

**Green Strategies for Building Design  
(ARC61804)**

**Assignment 2: Passive Green Building  
Design Reflective Write-up**

Nikhil Isaac Selvanandam

0349343

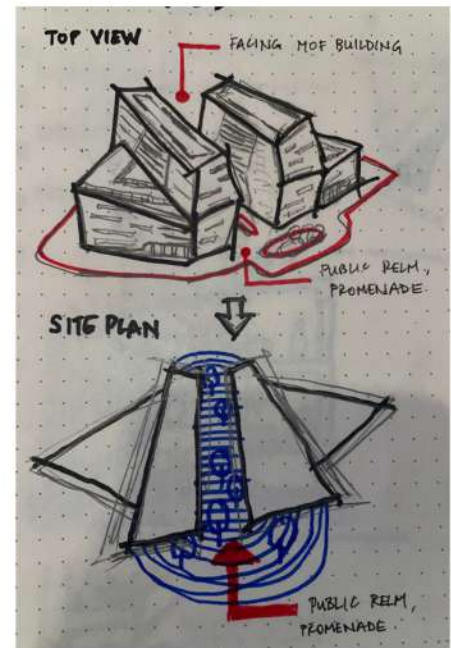
Tutor: Mr Axxu

# Introduction

During a recent site visit to Suasana PjH 2C5 in Putrajaya, Malaysia, it became evident that the development was strategically designed to create a vibrant public space surrounding a distinctive architectural gem in a prominent location like Putrajaya. Positioned on a 3.86-acre site along two significant axes, one leading to the Prime Minister’s Residence and the other to the Millennium Monument by the waterfront, the building serves as a focal point, injecting life and energy into the urban fabric.

## General Site Information, Form and Layout

The two symmetrical tower blocks stand as sentinels, cradling a meticulously landscaped promenade at the ground level. This vibrant space unfolds into secondary areas, metamorphosing into an active public realm adorned with wide green expanses, inviting seating pavilions, linear planting zones, tranquil relaxation spaces, and dynamic transient event areas. The promenade seamlessly aligns with the visual axis directed toward the National Millennium Monument at the waterfront—an architectural masterpiece conceived by the same visionary architect several years prior. The building, with its faceted diamond-shaped facade, gracefully dons the persona of a crystalline gem, harmoniously blending with the upmarket surroundings and establishing itself as a focal point in the heart of Putrajaya.



According to the annual windrose diagram of Putrajaya, most winds come from the south and east-north-east. With that being said, Suasana PjH 2C5 takes advantage of that by using the winds to form a venturi effect by creating a gap between the architecture.

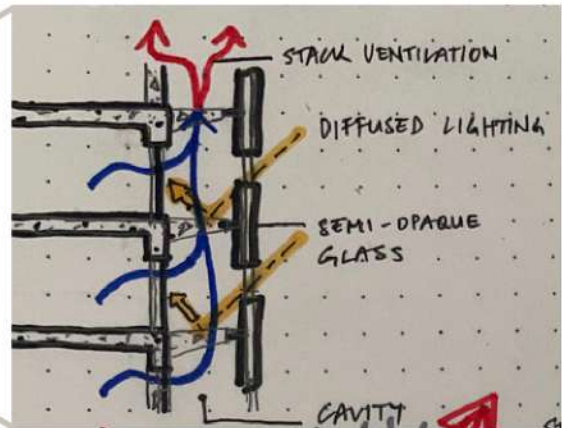


## Facade Design

*Double Glass Facade:* The facade, a canvas of innovation, features cantilevered vegetative balconies punctuating the exterior. These lush green extensions, visible beyond the vertical glass sun shading, not only contribute to the aesthetics but actively enhance local biodiversity. The design is meant to be a 'jewel' in Putrajaya. By utilising angled glass sun-shading that wraps around the



building, the building's entry facades presents itself as a crystalline diamond-like structure. The structure has two skins; the exterior skin is entirely made of glass, with a white fritted 'songket' design that serves as a sunshade for the inner skin.



*Cladded Colonnades Facade:* The faceted cladded colonnades compliment the 'songket' glass canopy positioned at the covered pedestrian arcade, with shop spaces at the bottom corners of each block that run around the circumference of the building to provide walkers with weather protection.

## Natural Daylighting

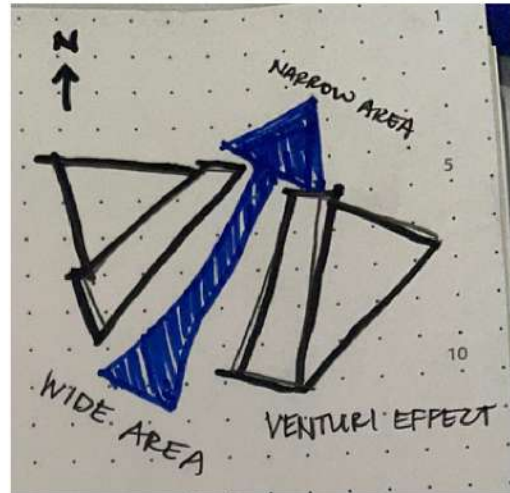
The 7-storey atrium's crowning glory features a back wall design with a glass skylight canopy and an integrated BMU system. This allows for natural sunlight to diffuse into the space, creating an enchanting ambiance. With the tall and echoey entrance and a skylight, this atrium maximises the amount of natural light. Atriums in both buildings have signage that makes it easy to find your way to each block's distinct drop-off location.





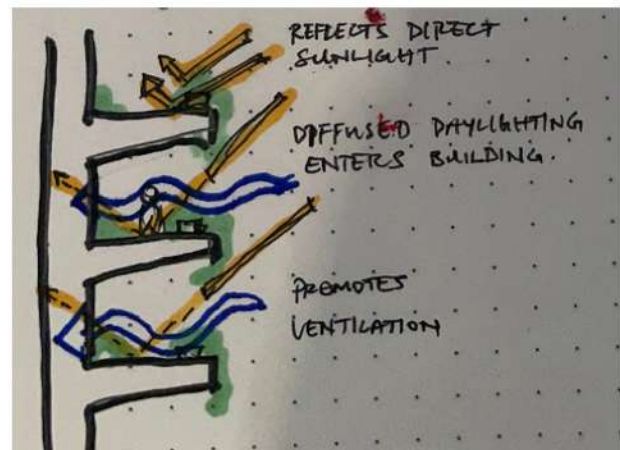
## Wind Tunnel

A walkway cuts through the architecture between the two tower blocks, forming an axis facing the Ministry of Finance building to improve communication. This creates a gap between the two tower blocks that narrows as it confronts the Ministry of Finance building, promoting the venturi effect, also known as the wind tunnel effect, due to the difference in wind pressure. As a result, powerful gusts of wind blow over the promenade, making the public realm a more pleasant and cool area for users, boosting their spatial experience of the space.



## Balconies & Planter Boxes

In order to be seen from beyond the vertical glass sun shade, facade openings have projecting balconies with landscape planters that randomly arrange patterns over the facade. A stack effect is created between the building envelope and the sun-shading façade, which allows hot air to naturally escape from the lower level.





## Eco Cell

It meticulously integrates vegetated zones throughout its expanse, creating habitats in diverse areas —be it at ground level, skycourts, or the innovative 'eco-cells.' These habitats, carefully studied by a biodiversity consultant, are harmoniously matched with native flora to attract and nurture local fauna. The overarching goal is to elevate the biodiversity of the vicinity, guided by a comprehensive 'biodiversity matrix' serving as the cornerstone for the design of landscaped areas.



## Rainwater Harvesting / Recycling

A large-scale rainwater recycling system irrigates the building's enormous manicured grounds. Rainwater is collected from the manicured ramps around the perimeter and the roof garden. It is routed and stored beneath the Eco-cell on the lowest basement level before being utilised as recycled water throughout the building.



## Verandah Walkways

Adding an element of historical charm, the verandah-ways, reminiscent of Malaysia's pre-war traditional shop houses, weave a narrative of continuity within the development. A spiraling innovation, aptly named "eco-cells," intertwines with vertical landscaping, seamlessly connecting from the Level 1 Retail garden down to basement 2. This dynamic feature channels surface rainwater into strategically positioned bioswales, facilitating the seepage of water back to the ground to replenish groundwater levels. An additional rainwater harvesting cell enhances irrigation requirements, contributing to the development's sustainability.





## Strategic Landscaping

This 14-storey mid-rise mixed-use marvel, spanning a Gross Floor Area (GFA) of 77,837 sqm, goes beyond architectural excellence. Central Promenade is an active public realm featuring seating zones, planting areas used as temporary event spaces, and semi-covered seating areas facing shop and F&B spaces. There are enjoyable social interaction places not just on the ground floor, but also on the first floor above and on several jutting planted balconies.



The ground floor visibly connects to the Ministry of Finance on one end and to the Millennium Monument on the edge of the Water Garden on the other end, which serves as a location for social/interactive activities. For the majority of the day, the tower blocks cast sun-shading shadows across the promenade.

## Applications of Design Strategies in AD4 Final Design

### Natural Daylighting

Introducing natural daylighting through skylights might make places considerably more welcoming while also improving the architecture's sustainability by lowering energy consumption and costs. Natural daylighting has also been shown to improve our well-being by improving the spatial experience of users.

### Strategic Landscaping

I would like to use native flora species into my architecture to provide specificity and character to the site, as well as attract local wildlife to the location, so increasing biodiversity. These green spots on my property might also serve as a bioswale, channelling floodwaters into the ground or into rainwater collection tanks to be reused as a sustainable irrigation and toilet flushing method.

### Natural Ventilation

I would like to make a proposal to employ angled louvred walls and a facade to hide most of the sunlight while allowing diffused light to penetrate to prevent heat gain, similar to Suasana PjH's. It also allows for cross ventilation, which I would love to employ for the majority of the areas in my building design.

## Conclusion

With the site visit at Suasana PjH, I obtained a better understanding of the many green solutions that may be applied to make an architectural more sustainable. This experience has helped me see the value and functions of softscaping, which may go beyond aesthetics by boosting the site's biodiversity. It has also encouraged me to include nature and location into the architecture, as well as to take use of the site by developing connectivity for a seamless mix of architecture and its surroundings. Suasana Putrajaya emerges not merely as a mid-rise structure but as a living, breathing ecosystem. The site visit reveals not just a structure but a harmonious integration of architectural brilliance, cultural homage, and environmental sustainability, solidifying Suasana PJH 2C5 as an exemplary centerpiece in the vibrant tapestry of Putrajaya. Overall, the site has been a fantastic learning experience for me, allowing me to explore many different approaches to go ahead with future projects in terms of green tactics and sustainability.

## References

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