HYDRASPORE SYMBIONT RENEWABLE EVANESCENCE



HYDROSPORE SYMBIONT - Scale & Structure

HYDRA-SPORE SYMBIONT STRUCTURE

The Hydra-Spore vertical structure is made of concrete and reinforced steel that rises upto 20 ms with varying diameter (namely 10ms,15ms & 20ms) and stand over a body of water 5 meters deep. The main energy generating ring is located at the neck of the structure over the water body. The main crescent shaped mechanical steel arms hold the engineered acrylic strips which comprise of spores connected to galvanized cables. The two mechanical arms attach to hydraulic springs that move with the spores that expand when they absorb moisture and contracts when they dry. This forms the heart of the engine and the mechanical muscle is driven like a piston as the humidity of the surrounding air increases because of the evaporation that takes place both inside and outside the structure.

The vapors of evaporation rise to the spore bed through natural convection. The structure is cladded in acrylic panels that act as a fin. When they reach the maximum expansion, the acrylic panels on the shell of the HydraSpore open, allowing the water vapor to escape. Eventually, the humidity reduces which results in the spore's muscle contraction, causing the fins to close. This closing of the fins stops further vapors from moving out, thereby allowing vapor to build up within the column.

CLIMATE & SCALABILITY

A benefit of vertical designs is that they can take advantage of the wind, which facilitates evaporation more effectively than horizontal designs. Spores will need to dry fully to become functional again, and to facilitate this, the tall Hydra-Spore Symbionts will be able to capture dry air at the height attained when expanded, i.e. open fin condition. The aluminum fins serve a dual purpose. On one hand they close during vapor build-up and on the other serve as spore protection during rainy/stormy periods. If spores aren't exposed to water directly, it can generate power even during rain, because evaporation can still happen when it is raining. The temperature of the surface is usually warmer than air, so even though there are water droplets in the air, evaporation can take place at the surface. HydraSporeSymbiontParkisenvisionedtobeapublicspherethatisanemblemofcreativity, environmentalism, and social inclusiveness located in St. Kilda Triangle, Port Phillip. The aesthetics of this park are geared to enhance an urban experience for human contact. The multicolored structural fins and their kinetic energy based on the stage of operation enables one to visualize and understand the stage of the vapor cycle of the biological entity which can exist in a dormant state for hundreds of years.



HYDROSPORE SYMBIONT Completely CLosed

HYDROSPORE SYMBIONT Partially Open





HYDROSPORE SYMBIONT Completely Open

