

Renewable Resources for Self-sustainable Organ

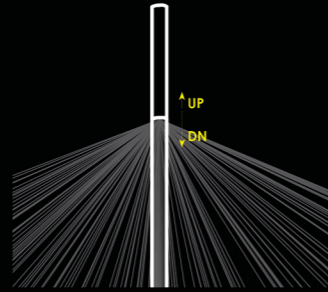
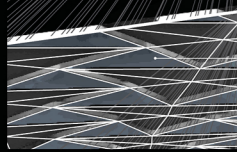
Even though the site is built as a park, it is not a comfortable place to take diverse activities for visitors or residents because of the large amount of solar heat gain. But, the columns spread at 15-meter intervals for flexible site design are designed to respond to the sun and create shade while folding or unfolding like an umbrella. The form of the canopy is inspired by the identity of the site, Abu Dhabi and desert, providing an iconic public brand. It spreads broadly during the day, but at night it folds and changes into lighting, as it looks like flowers are rare in desert.

The art can be used permanently without additional operating costs because the PV panels collect energy and consumes the energy it stored during the day for light at night. A pipe with a smaller diameter was inserted into the hollow steel pipe column to adjust the height. The height can be adjusted to the program of the entire site, sometimes to be elevated as a gate for festivals, or to provide an optimal shading area, thus creating a dynamic space and having a constantly changing identity. To reduce wind load, the canopy height can be adjusted when the wind storm happens.

There is no doubt that the Starlit Stratus will enable new surreal space experiencing, just as meeting a mirage in the desert.

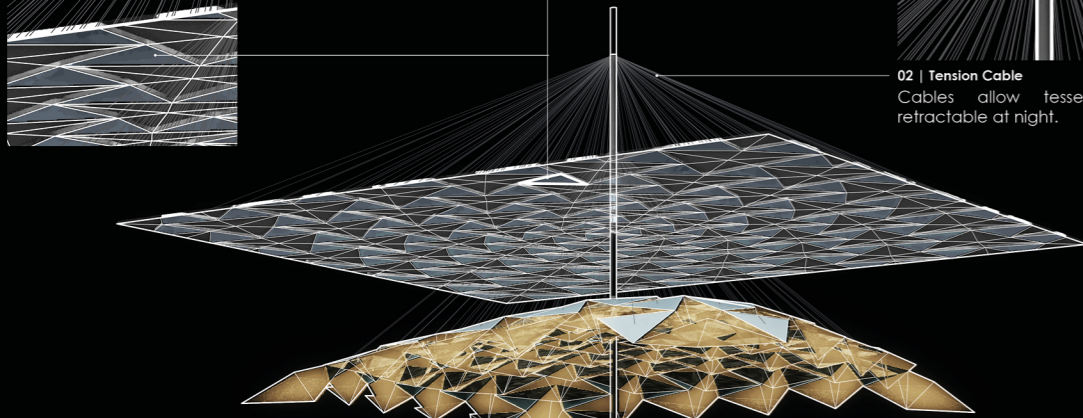
01 | Hydro PV or Solar PV (1.2m x 1.2m 127 Triangles per Canopy)

Hydro PV panels works like 3D Solar Cell, so the all cells can response for the best result of the sun energy production. The assumption of the energy producing efficiency could reach to +40% instead of 20% conventional PV panels. When it accumulates enough energy to return to use the lights at night, extra excess accumulated energy will spend to collect moisture in the air and be stored as water.

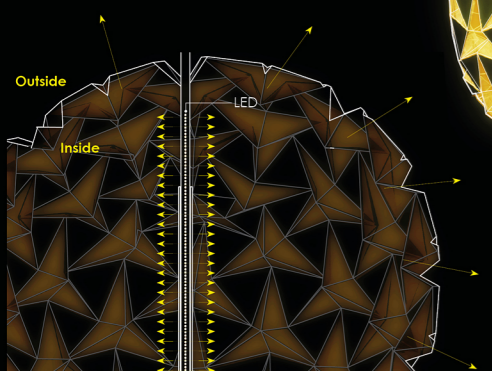


02 | Tension Cable

Cables allow tessellated surfaces retractable at night.



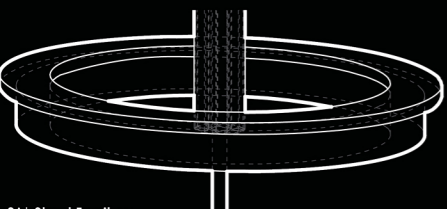
TENSILE MEMBRANE FABRIC



03 | LED Light

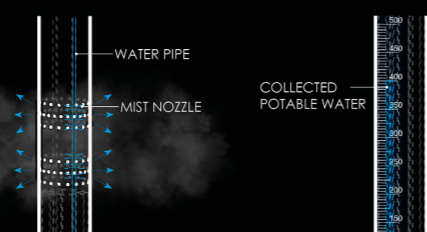
Unlike a typical folding methodology, the pattern took from one of Ron Resch's patterns to make it feasible to act a light fixture at night. Certain triangular geometries are made of a conventional rigid PV panel (Hydropanel), so that it collects solar energy. The remaining geometries are made of fabric so that it easily can be fold and unfold. At night the light passes through these fabric geometries shaped like stars.

When it accumulates enough energy to return to use the lights at night, extra excess accumulated energy will spend to collect moisture in the air and be stored as water. The stored water is transparent in the cylinder at the eye level so that not only the day's record of the sun energy can be watched, but also it is used for educational purposes. In addition to the cylinder showing the degree to how much water is stored around the columns, we can also integrate the street furniture on site. It can be a bench or a planter box, or can be integrated with a information kiosk or bending machine by adjusting the height as needed.



06 | Street Furniture

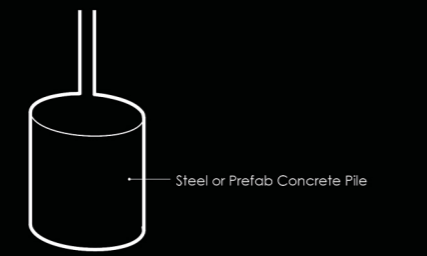
Optional urban street furniture such as bench, high table, kiosk, cage of emergency water storage or vending machine can be attached with the future development. It can be harmonized with landscape planters and serve as a part of the art.



04 | Fog Generator

Solar-powered and infrastructure-free drinking water solution with PV panels. Ambient air is drawn and water vapor in the air adsorbs onto advanced hygroscopic materials. That creates condensation. Then it is collected in a water tank. The entire process is powered by solar panels, therefore it is a totally self-sustainable technology.

The water primarily serves to provide fog on a hot day, yet secondarily to allow drinking water to be provided in the park if the technology (Currently applied in market with high initial cost) permits it to accumulate enough in the potable water. In UAE, municipal tap water is not suitable for drinking, so that providing potable water should be considered one of the most significant resources than any others.



07 | Foundation

Pile structure to tie with the bedrock

Time Sensitive yet Energy Collecting & Light Emitting Art

