

GREEN GLITCH OVERTURE

“Paradigm Shift Of Environmental Comfort For Office Productivity”

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Concepts

1. Green and Sustainable Tall Building

For every certified , energy-producing tall building, there are dozens, perhaps hundreds, that continue to follow a protocol that dates from the 1950s—seal the building, cover it head-to-toe in glass, and air condition it 24 hours a day. For all of the advanced engineering work that goes into making these astounding structures stand up and function, from an MEP standpoint a large number of them are dinosaurs. For all the talk about iconicity, many of these monoliths are not built for longevity. Therefore in we hope to achieve the ultimate building design to accommodate all urban needs (economical long term cost, improved air and water quality for user and community, occupant health and productivity)

2. Green Glitch Overture

Vertical office workplace has been an ever evolving building typology; one that has been synonymous with leasable area efficiency for a very long time. This paradigm leads to bulky office buildings, covered head-to-toe and fully air conditioned. In an urban context, nature and the environment are often dismissed, and this is especially true in Jakarta, Indonesia. An 'error' or anomaly is needed to shift the paradigm of tall office building design.

"Green Glitch Overture" is an anomaly, or an 'error', that presents a new start, an overture, of green building design. A large-scale monumental green project that we hoped to be the pioneer, a pilot project for green office buildings in Indonesia. Combining social, economical and environmental sustainability by developing a mix-use tower of offices, co-working spaces, and commercial developments, Green Glitch Overture aims to shift the paradigm of the modern day workplace, where environmentally friendly comfort leads to work productivity and innovative thinking.

3. Redefining Modern Urban Workplace

We see a lot of office built without considering the possibility of preserving energy and contribute to the city as the primary problem of urban area in Jakarta. With this in mind, we came up with the "Green Glitch Overture" concept to make a design which contributes to the city by reducing CO₂, helping to filter river water, and also using solar panels and wind turbine to fulfill its own energy needs. Our goal is that many people sees this 'error' as the opportunity to make a better city in near future, which contribute as well to the future development of our developing country.

4. Site Description

The site chosen for this project is located in the heart of the city. It is also considered to be the most active area in Jakarta, with many tall buildings and also residential housing in its area.

Design

1. Co-Working Space

Co-working space is a working place system that allows the user to expand their networking by making non-partitioned workplace. Supported by its flexible renting design, co-working space become the one of modern office culture. Its flexibility lies in its renting parameter, which consist of one to many tables, one day to one year renting period, and one to many facilities. With this system it is possible to accommodate all type of company, even if it is a small company to a very big company. Therefore we can say that this system opens up new opportunities to all residence.

Our design puts the co-working spaces on the public area (ground floor to third floor). Our modules entirely made from 9x9 m² based on its structural grid with a small outward extension. This extension provide natural lighting (also helped with solid-void mass composition) and breathing space for air flows. To

filter the sunlight and air pressure (especially on higher floors) we use framed system façade.

2. Office Tower

Generally speaking, typical office tower nowadays consist of the same layout and glass material on its façade. For this exact reason many offices have an entertainment function (such as commercial function) on its podium area to accommodate its worker. We conclude that this type of monotonic expression of the building affect its user as well, therefore we came up with a new concept to make indoor garden on every floor that can be access through every office room. To maintain its sellable area we also made the indoor garden to an outdoor meeting room area, so we can achieve the 20%-80% non-sellable with sellable area ratio.

3. Commercial Symbiosis

Aside from breaking the monotonic office lifestyle purpose, the commercial on this mix-use building is also designed to interact with its surrounding. The commercial function itself can provide primary to expensive needs for all kinds of people while becoming a vocal interest point for publicity. With increasing publicity comes more income for the building itself, therefore it is a win-win symbiosis.

4. Accessibilities

The mix-use building needs to be reached by people from all over the country, therefore we make the site accessible from two sides while keeping the original traffic orientation in mind. The site is designed to be a pedestrian-oriented landscape so it can easily accessed by walking. The site also provides bicycle parking spaces as a form of campaign for reducing the use of gasoline generated vehicle.

5. Co-Working and Commercial Space Environmental Comfort

For the podium environmental comfort which consist of co-working and commercial function, we designed a solid-void mass composition with a large vide in the middle of each function area to provide natural lighting and making air breathing through the building.

6. Office Tower Environmental Comfort

For the office tower environmental comfort we make an indoor garden on each floor with office function as a response to modern urban planning (improve the landscape of public park for the people and environment.) This garden also hoped to be able to raise the productivity of the workers by 'a change of scenery'. This new vertical experience is also made to contribute to reducing the CO₂ on higher atmospheric level above the ground.

7. Rain water Mangement

Indonesia is a country with heavy rainfall rate. Therefore, rainwater is potential to fulfill the clean water needs. Two rainwater containments are installed; one is placed at the center of the building, at the base of the deep void; one is placed near the main road, near the city's infrastructure. The void water reservoir is designated in containing the rain captured by the building tower. The other one is for containing the rainfall on the overall landscape and the building's roof gardens. The captured water is then filtered and used 80% for the building for flushing and to watering the plants, and the remainder is released to the river and the city's sewage network.

8. Renewable Energy

- **Ciliwung River Rejuvenation**

The water needs for building operational can result in water scarcity in the surrounding district. The rain harvesting alone wouldn't be enough to afford the building water requirements due to tentative annual rainfall . Thus, the needs is fulfilled by utilizing the natural resource from Ciliwung River. Along with its purpose to fulfill the buildings needs, the water utilization of Ciliwung River is done to reduce excessive water volume in the monsoon season and rejuvenate the Ciliwung river by filtering the water before it is release to the river.

- **Electricity Resource**

The building's electricity is produced by renewable means, which is by wind and solar energy, utilizing the climate to its fullest. The building's massing program is designed with the sun radiation effects in mind. The sides that is exposed to high amounts of sun radiation are installed with photovoltaic solar panels. The tower's form creates a wind tunnel effect, facing the side with the strongest wind current, simulated with computer software, to make further use of the wind power.

- **Green Material and Plumbing**

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10.Co-Working Space Environmental Comfort

The co-working space is very open in its layout; with a central void bringing in natural light and ventilation. One co-working spot is 12.72 metres long, which is wide enough considering co-working spaces are usually used by small companies and startups. Amenities for the users include café, libraries, bookshops, even music studios, all to accommodate the co-working office that has a more relaxed, creative, dynamic feeling to it.

The co-working space has its unique façade which is derived from the main theme – pixel. Within the podium pixels climbing the office tower, the podiums' square modules are broken down into same-sided squares, almost fractal in nature, and then are punched out at different intervals and applied with a different pattern at every module. This, creates a pixel square-infested façade which when viewed from the interior, brings forth an interesting play of shadow and light.

And the façade is not just a functionless form. It also acts as second skin which filters sun radiation while still letting some in at a comfortable intensity. Its porous nature also allows air to come in, creating a cross-ventilation in the interior which is sandwiched between the exterior and the open-inner court.

11. Ventilation

The building uses the radiant cooling system as its core air-conditioning system. Cold water is circulated throughout the ceiling which is made from a conductive material, which then radiates cool air to the space beneath it. Since this system only lowers the temperature to the comfort zone but not exchange the air inside with fresh air, a separate ventilation system is installed. Fresh air is brought into the void inside the raised floor of the office, and the ventilation grilles on the floor board will circulate fresh air. The used air is then vented from the building via the duct in the ceilings.

Because the ventilation and the air-conditioning system is separate, the ventilation load is reduced, so the ducting can be as small as the space below the raised floor, and the mechanical ventilation load isn't as big as conventional system, saving floor-to-floor space, and also energy.

12. Natural Lighting

The building utilizes natural lighting to its fullest, first and foremost, by how the building's masses are positioned. After the massing has been adjusted to benefit from the sunlight as much as possible, the façade is tailored to receive as much natural light as possible while blocking as much heat and radiation as possible, both at the tower and at the podium. The podium uses double-skin façade, using pixel-patterned modules to filter excessive radiation. The tower uses double-enclosed-glass which traps heat that enters the building, and an opening is made, covered in steel grille, facing up and down, in order to avoid direct strong winds at the tower's height.

This design process has been simulated and reached platinum rating of GBCI.