*Fly Ranch Weather Station*

 The Fly Ranch site exists in one of the most environmentally sacred and unique landscapes in the US. The deep time history of the Basin and Range generated landscapes that challenge a human perception of scale and phenomena, thereby leading people to question contemporary societal constructs as seen in Burning Man’s 10 principles. The intent of this design is to highlight the natural phenomena of the site at a human scale, guiding future development and visitors on the site to observe these forces as a key feature to the landscape and their place within them.

         The design is comprised of three main devices that each occupy a different part of the site. Each device is a skeletal metal structure with a wooden deck and various ‘membranes’ that respond to one of three elements: sunlight, wind, and precipitation. The three devices (Stations) are named after the respective territories that they occupy; Geyser Station, Playa Station, and ’97 Burning Man Station. Within these territories, the devices roam (avoiding the naturally sensitive zones) as a response to the site’s climate with the intent of providing the necessary amount of shelter and coaxing people to inhabit them.

Shelter is achieved in the Stations through the vessel’s response to each respective element. Each Station has three corresponding vessels, one responding to wind, one to sunlight, and one to water. The wind vessels are a series of long tubular membranes that inflate in response to the winds on the site, and the Station orients itself to activate the membranes based on the wind direction. The sun vessels are the largest membranes and respond passively to solar radiation. The solar radiation is captured by the black membranes that grow largest when the sunlight is the most intense. The water vessels are elastic membranes that sit at the roof, where they catch water in the forms of precipitation and vapor to increase their vertical impact on the space. The Stations use these vessels to generate a desirable shelter for humans in their respective territory through the means of their orientation and location.

The Stations move around the site by responding to data collected by a series of small weather recorders, making use of microclimatic changes throughout their territories to find a location that would generate the most suitable shelter using the vessels. Ambient air temperature, cloud cover, and precipitation are factors that contribute to the Stations location and level of protection. In a moment with high ambient temperatures and low cloud cover, the Station would seek a place and orientation where it could activate the membranes to provide shade and allow airflow, and on a day with high winds and low ambient air temperature, the Station would block the wind and allow sunlight through. The movement is powered by a collection of small solar cells applied to the membranes that then provide power to a battery bank and saves energy to be later used by the low-speed motor and lights.

Because the design is not intended to create a conditioned space, the energy requirements for the system are low, with the movement of the Stations making up the majority of the power. The design’s structure is limited to aluminum framing and reclaimed wood decking, both common forms of construction found in the region. The membranes all use a similar fabric that varies in density and elasticity for each of the vessels’ desired response.

When placed in the site of Fly Ranch, the design serves as an interactive landmark for people to approach and question, inhabit and contemplate, observe and imagine. Each moment that passes is a special one, the membranes will never hold the same composition in relation to the landscape, or even to themselves. Considering how drastically the space within the Stations can change in time and in climate might provoke people to step back and consider how their own body and creations respond to these same variables, attaining a deeper understanding of the importance of context on both a small and large scale.

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