

GOLDEN HUB

The 7th Virtual Design World Cup

INTRODUCTION

"Golden Hub" is a sustainable development plan for Yangon city. In order to improve the traffic problem, disaster management, and lack of electricity. This plan combines residential areas, commercial activities and the use of renewable energy sources with the BRT system and transit station while combining eco-design. Most importantly, we incorporated the concept of mixing different ethnic groups in this plan, show respect and harmony for the culture of Yangon. In addition, the plan has been carried out using simulation analysis software and gets a perfect score on availability.

DESIGN CONCEPT

Inspired by people's beliefs in Buddhist sacred and samsara, we take "circle" as the main element, blend the night-glowing stupas into the BRT stations, with the light illuminate the night as round ripples. Just like the BRT, slowly infiltrates into the urban environment. Besides, our ecosystems are associated with the elevated BRT to preserve the eco-system and keep the clear view of Shwedagon Pagoda, make the city's original culture features blend into the station in Yangon.

ECOLOGICAL BRIDGE

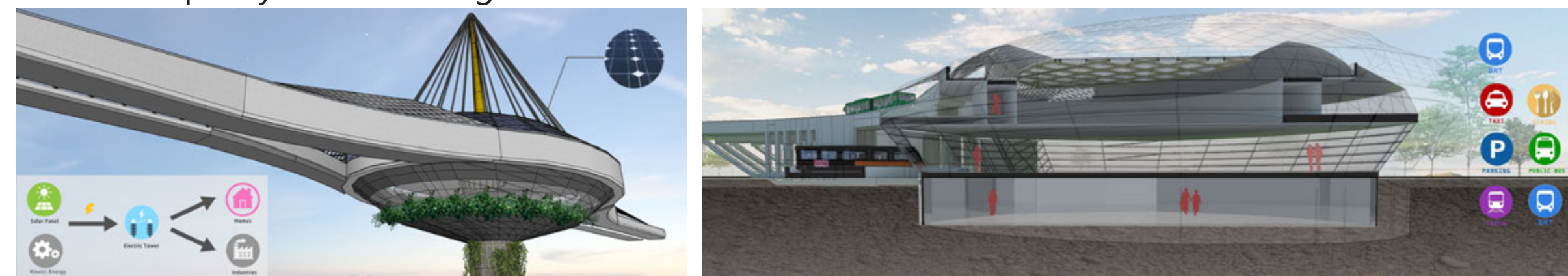
Another significance of eco-bridge is that, it's an aisle for animals, so that we can reduce the influence of the road cut off on biodiversity. Therefore, we have the symbol "unlimited" represents a sustainable ecology, which echoes the Buddhist concept "reincarnation", to make eco-bridge a continuous, circular road space for preserving biodiversity. There are power stations in response to different locations. And each pier of the stations are covered by climbing plants as a contracture idea. It is not just a place to take transportation, but a space for the public to take a rest and for the animal habitats.



TRAFFIC & ENERGY ANALYSIS



As the "Asia frontier", the Yangon traffic plan is the first priority for the government. Our BRT system in Yangon linked to a traffic network. At the same time, in order to keep the pagoda skyline, it's divided into elevated BRT stations and underground stations. For carbon reduction, each station has independent power generation methods and functions in response to different areas. BRT is independent-powered because of kinetic energy power systems. And transit station combines the public bus system, BRT, train and taxi together. We also used the slope to collect rainwater into the drain hole in the middle of the road. In this way, hope this plan can promote the usage of public transportation and improve the residents' quality of life in Yangon.



FACILITY PLANNING



Surrounding Areas of Transit Station :

Keeping the symbol "circle" around the transit station square, we provided a cool-down crescent-shaped pool for the lantern festival at night. The lights reflect on the water passing a sense of historical and cultural atmosphere of Yangon.

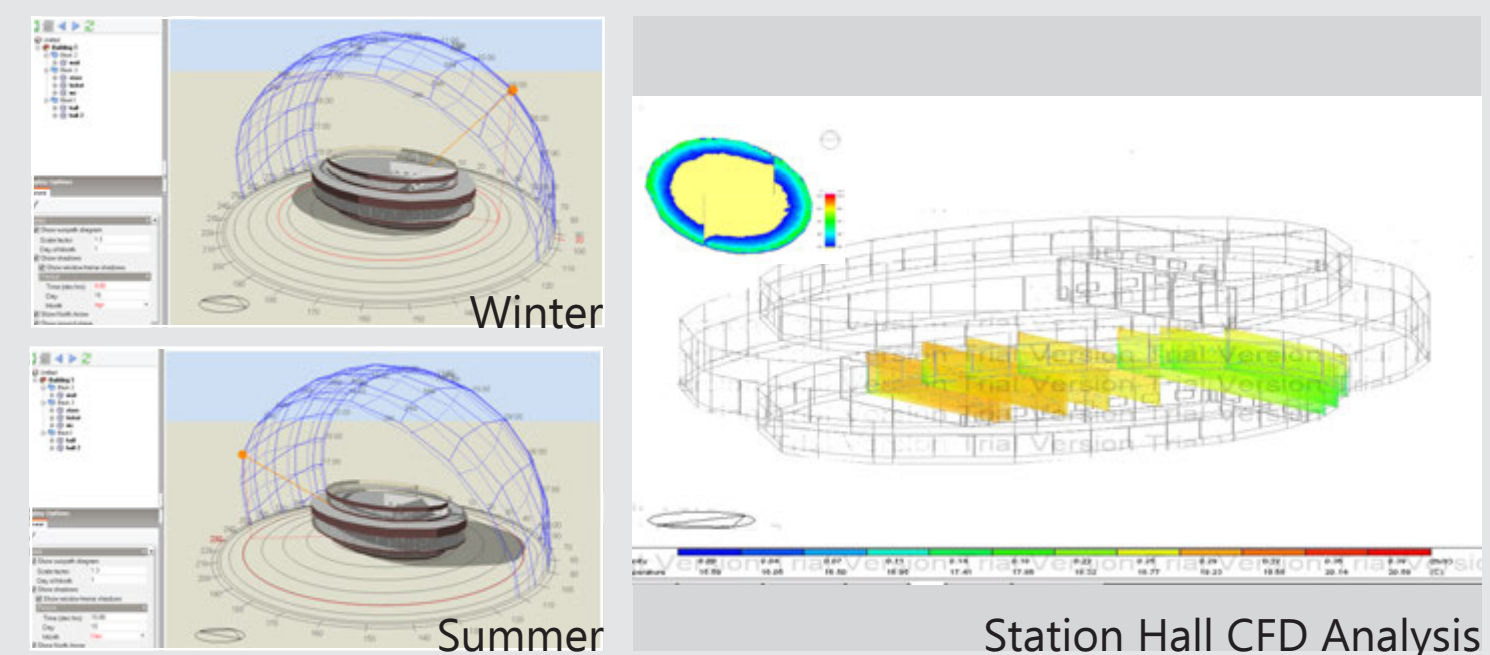


Connected the Yangon Railway Station :

Behind the transit station, we used circular pavements which cross the rail road track and connect to the platform. The pavement is also a continuity of ecology and reforestation.

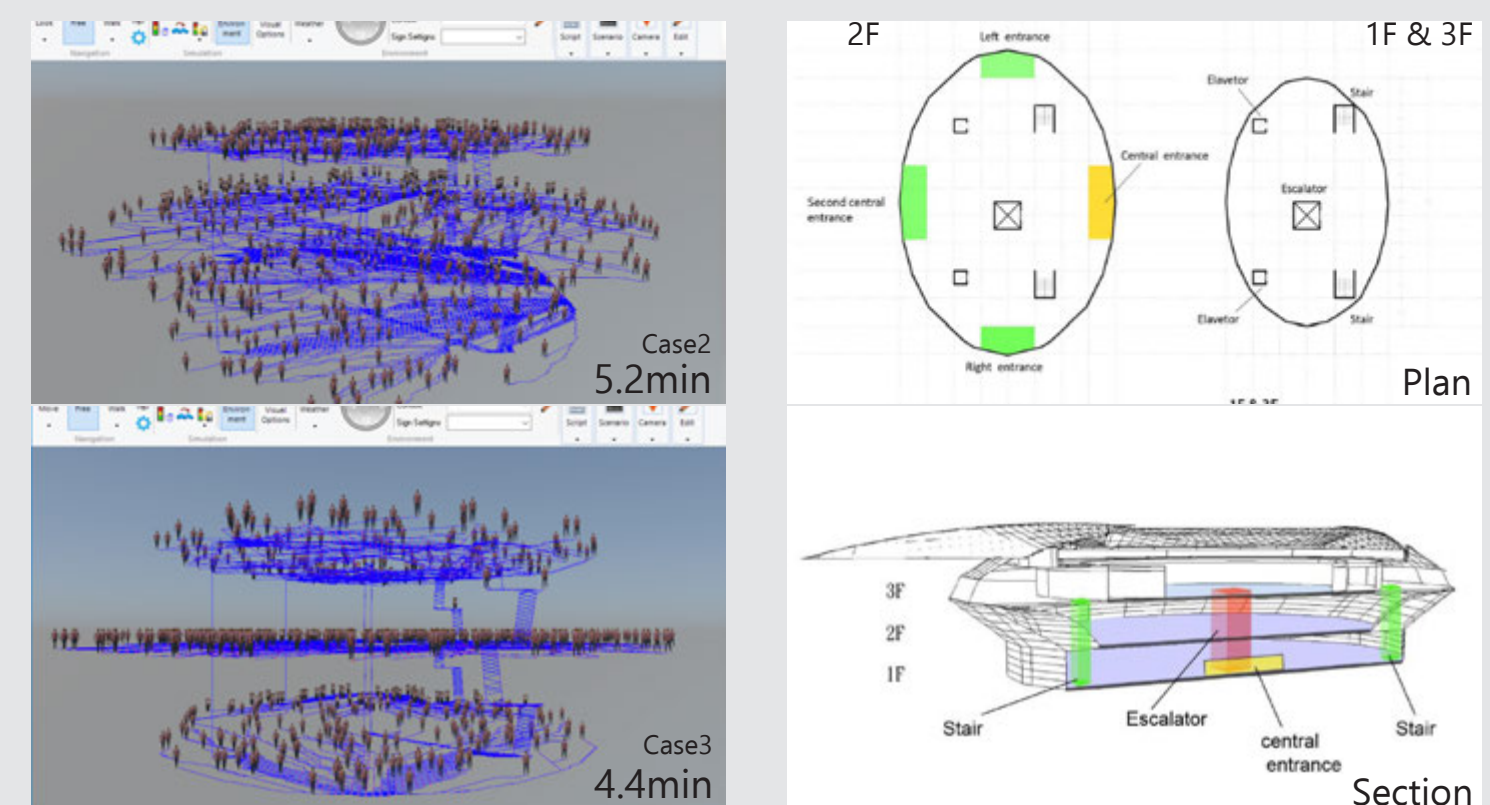
ECO ANALYSIS

To achieve energy saving and reduce carbon emission, we reserved the original tree species and connect the original green space to achieve ecological continuity. Therefore, we used the "Designbuilder" to analyze and simulate the sun and lighting system, also using "CFD" to analyze the interior of transit station.



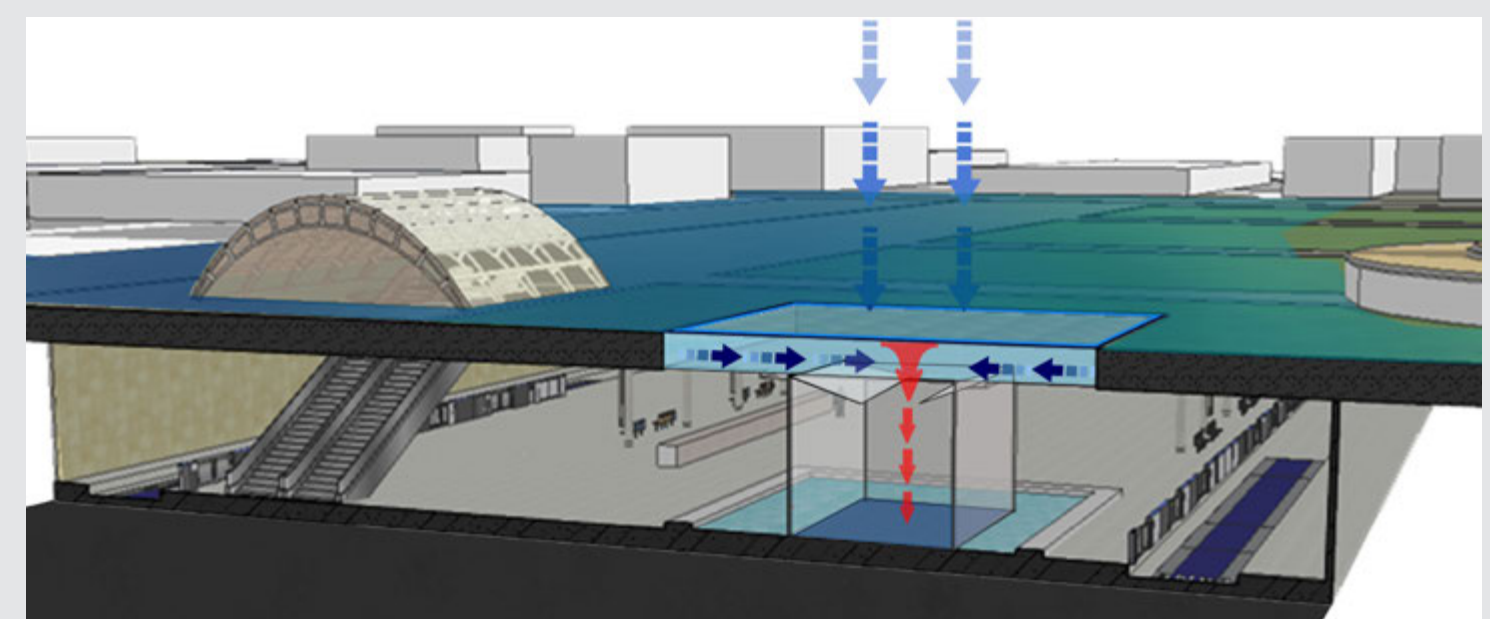
DISASTER PREVENTION

We used "Exodus" to analyze the evacuation of transit station with 2000 people, and there are three projects to be compared. The Case I is to evacuate by walking stairs to the four exits; the Case II is to evacuate only from the hall while all the lines can be used; the Case III is to evacuate only from the two exits on the left and right sides while all the lines are still available. The result shows that the evacuation time were around 5.7 min in Case I, 5.2 min in Case II and 4.4 min in Case III. Thus, Case III is the best evacuation project.



FLOOD ANALYSIS

We proposed a "Road Drainage System" and flood detention pool to improve the existing flood problems, using the "UC - win/Road" and other software to simulate the relation between actual rainfall and the flood extent of Yangon city and to discuss the rise of the future sea level, and implement the most effective precautionary measure.



Underground BRT Water Drainage Function