% reduction of embodied greenhouse gas emission associated with materials used in the project.

The slender tower design of the buildings offers the residents excellent access to views and daylight. The use of open cavity facades, balconies and wintergardens allow high visible light transmittance to the apartments in winter and when sun is not on the facade.

During warmer periods of direct sunlight, blinds within the open cavity facades and wintergardens will allow the solar loads to be reflected outward prior to reaching the inner most glazing thus providing a high degree of solar control and maximising amenity of the neighbouring spaces. Heat absorbed by the blinds will be vented from the cavity facade.

The innermost skin to the façade, wintergarden and balcony areas is proposed to be double glazed thus providing a high degree of thermal insulation in winter when coupled with the buffering effects of the balcony/ wintergarden and open cavity facade external skins. Operable portions of the inner skin of the open cavity facades are proposed which combined with the operable wintergarden outer glazing and sliding doors will allow residents to achieve a high level of natural ventilation.



One Sydney Harbour Core Sustainability Elements

Energy efficiency for the buildings starts with the provision of a high performance façade that enables residents to manage thermal loads, access daylight, and utilise a variety of openings to naturally ventilate their apartments.

During times of peak heating and cooling, residents can utilise variable flow fan coil units to provide cooling from the high efficiency precinct District Cooling Plant and heating from gas fired heating hot water plant within each building. Fans and pumps will utilise very high efficiency equipment including smaller fans using very efficient digital or electrically commutated motors. Light Emitting Diode (LED) lighting is anticipated to be used throughout the development with automated and demand based lighting controls provided where appropriate.

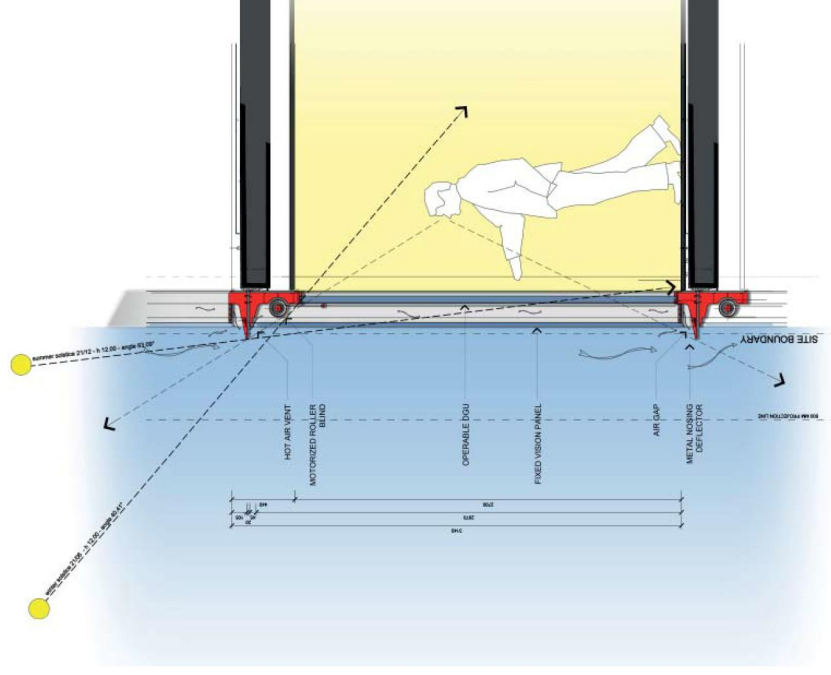
The appliances provided will be selected with attention to high star ratings and lifts will incorporate recuperation (regenerative breaking) and permanent magnet technology to dramatically lower lift energy use over more conventional technology.

Renewable solar photovoltaic systems modules are proposed on the roof or the upper facades of the buildings.

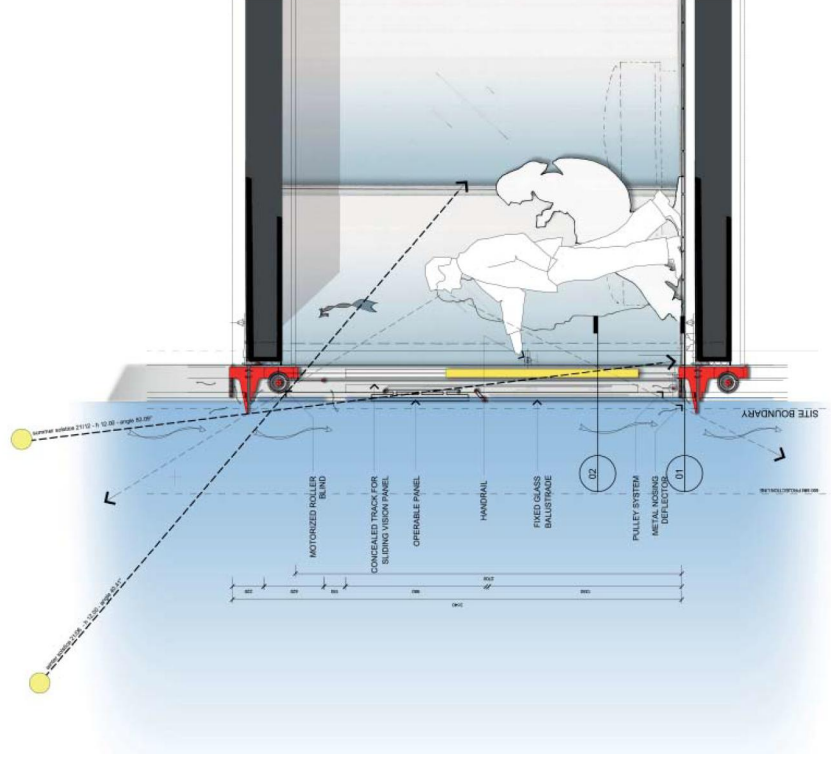
A high degree of water efficiency will be achieved through use of efficient fixtures including:

- 3 Star WELS showerheads
- 4 Star WELS toilets
- 4 Star WELS tapware
- 4.5 Star dishwashers

The buildings will connect to the precinct's Recycled Water Plant that will supply non-potable recycled water to the buildings.



Vented Cavity Façade Section Sketch

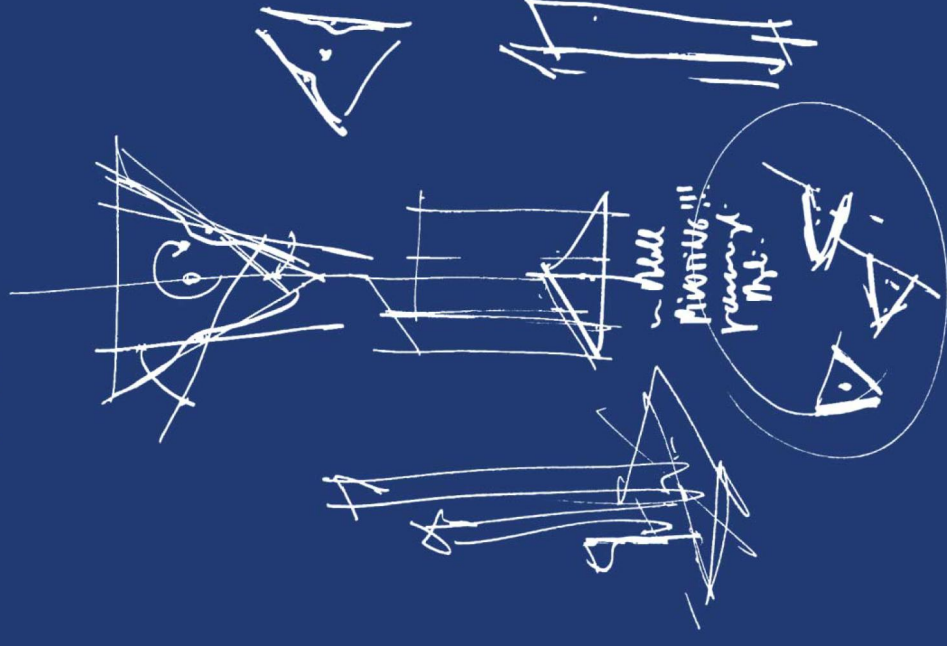


Wintergarden Façade Section Sketch

7.0

PUBLIC DOMAIN

SYDNEY



7.1 Public Domain

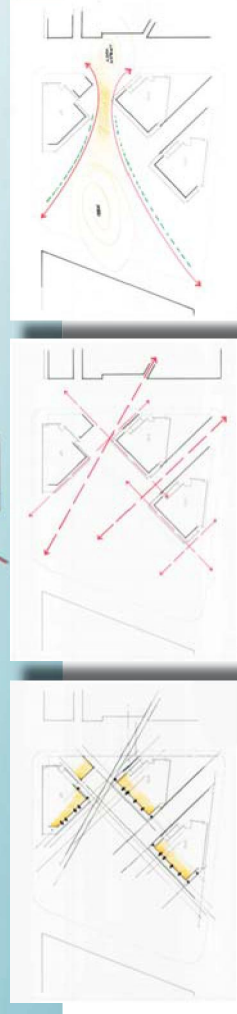
One Sydney Harbour massing scheme respects the public realm, firstly, by its placement within the site and secondly by fragmentation of the podium to allow movement through. The three residential towers have three separate podiums, which reinforces the transparency of the towers and acknowledges the need for connection between Watermans cove, Hickson Road and the new green corridor including Hickson Park created to the north. The cutting and reduction of the base provides unique pedestrian retail experiences while preserving the views and interaction with the projects surroundings.

The formation of Hickson Park to the north of the residential towers creates a green connection between the Harbour and Hickson Road. This feature draws the urban centre of Sydney towards the water's edge by creating a vital link in a series of connected public spaces leading from the city to the harbour through the parklands.

The placement of the smallest tower upon Hickson Road preserves the scale of this important street and limits overshadowing of public spaces. Its colonnade continues the one of Stage 1A.



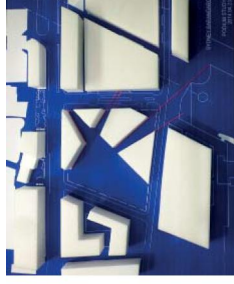
General Plan



Ground Floor Pedestrian Movement Study Sketches



View from Watermans Cove towards the Strada



Early Podium Massing Study Models

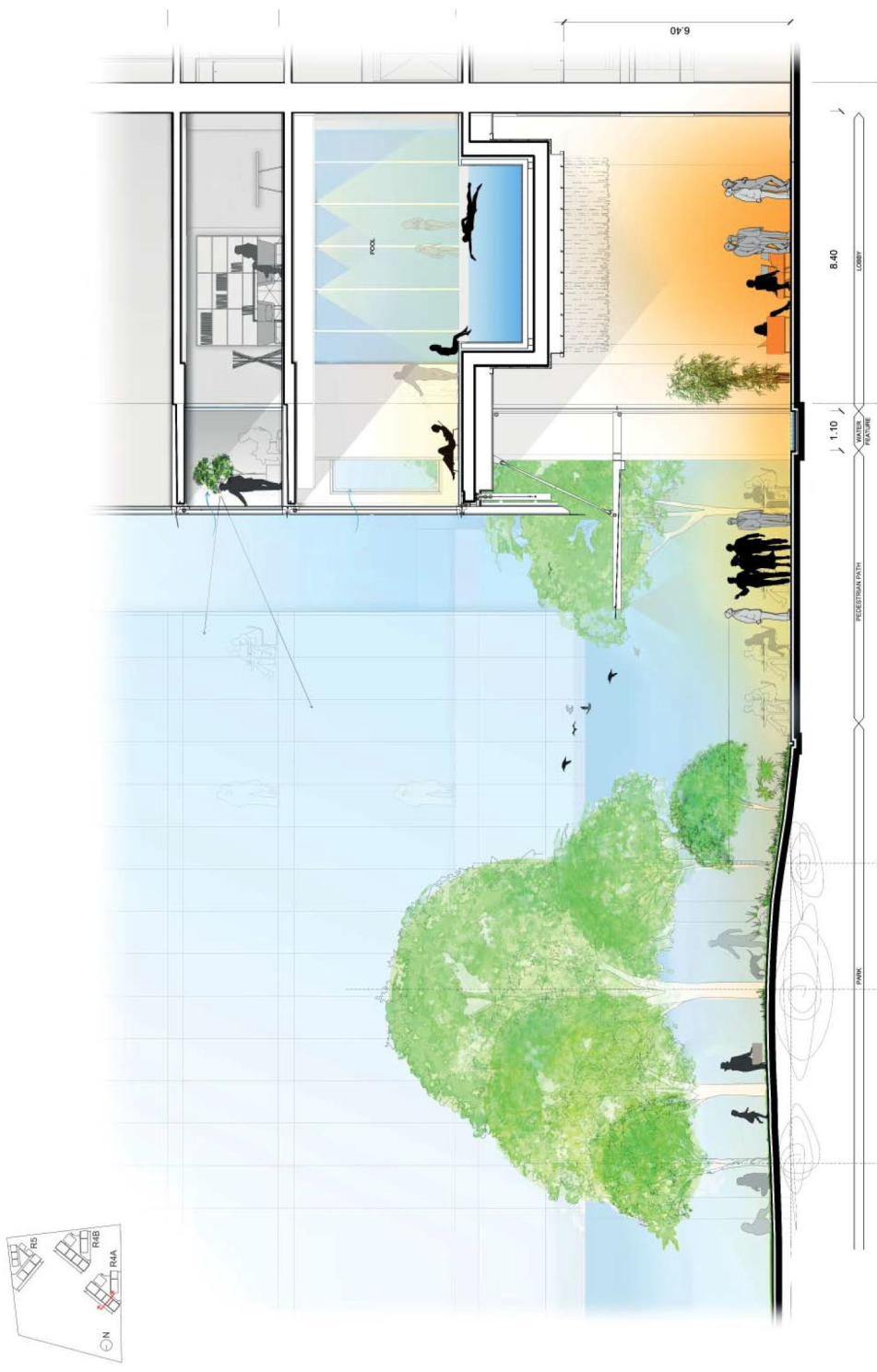
7.2 Place Making

One Sydney Harbour aims to use distinct architecture to create memorable public space. The ground floor and podium plans are sculpted in a way to provide integrated retail facilities. The provided connection between the harbour and the park space through the precinct allow the public to experience the waterfront simultaneously with the urban environment. The public spaces are oriented to allow a unique retail experiences and public amenities.

A uniform architectural storefront and podium design creates an identity within the larger development context. Residential towers create a diversity of activity throughout the day and night within the development and the movement of people through the site will create an environment that is warm, casual and inviting.

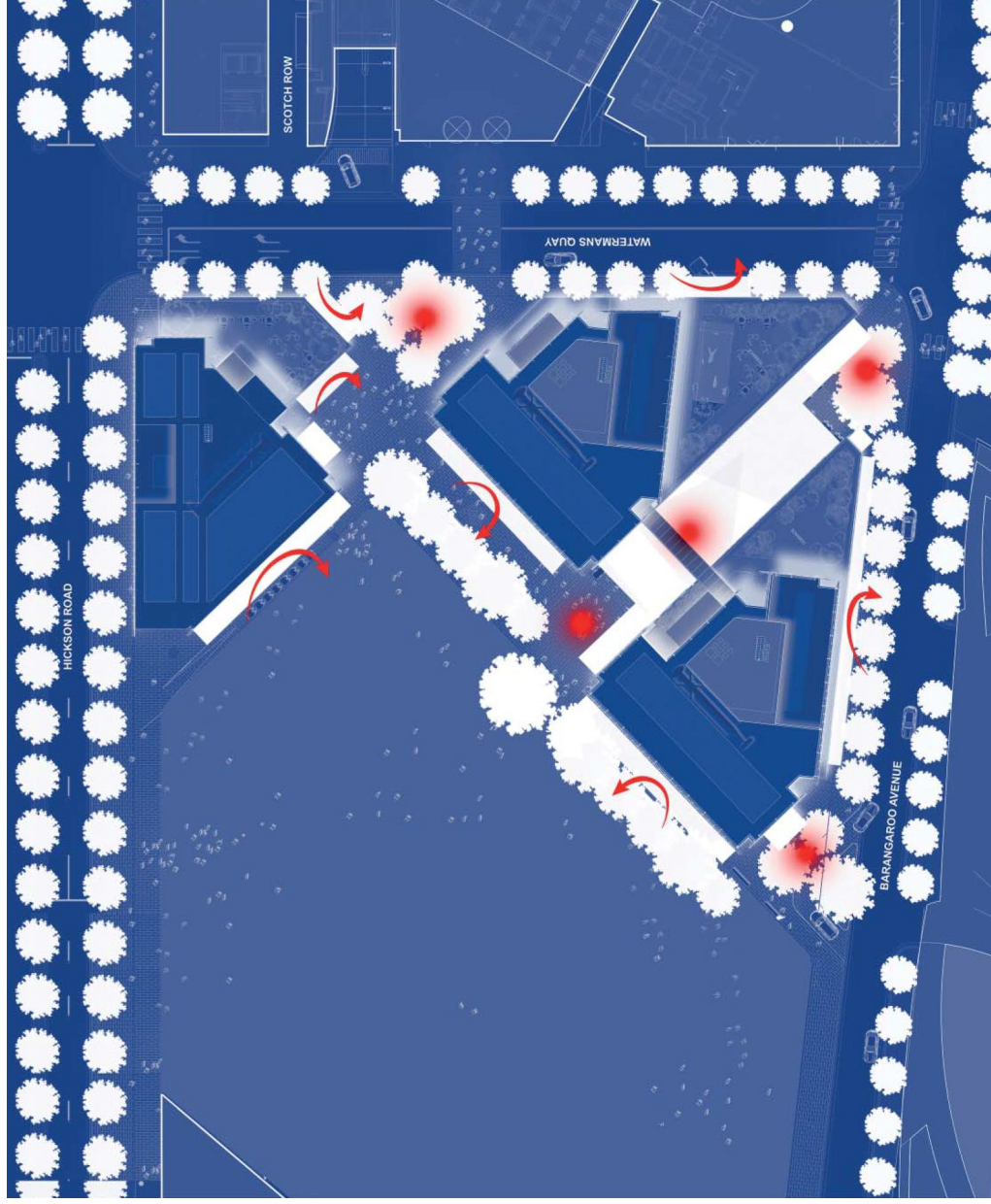
The podium architecture will have a language of operable facades and large areas of transparency to allow further connection through the podium mass. Interior spaces will open up to pedestrian areas with operable glass facades and an enclosed glass public pedestrian street from Watermans Quay to Hickson Park called the Strada. The Strada forms the retail core between the podium on R4A and R4B. Similarly, to enhance the pedestrian experience between R4B and R5, a public Plaza is created with an existing groove of trees and retail experiences.

These intersections support the interest of the public domain by creating an engaging route with a sequence of experiences through the site. Additionally, the key spaces within Barangaroo are located at the intersections of the north-south routes and east-west routes. Likewise Hickson Road, along with the square at The Bond and Napoleon Plaza, provides a sequence of interlinked spaces that connects Barangaroo and its waterfront to the heart of the city.



Interface between Podium and Hickson Park

7.3 Solar and Wind Strategies



One Sydney Harbour Solar and Wind Strategy Diagram

The solar strategy is dictated by the towers which are oriented south to provide more sun on Hickson Park. This building placement also allows more park area to be planted and green. Locating the buildings on the southern site boundary better defines the street fronts of Barangaroo Avenue, Watermans Quay and the Colonnade of Hickson Road.

A goal of this project was to interact in a dynamic way with the quality of light in Sydney. The fragmentation of the podium allows natural light to reach the pedestrian spaces. Also further taking advantage of the climate in Sydney to provide operable facades for natural ventilation and day light in the public spaces.

To protect against the negative impact of wind and solar gain, the public domain will utilize canopies to mitigate down washing winds from the residential towers and localized canopies over retail spaces to mitigate the harbour winds and eddy's created by the surrounding buildings.

In addition to canopies the public spaces will have clusters of trees and plantings to break up gusty winds and shade walking and seating areas. Sun shading devices will be integrated into the high performance podium facades to provide an additional level of comfort to the ground level.

7.4 Activated Public Realm

The podium design, uniform both in form and materiality, is crafted in such a way as to create a permeable and human scaled frontage to the adjacent streets. The homogeneity of the podiums is fractured with openings and lane ways which allow both visual and physical connections between the park and the commercial centre of the Barangaroo development.

A lawn sheltered by trees provides a place for people to sit, eat, play, and creates an urban active park feel which provides safety and adds energy to the retail spaces public domain. This space also promotes activity and draws pedestrian movement from the residential buildings and out into the public space, contributing to the 24 hour activity and culture of the area.

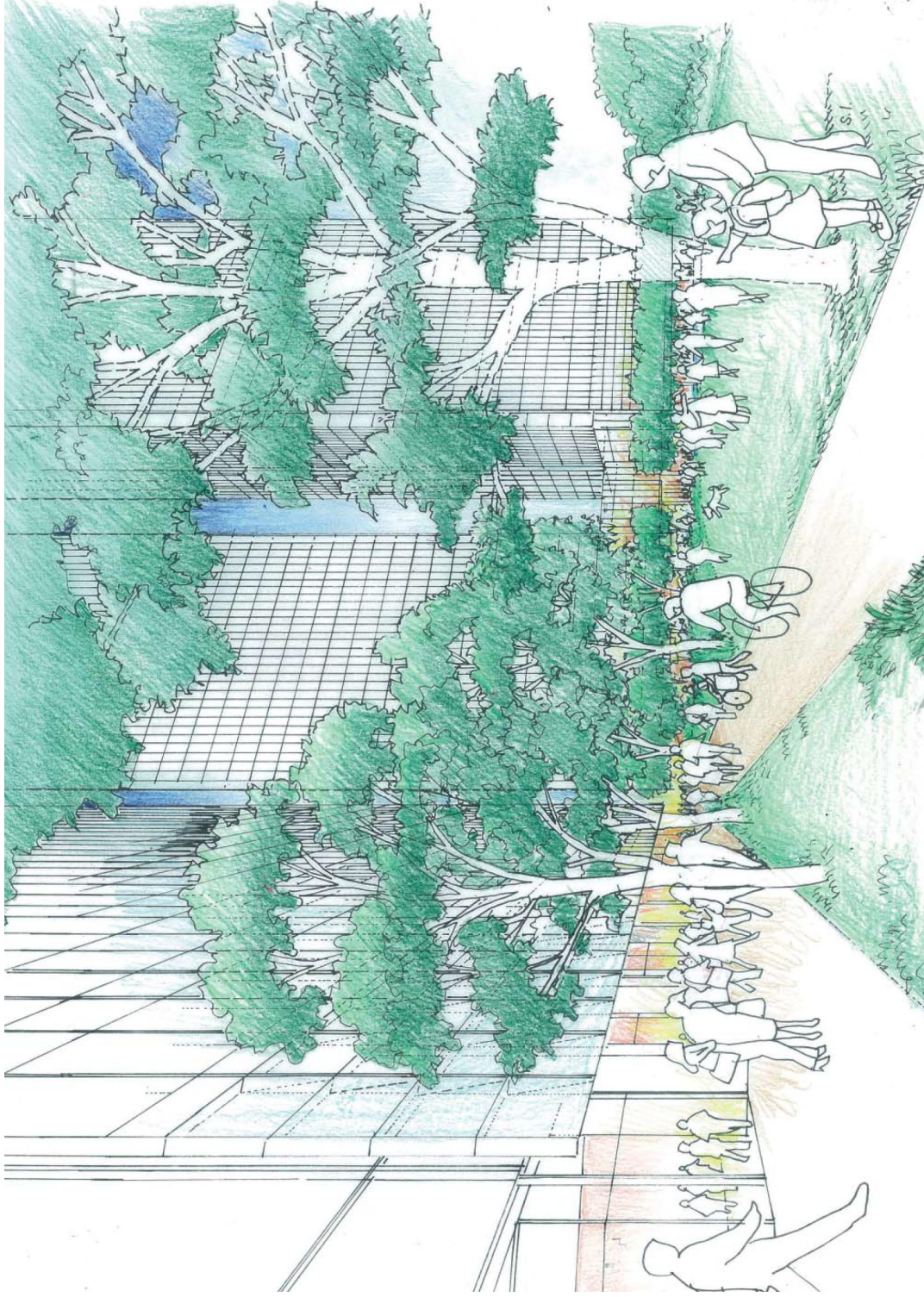
The podium contains active space for the residents. The top of the podium contains exterior amenity spaces that add further life to the district and create a multi-layered public space. Also located within the podium is the developments substation.

The residential towers and park spaces will also provide retail diversity in the public spaces. While the architecture contains a uniform and elegant language the scale of the retail spaces available allows varied activity and diversity. This benefits the overall culture and appeal of the precinct.



R4A & R4B Retail Strada Plan

7.5 Pedestrian Focused Design



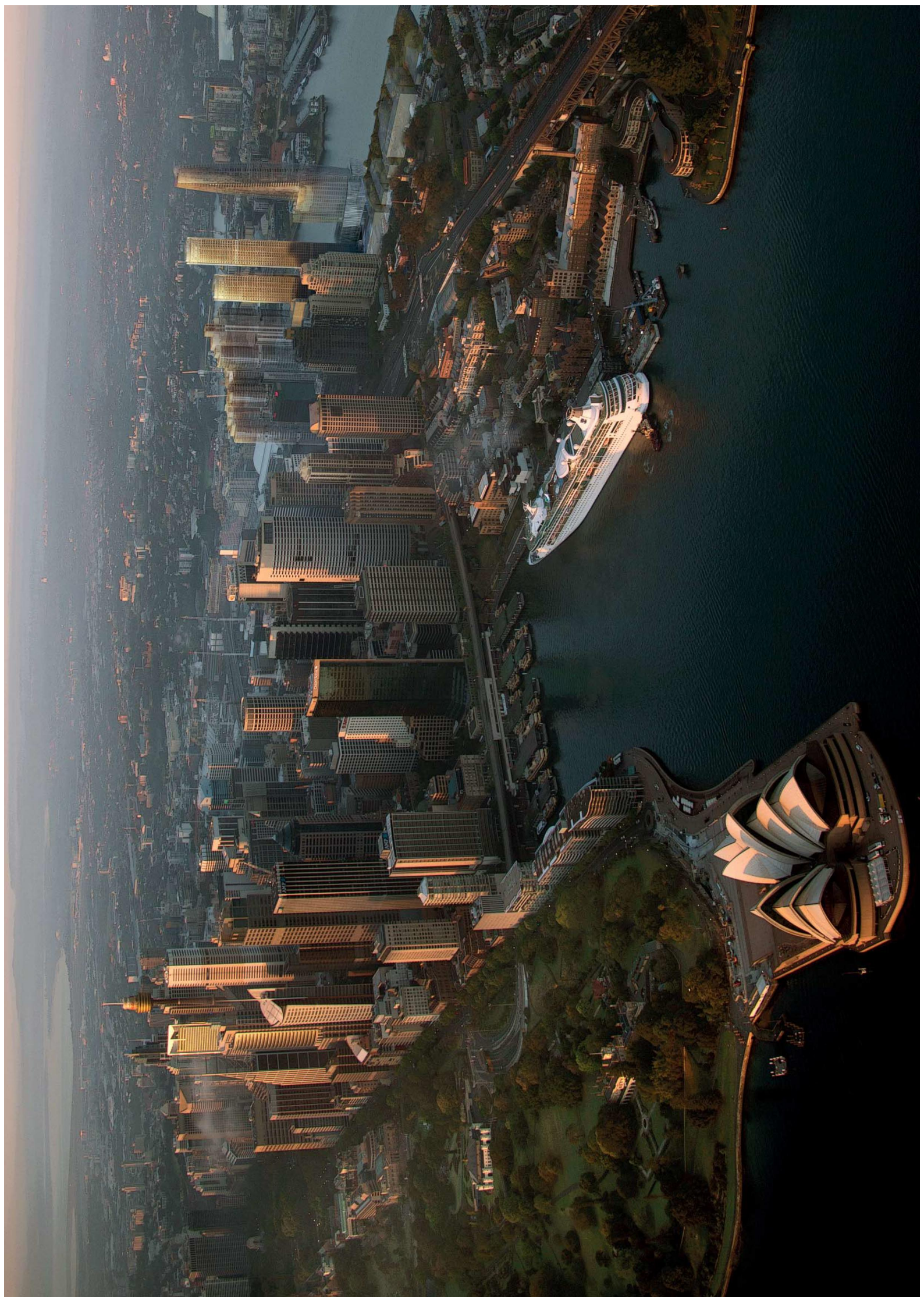
Early Concept Sketch - View from the Park towards South

The connections through the site serve to enhance nearby streets and public amenities. The adjacent streets and public spaces are enlivened with an activated ground plane of retail facilities and lobby spaces which feature highly transparent façades to promote pedestrian movement and connectivity. Principal resident lobby spaces directly front the adjacent streets and in doing so they strengthen the urbanity and street life within this precinct.

The Plaza between R4B and R5 gives visual and physical connection from Scotch Row and the commercial district to Hickson Park and further on to Barangaroo Point. The Strada between R4A and R4B connects the pedestrian areas of Watermans Cove and Wulugul Walk to Hickson Park. Both these key thoroughfares are flanked by retail at the ground level that activates these pedestrian spaces and extends into it with outdoor seating. A further pathway connects the city centre with the waterfront crossing the north end of the park from east to west.

A major piece of the public domain has also been preserved in this project by the inclusion and continuation of the Hickson Road colonnade. This connects the eastern boundary of the site with adjacent development and existing pedestrian movement. It is also a critical element in steering pedestrian access towards the new Hickson Park corridor and the views of the headlands to the north and through the podium towards Watermans Cove.

Subterranean carparks and loading docks ensure that the highest percentage of usable area on the ground floor is dedicated to the pedestrian. This ensures that the pedestrian areas feel free from traffic and congestion.



Conclusion

This architectural design statement illustrates the design vision and process undertaken by the Renzo Piano Building Workshop team to develop the proposed scheme for a new residential precinct within the next stage of the Barangaroo South development. This precinct, to be known as One Sydney Harbour, has been composed as a grove of three buildings with staggered heights which will form an elegant addition to the Sydney skyline.

One Sydney Harbour aims to provide high quality architecture, integrated into the public domain, to create urban green space, and connections between existing commercial centres and the new urban hub of Barangaroo. The towers will be living, breathing, crystalline forms that play with light, creating subtle vibrations that mimic the harbour waters. At the base, a sequence of spaces to engage the public, fragmentation of the tower mass that allows daily life to happen in and around the new buildings. A new park space which blends the towers into the earth and links existing thoroughfares with green corridors and news views of the Harbour.

Through a highly participatory design process that embraces nature, the city, urban life, sustainability and a goal to capture intrinsic elements of the site and context, the design team has strived to forge a unique architectural icon for Australia.



Renzo Piano



Mark Carroll



Emanuela Baglietto