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7.0

FAÇADE DESIGN

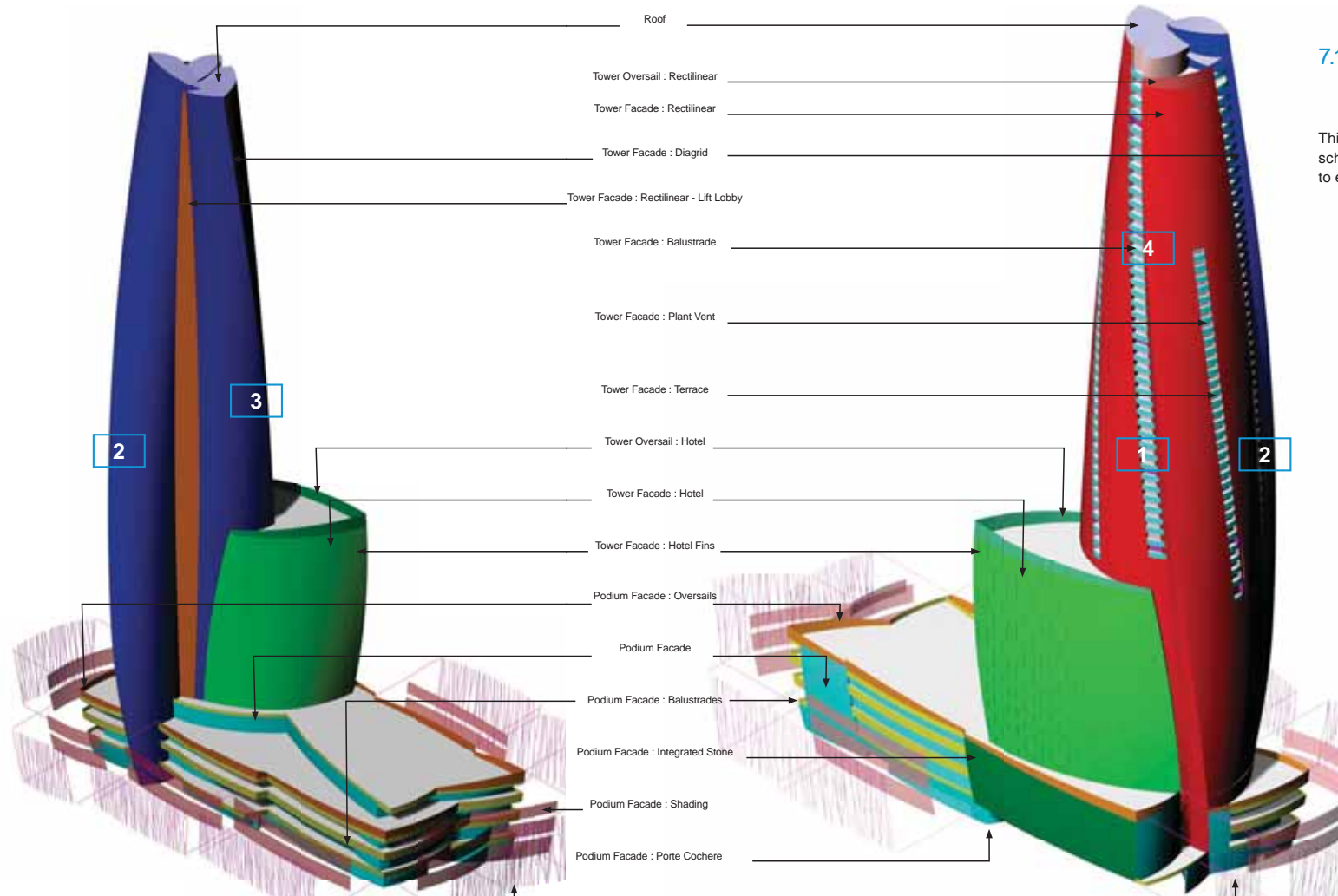
The proposed Crown Sydney Hotel Resort has been conceived with a distinctive, iconic façade. A significant amount of consideration has already been invested in the articulation of the geometry, which responds to a number of implications on the detailed resolution of the design, the procurement, fabrication, installation, and the access and maintenance strategies for the façade.

There are several considerations when appraising the glazing geometry of the façade. The diagrammatic narrative on this page discusses the basic concepts to achieve an efficient geometry across the façade.

Due to the importance of such a prominent and significant project, the visual and aesthetic considerations of the façade design have been developed very early in the design phase of the project. A façade consultant has been appointed and is working closely with Wilkinson Eyre, and have undertaken a detailed technical, and environmental performance analysis of the proposed façade systems in the Technical Appendix, including sketches and precedent material outlining how the façade for Crown Sydney Hotel Resort can be achieved, in a cost efficient and easily delivered manner.

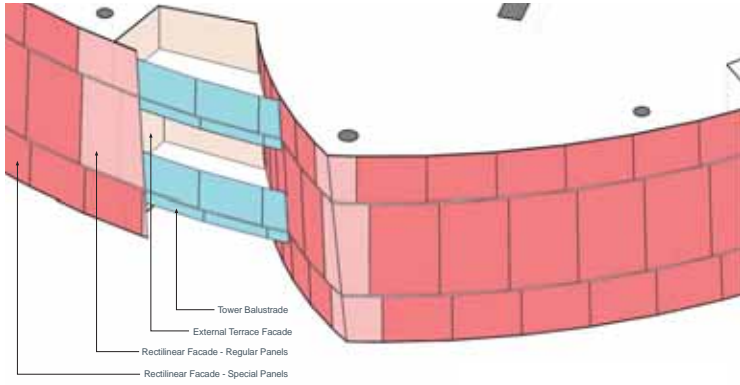
The façade geometry of the sculpted and curved envelope has been articulated in three basic façade types described over the following pages



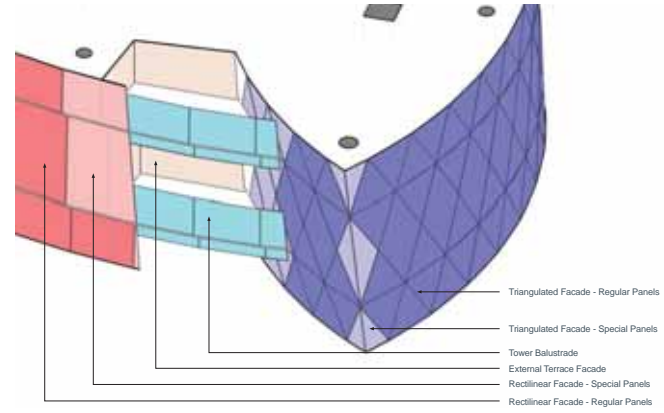


7.1 FAÇADE TYPOLOGIES AND CONDITIONS

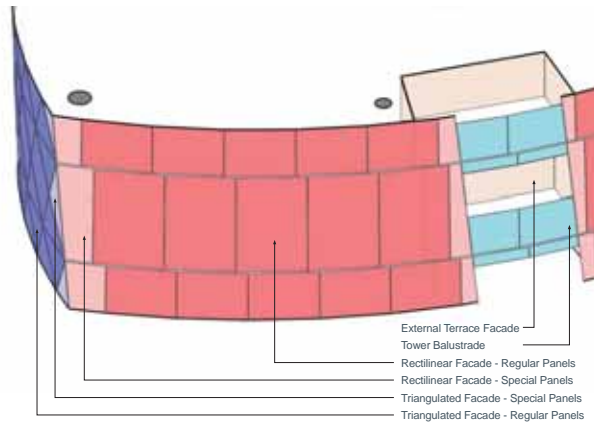
This diagram highlights the key façade types employed on the scheme envelope design, and also specific conditions relating to each façade type.



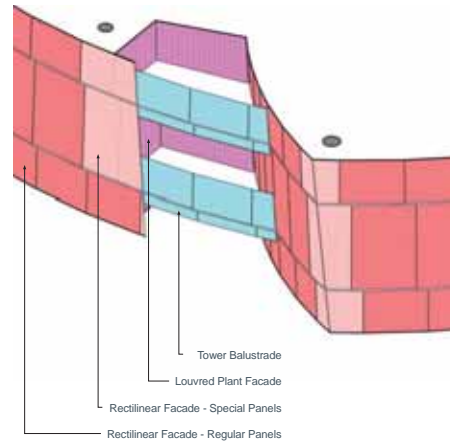
1. Façades – tower bay study – north-west isometric



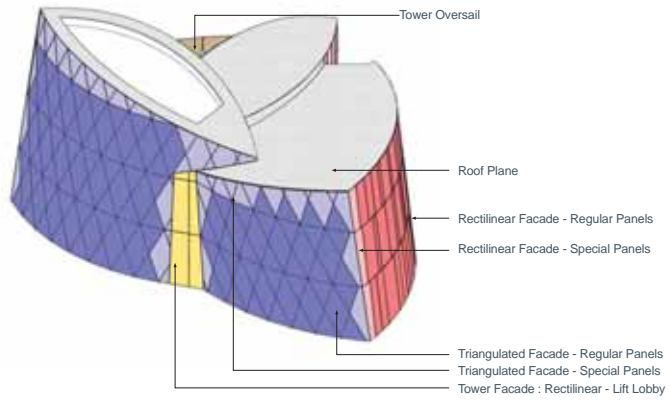
2. Façades – tower bay study – south-west isometric



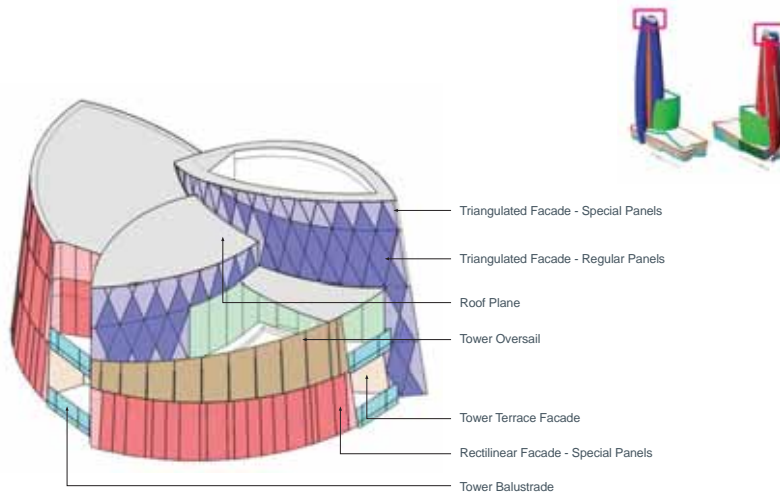
3. Façades – tower bay study – north-east isometric



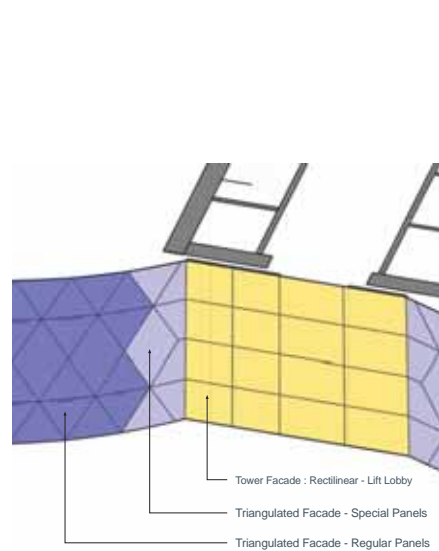
4. Façades – tower bay study – plant



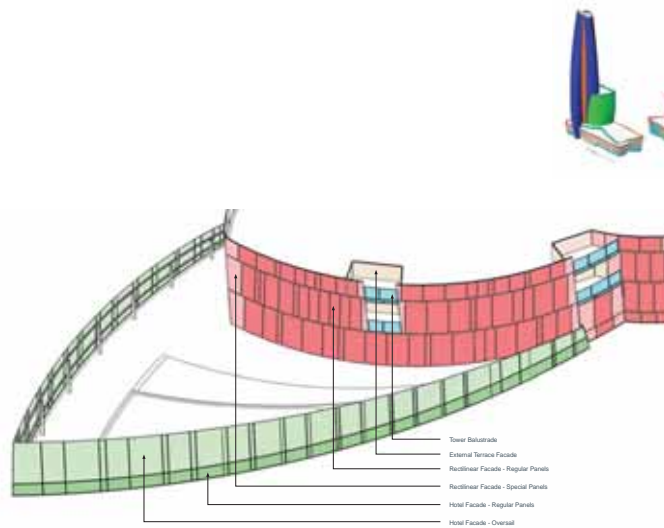
5 Façades – Tower top bay study – South-east isometric



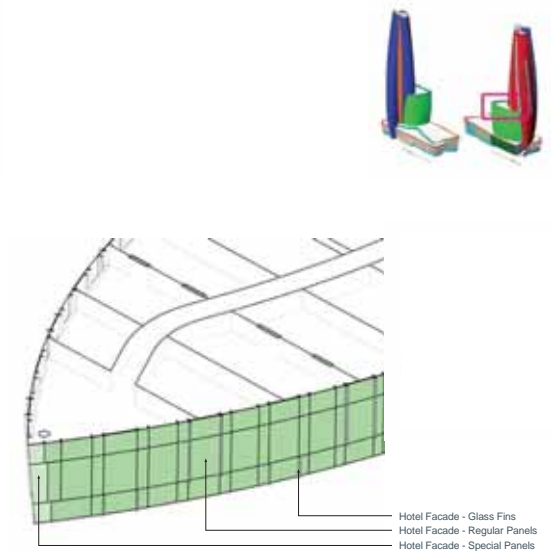
6 Façades – Tower top bay study – North-west isometric



7 Façades – Tower bay study – South-east isometric



8 Façades – Tower bay study – North-west isometric



9 Façades – Hotel bay study – North-east isometric

7.2 TOWER FAÇADE: RECTILINEAR FAÇADE

The main north-eastern façade is described as a series of staggered rectilinear panels, a strategy that seeks to maximise repetition of panel type as far as is possible, whilst maintaining a consistent maximum distance between the vertical mullion structure to maximise daylight and views, across a curved and warping underlying surface geometry. This solution allows the inclined mullion structures to remain within the vertical plane, despite being used to describe a warped, curved surface.

A series of external terrace spaces are set within the façade system, articulated as a helical slot that travels up the building continuously, tracking with the helical superstructure of the tower itself. Consequently all elements on the façade have some expression of the underlying helical geometry described through the architectural concept of the rotating and tapering form.

These terraces have a degree of protection from wind by an overlap of the glazing into the terrace zone, and a 1.4m high balustrade. Sliding partitions allow the terraces to be opened up to the main living spaces and bedroom spaces, allowing the internal and external spaces to connect.

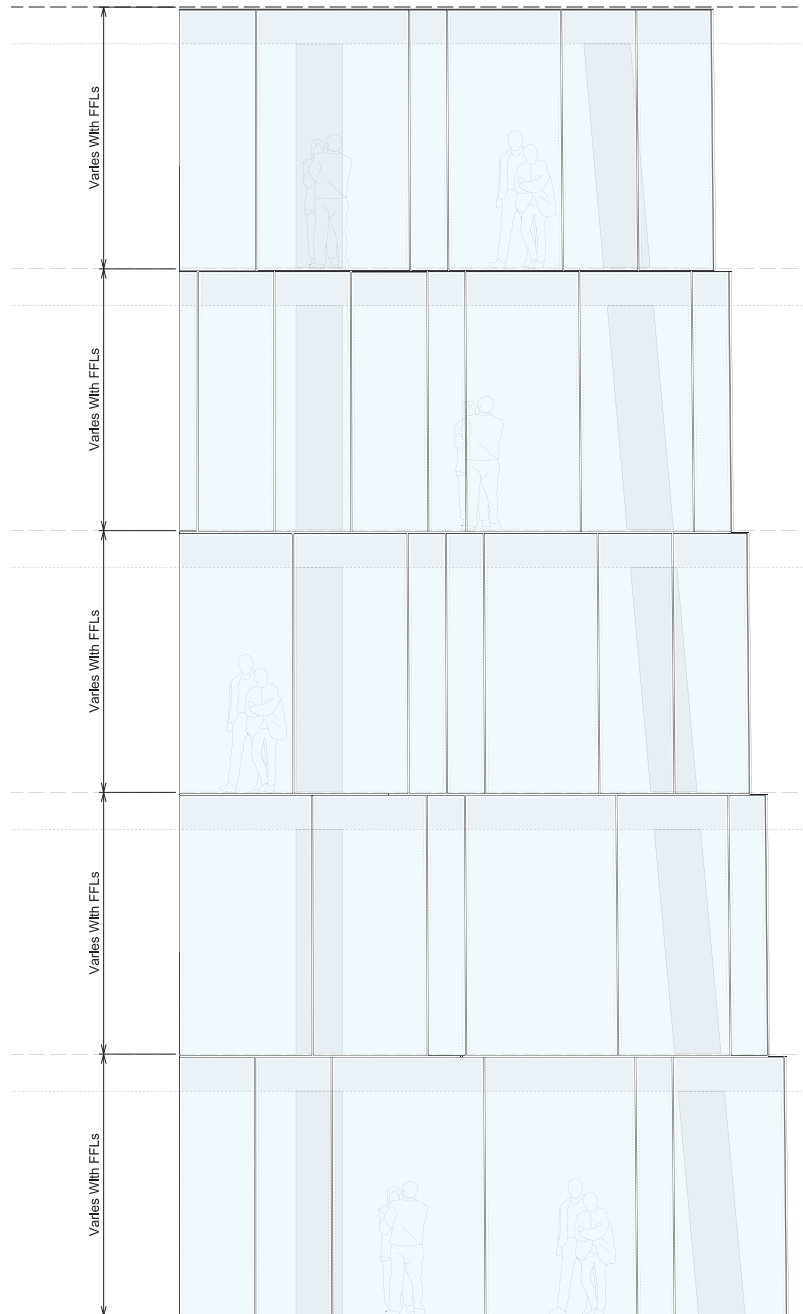
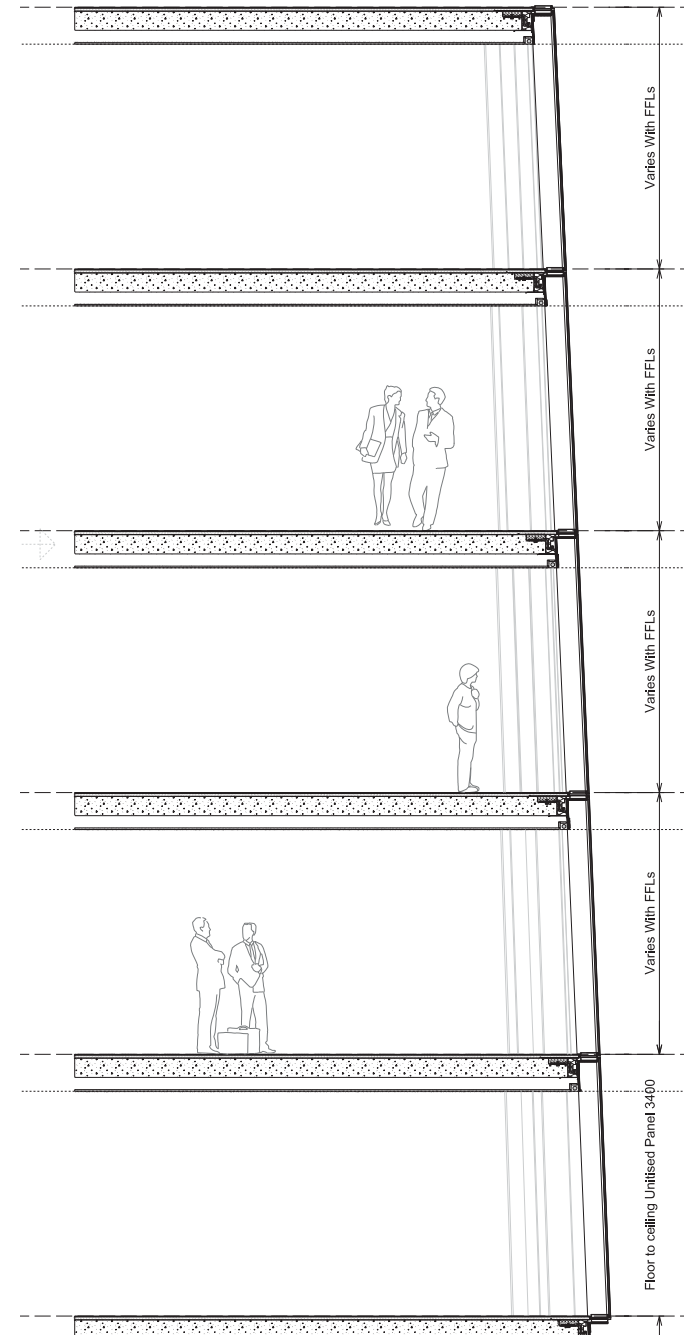


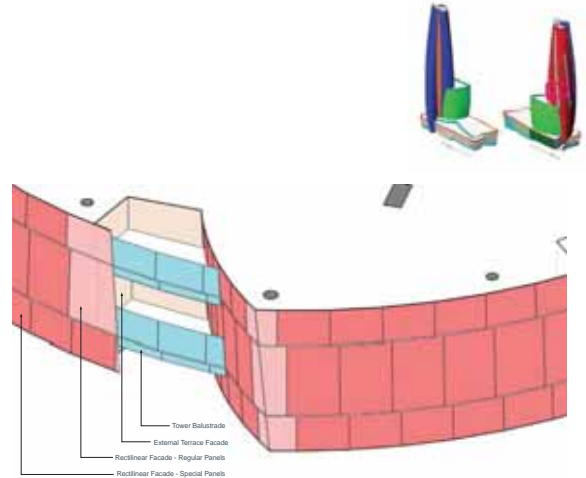
Figure 1 Elevation



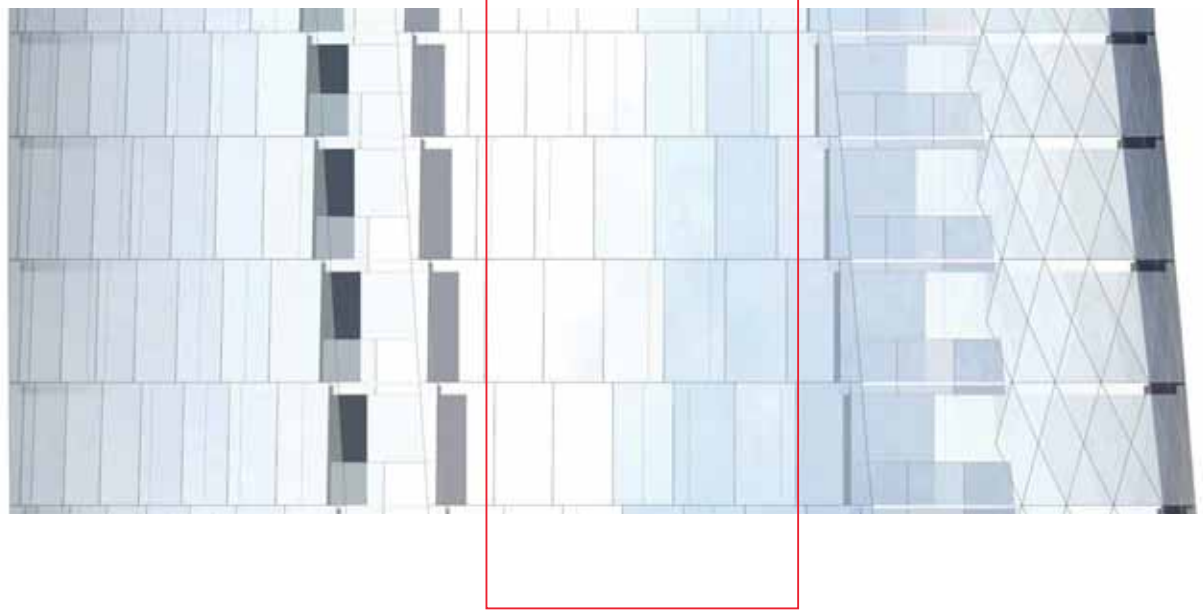
Section



Figure 1 – Perspective axonometric section



Façades – tower bay study – north-west isometric



Elevation

Figure 1

7.3 TOWER FAÇADE:
RECTILINEAR FAÇADE
TERRACE ZONE

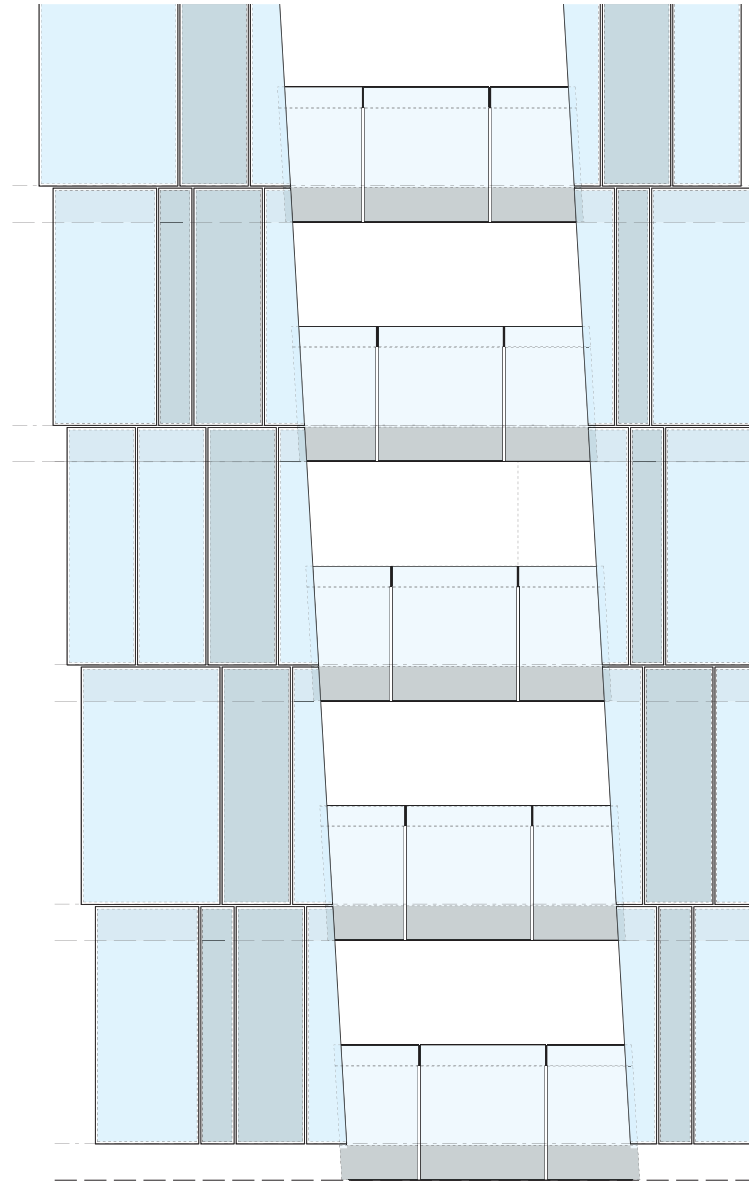
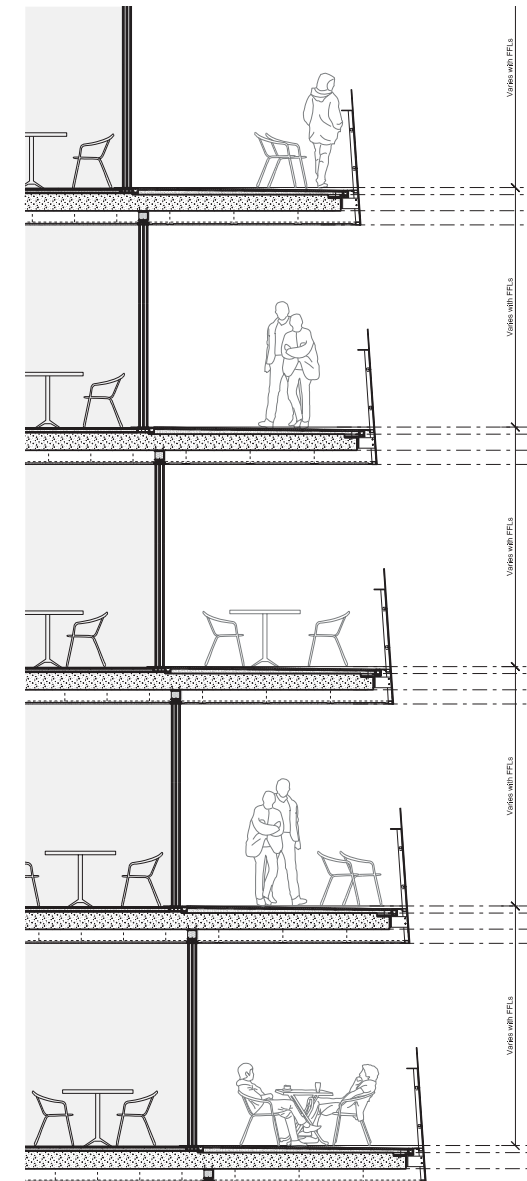


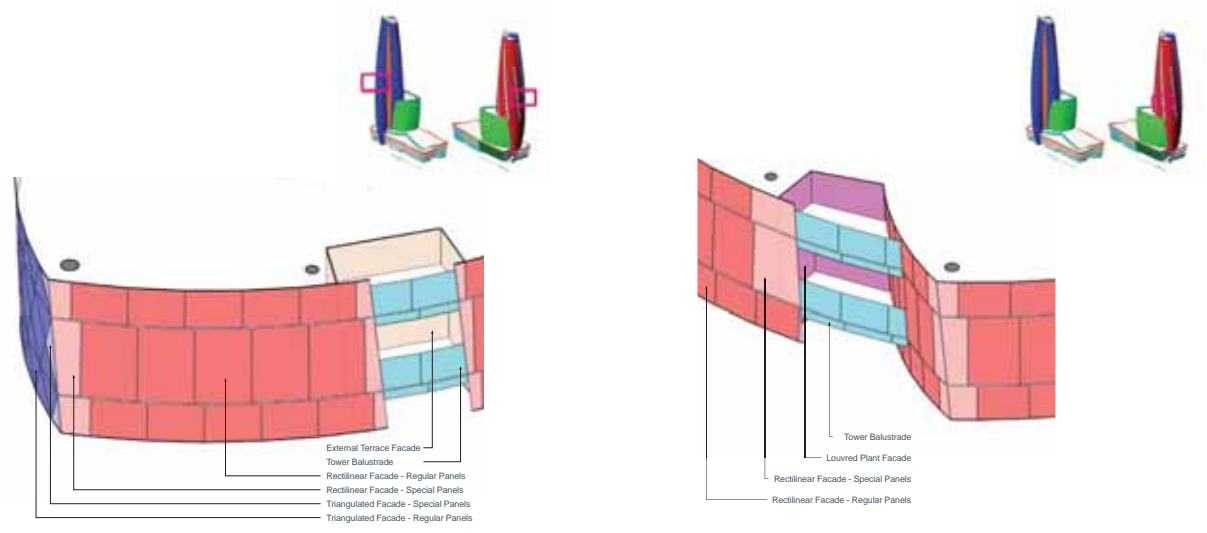
Figure 2 Elevation



Section



Figure 2 – Perspective axonometric section



Façades – tower bay study – north-west isometric

Façades – tower bay study plant

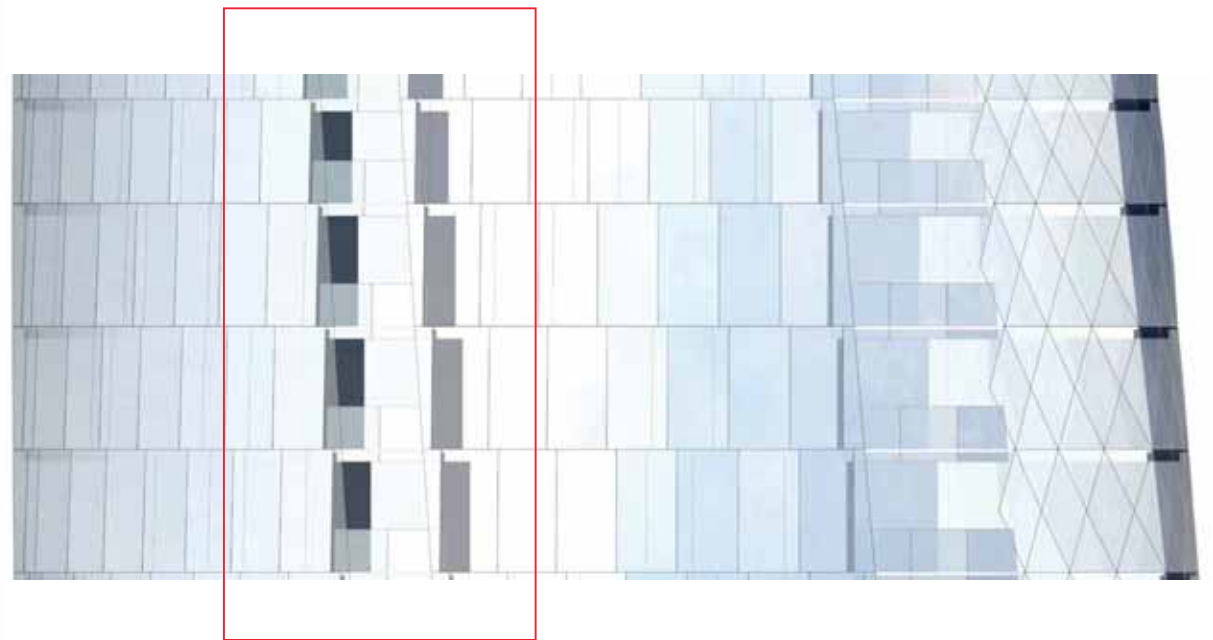


Figure 2

Elevation

7.4 TOWER FAÇADE: DIAGRID FAÇADE

On the south-west façade, where there is maximum level of curvature in the underlying sculptural form, the panelisation has been derived from a series of diamonds and triangles, which allows the form to be described purely in flat panels, without the need to curve the glass itself.

A resultant characteristic of this diagrid pattern incorporates a variety of subtly differing orientations of panel which will yield a beautiful and playful array of reflections of land, water and sky, further enhanced by the differing sun angles and light levels through the day.

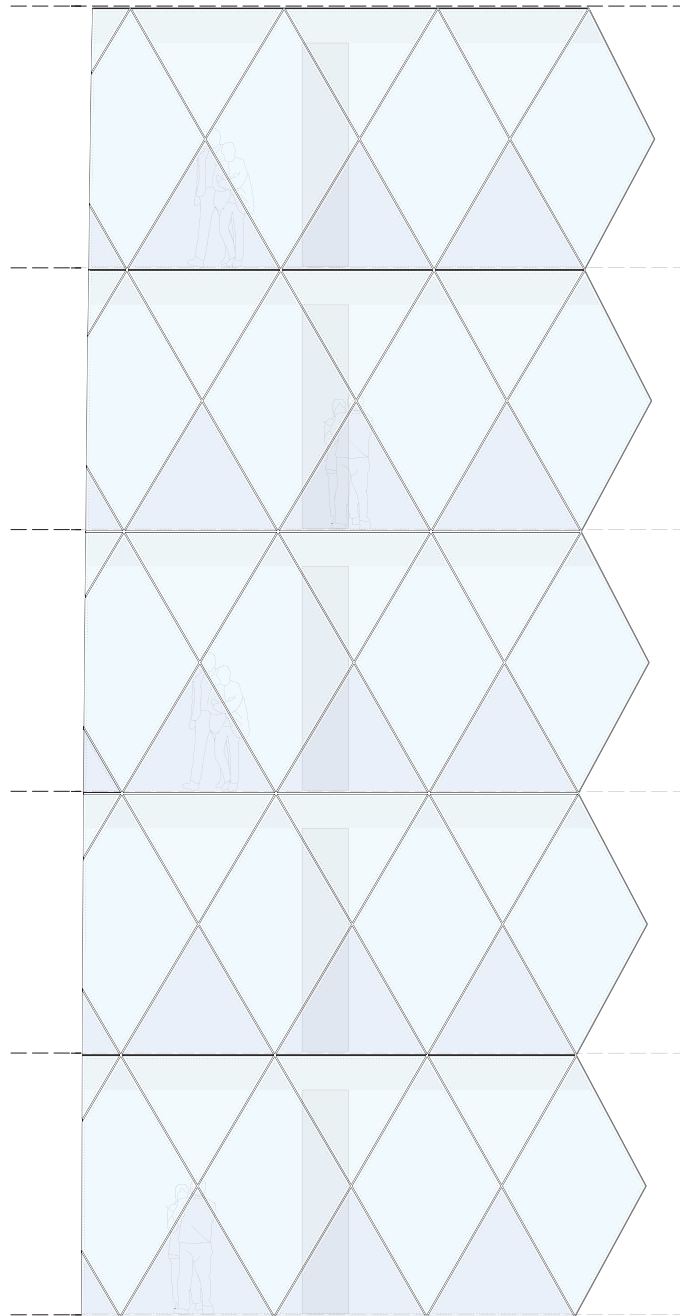
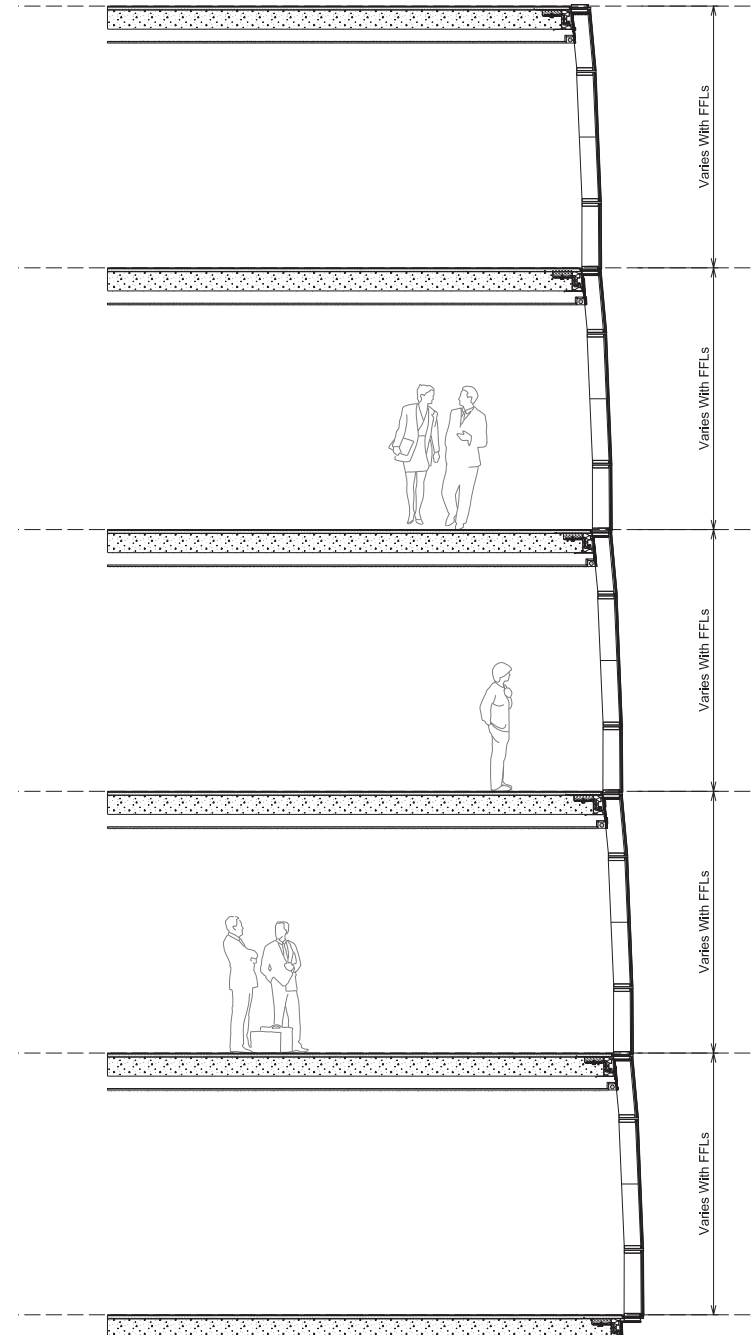


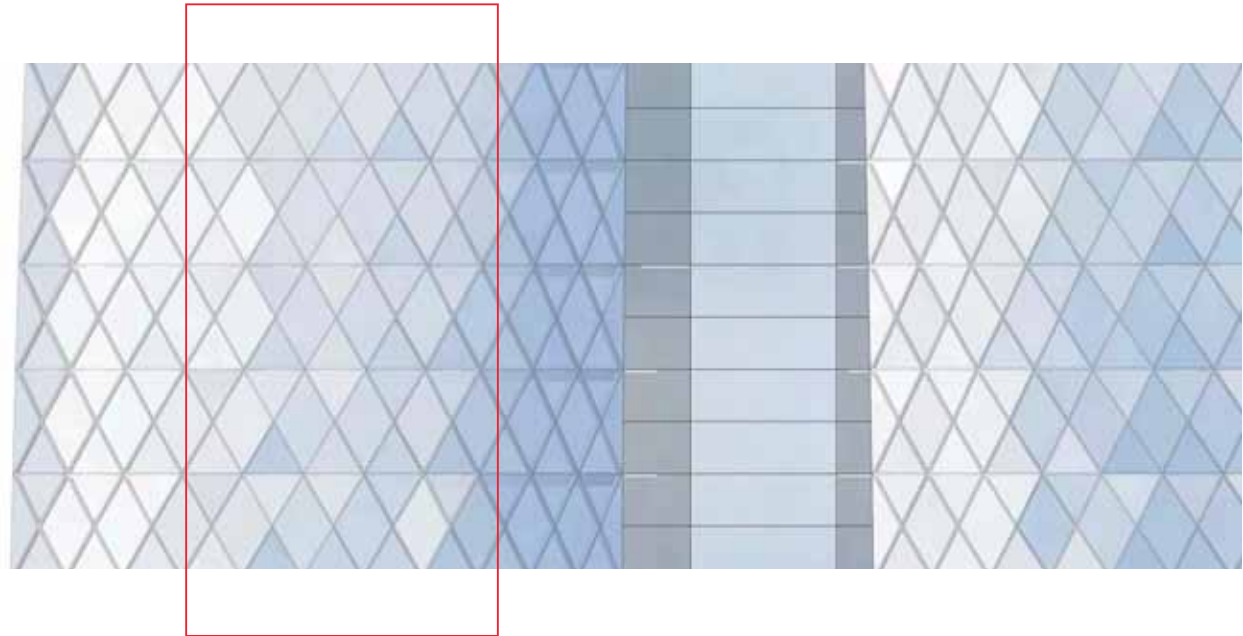
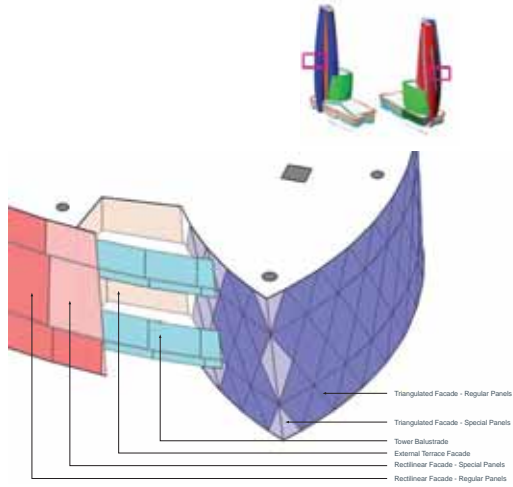
Figure 3 Elevation



Section



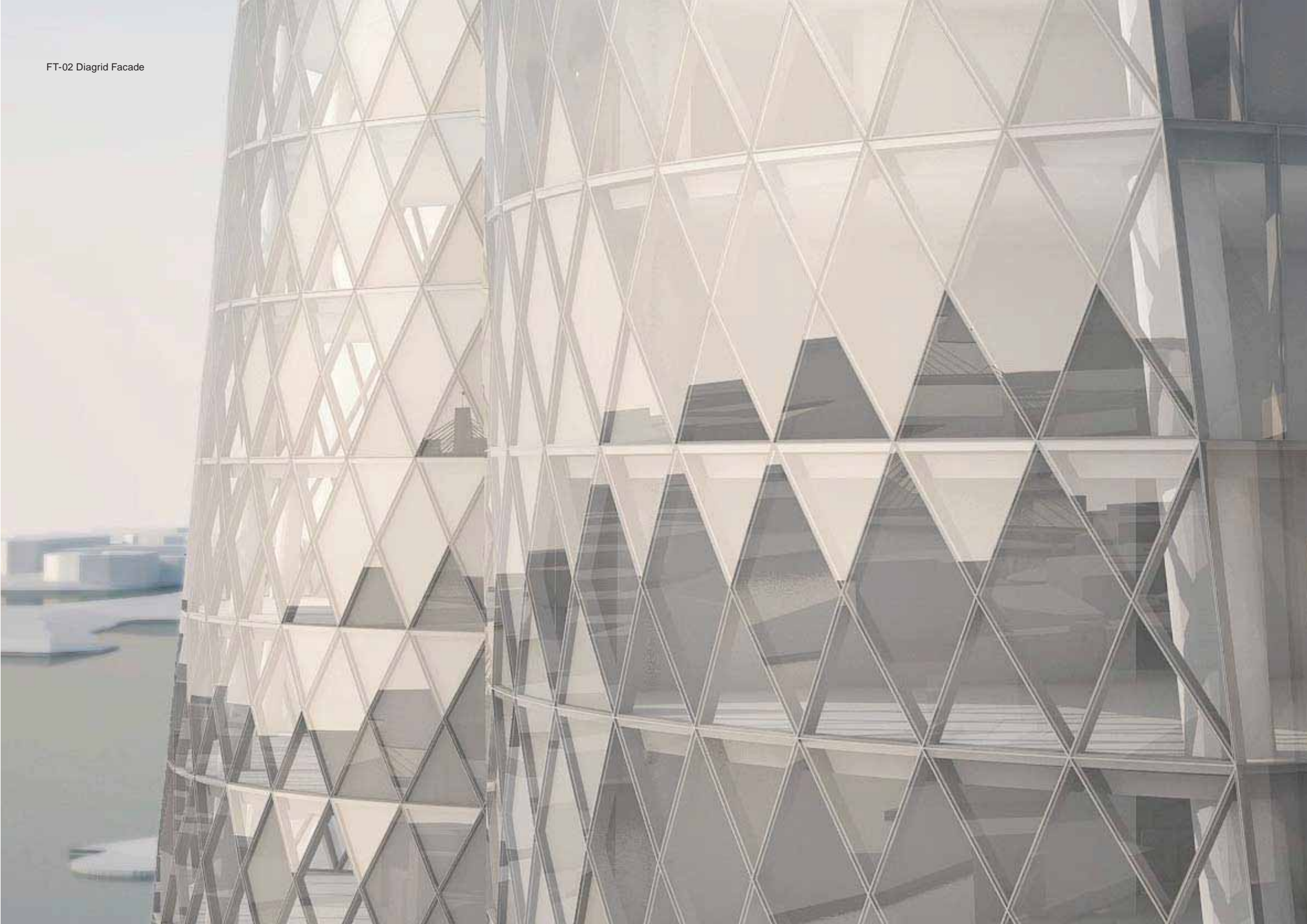
Perspective axonometric section



Elevation

Figure 3

FT-02 Diagrid Facade





7.5 TOWER FAÇADE: HOTEL FAÇADE

The hotel façade is conceived to be similar in principle to the tower rectilinear façade, however, it has been set out to fundamentally respond to the regularity of the internal hotel room accommodation partition diagram. Consequently the articulation incorporates more verticality than the rectilinear and diagrid façade types. Due to the direct aspect of the eastern and western façades they are exposed to low and medium, relatively oblique sun angles. A series of external glazed blades provide a degree of shading control.

As outlined in the Reflectivity Report, these blades additionally help mitigate solar glare to surrounding spaces and routes within the city, particularly along Lime Street to the south.

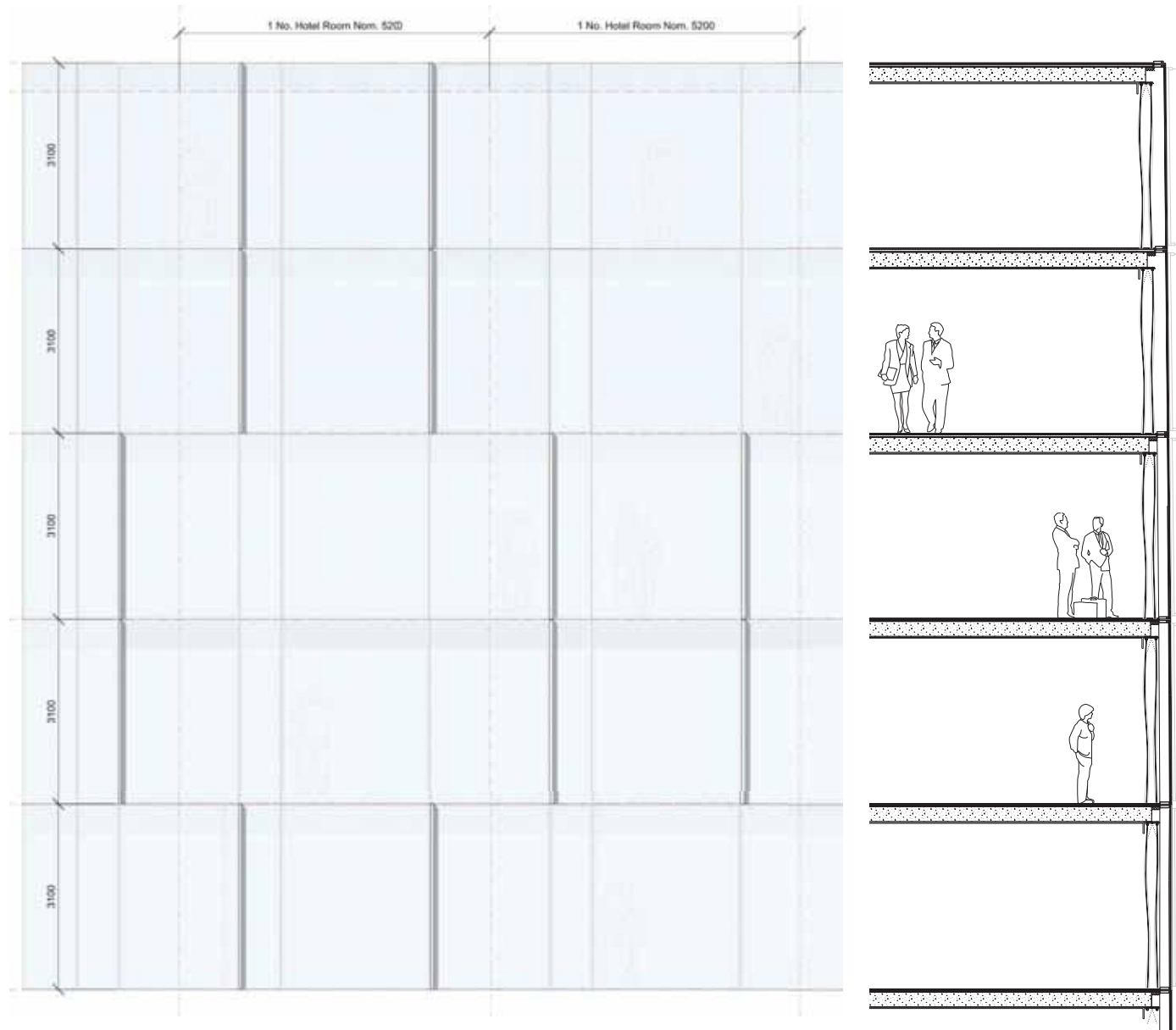
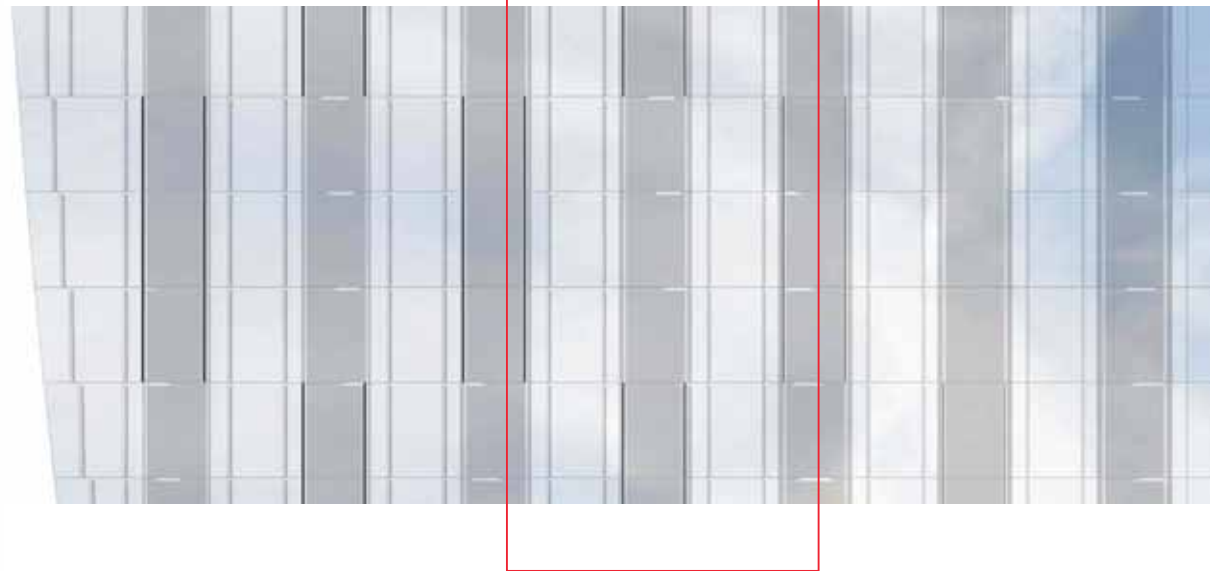
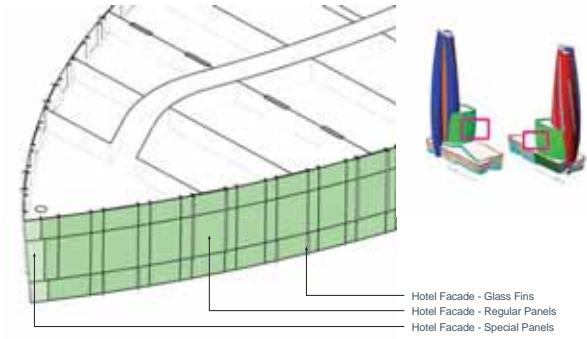


Figure 4 Elevation

Section



Figure 4 – Perspective axonometric section



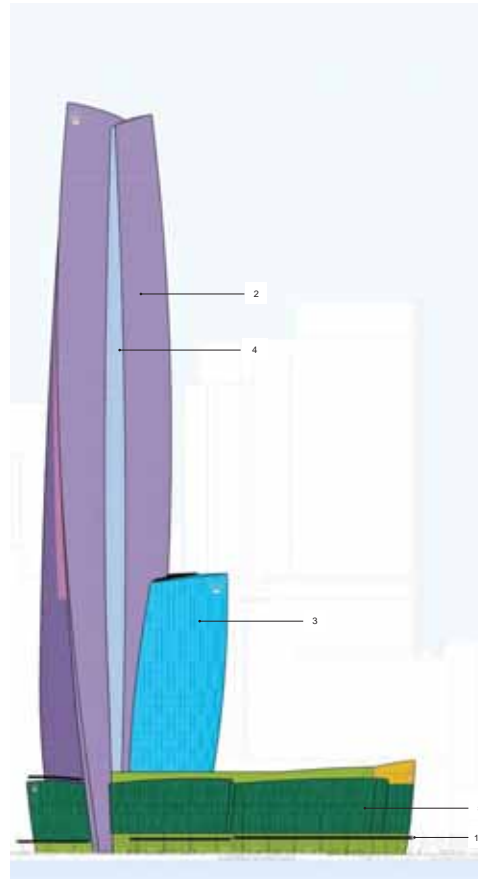
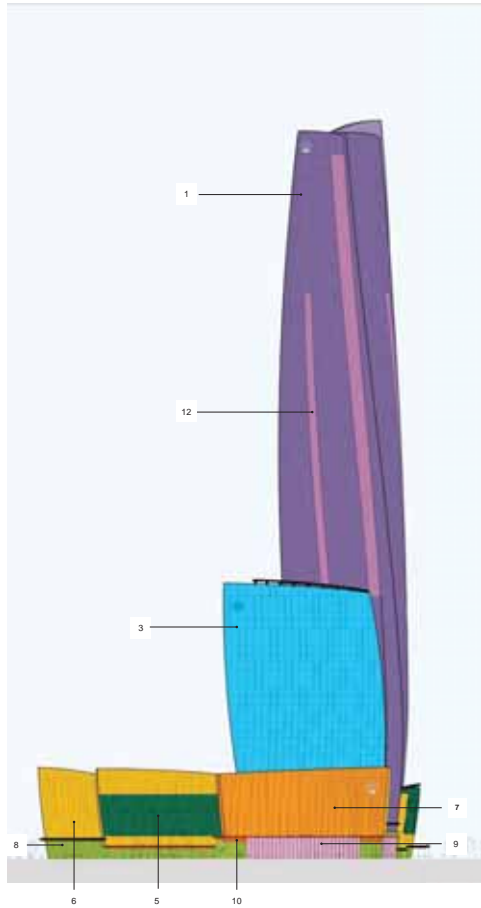
Elevation

Figure 4



Precedent façade: 10 Brock Street, London, UK





- 1 Glazed Curtain Walling - Rectilinear Panels
- 2 Glazed Curtain Walling - Diagrid Panels
- 3 Glazed Curtain Walling with White Glass Fins
- 4 Glazed Curtain Walling - Rectilinear Panels
- 5 Stone Composite Veil to Podium Terraces
- 6 Stone Composite Veil on Glazed Facade
- 7 Intergrate Stone Composite Facade
- 8 Glazed Facade to Podium Terraces
- 9 Glass Fins to Porte Cochere
- 10 Canopy to Podium
- 11 Canopy with Intergrated light Apertures
- 12 External Terrace with Baulstrade

7.6 FAÇADE MATERIALITY

The glazing specification is being carefully considered to give the building a degree of reflectivity, allowing its appearance to change with the differing times of the day, reflecting sky and water. The following pages describe the careful use and layering of opaque and transparent elements of the façade, which utilise the subtle reflectivity of the glass to soften the mottled tonal difference between the transparent and opaque elements of the glazing. The considered use of blinds and drapes further adds to this softening effect creating a subtle tonal differentiation across the entire façade. The reflective nature of the glazing with reflect the sky and water at the different times of day, creating a façade that is both colourful, jewel-like, and transient at all times.



Day



Dusk



Dusk



Night



1 Tower Glazing

A selection of reflective high-performance glazing was assembled into a mock-up for viewing. The mock-up was raised into the air and spun around so that the affect of different lighting conditions could be assessed on the glass.



2 Glass Selection

Based on this mock-up two different manufacturers (the two central panes of glass) were selected to be studied further.



3 Podium Balconies
White hard stone veil and glass balconies



4 Podium Façade
Sculptural white hard stone



5 Podium Façade
Articulated white hard stone at porte-cochère – white Brazilian granite



6 Podium Façade
Stone Veil Mock-up

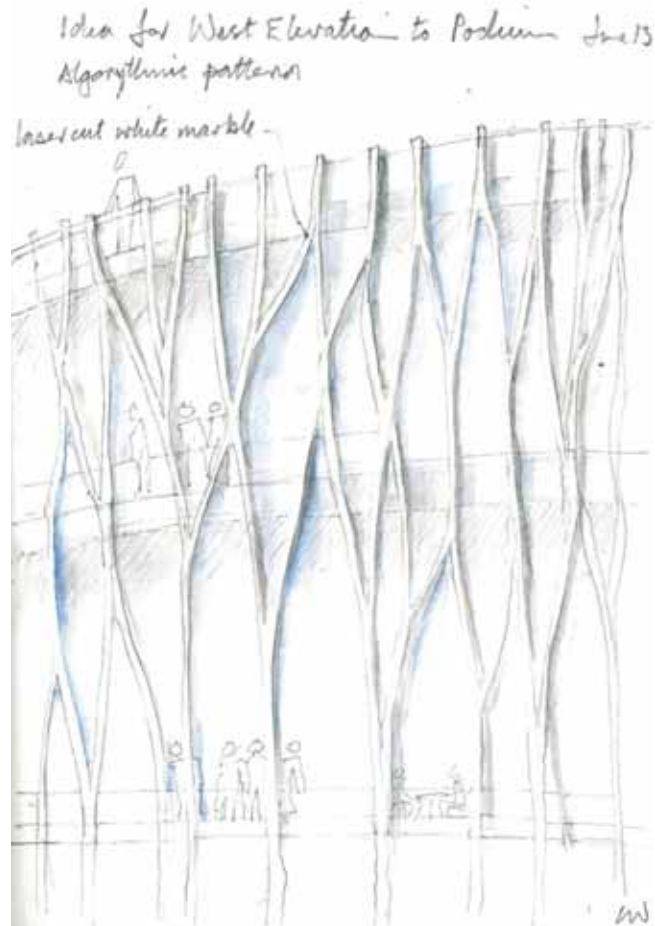


7 Porte Cochere glazed fins

7.7 STONE TRACERY AND TERRACES

Central to the design of the hotel is podium which accommodates most of the public spaces, cafés, restaurants, bars, retail tenancies, reception and gaming rooms. Many of these facilities take full advantage of the harbour and parkland views from terraces around the perimeter; these terraces are overlaid with a veil of stone tracery providing shading and unifying the overall mass.

The stone tracery consists of a series of organic strands or blades, and is based on an apparently random repeating pattern. The almost Gothic aesthetic references the delicate structural stone vaulting of the Vladislav Hall at Prague Castle in the Czech Republic.



Stone veil concept sketch



Inspiration image of stone arch



Type 1: 'Stone veil' over external terrace balcony



Type 2: 'Stone veil' inverse stone panel with glass infill



Type 3: 'Stone veil' in front of curtain wall system

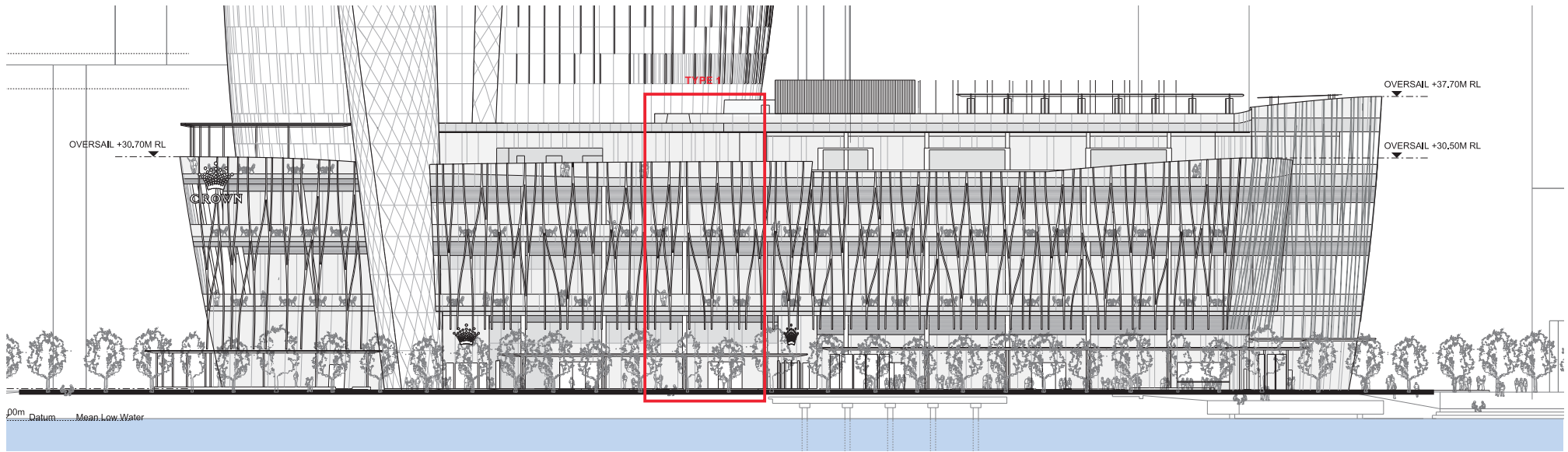
7.8 THREE TYPES OF VEIL

The stone veil wraps all four main facades of the podium building, unifying the façade typologies and the programmatic uses with a consistent architectural and material language.

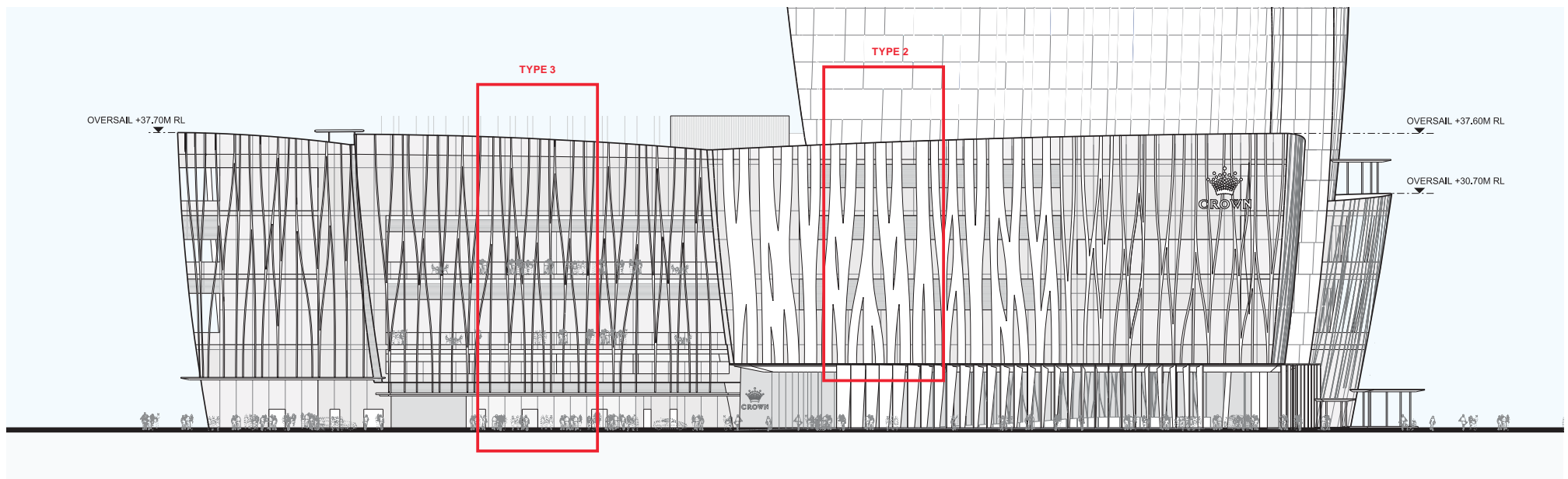
Unlike the glass of the tower, the podium is seen and interacted with at a more intimate, human scale, and it is here that the fundamental material quality will be explored and touched. The veil assists with solar control and will be shaped to optimise the play of light and shadow.

The elevation features three main typologies. The first comprises a stone veil over an external terrace balcony. The second type is a heavier, denser interpretation of the stone veil, inverting the diagram such that the 'void' becomes the solid, becoming a heavier stone façade with glazed apertures. The third variation is an application of the open veil wrapping across a glazed envelope, with the stone veil applied directly to the mullion structure of the facade.

The balcony veil will also feature an additional layer of responsive shading which sits behind the stone structure to ensure that the balconies are comfortable in most conditions experienced in Sydney.



West elevation



East elevation