HYDRO HABITAT

TECH

The technology employed in Hydro Habitat ranges from traditional hand operated (but motor assisted) pumps, to ultra-efficient PV panels; we never set out with the goal of creating a high tech or low tech intervention on Fly Ranch, instead we focused on what would best benefit the site and our goals for it.

PV:

The PV panels are projected to operate at high tier industry standards throughout the year due to the extreme abundance and intensity of sunlight on Fly Ranch throughout the year. The panels are located on the southern façade of the Hydro Habitat to maximize output.

Battery:

The efficient PV panels more than fulfill the energy requirements, so the excess is stored in batteries located above the water containment unit. Only 10% of electricity collected is actively used, so we envision a future where excess stored energy can be reused by the town of Gerlach, or for auxiliary needs on the Fly Ranch site itself.

Water Pump:

The hand operated – motor assisted – pump serves to collect water for human and non-human occupants of Hydro Habitat. It collects more than enough ground water to serve its needs; the amount pulled from the ground however is minimal enough where it will not affect the water table or local ecosystems. This water supplies the misters, which create a lusher hospitable environment for all.

ACTIVITES

Hydro Habitat was never designed with a specified list of programs in my mind, rather the project operates as a framework to empower the occupants to realize and act upon their own personal vision of Fly Ranch as a generative space. By placing human and non-human occupants in such proximity – and actively encouraging a symbiotic relationship – we hope that people gain a deeper appreciation of the ecosystem which they occupy. Hydro Habitat is for the artist, the scientist, the dreamer, it’s a place for people to realize they are stronger together than apart.

INPUT

Solar: This largely depends on the amount of sun present over the course of a day; however, seasonally we can project that spring-summer will offer more input than the winter months.

Battery: An average over the course of the year estimates that we can generate 190.28 kWh per day using our PV panels.

Water: A high estimate of water per day would be 800 gallons; however this is assuming 96% of that is actively filling the reserve water supply, if we remove that entirely the estimate drops to 32 gallons per day.

OUTPUT

Solar: Once again this depends largely on the season, but during the peak of the year we estimate that the panels will operate incredibly efficiently with a low amount of energy lost.

Battery: 90.61 % of electricity generated per day would be stored. 9.39% would be used. 2.9% of total electricity would go towards the water pump. 1.23% of total electricity would go towards the lights. 3.36 % of total electricity would go towards the solar water heater. And 1.9% of total electricity would go towards misc.

Water: 96% reserved. 0.29% drip irrigation. 0.58% mister. 1.2% non-human occupants. 2% human occupants.

MATERIALS

Main materials used are bamboo for the flooring, steel for the light but strong connective frame, and canvas for the operable paneled façade. We believed simplicity was best suited for an environment as beautiful as Fly Ranch.

COST

We believe that one hydro habitat would cost around 20,000 dollars to develop. The high front end cost more than makes up for itself over its lifetime when one accounts for the positive environmental impact, energy stored, and appeal added to the site and the surrounding area.

DEVELOPMENT ON SITE

We would keep this simple; try and get a successful water storage unit in place as well as the auxiliary misters. If the backbone of the project proves to be a success the rest can be implemented with ease.

ENVIRONMENTAL IMPACT

As natural and material resources become scarcer, an equilibrium between human intervention and pre-existing ecosystems must be struck. On Fly Ranch, the Hydro Habitat will serve as an infrastructural keystone for humans and animals alike.

These habitats exist to amplify and strengthen the natural ecosystem while providing human occupants with power, shelter, and water. It features different levels dedicated to different shared spaces -- whether between humans and non-humans.

As the searing Nevada sun beats down harsher through the midday, pipes that are connected to the scaffolding carry cold water to passively cool the space, giving them comfort and a sense of relief from the Nevada sun. As mist flows out from the bottom, the base slowly becomes less opaque and the structure, itself, looks as if it were floating on a cloud.

On the outside, as the mist pours out and encloses the structure, it gently meets the land and waters the plants and animals that have taken shelter underneath. As the mist feeds back to the land, it also nourishes and provides a beautiful and lush green space that become food for the animals around. This misting will provide not only as a means of production of food, but also create an area of shelter and rest for these animal inhabitants.

On the inside, the spaces allow people to string up hammocks and lay down sleeping bags for extended occupancy. While in this habitat, humans have full access to water but as stewards to the site, the occupants are expected to pump mist out for the land and animals.

Living in the Hydro Habitat means serving not just oneself but serving the environment around them. These habitats serve as a constant reminder that as occupants of this space, they must take on responsibilities of caring for the environment in which they are residing in. Through this, residents within the site can not only learn how to take care of themselves, but how to create a personal connection with the land they are on.

Once humanity know longer has a place on fly ranch the structure will begin to degrade, the canvas panels will fade into the wind, the PV panels will cease to function, all that will remain is the steel skeleton of the Hydro Habitat. In a final gesture of good will to the land around it plants will overtake the structure and the remnants of the Hydro Habitat will become a small place of refuge for the animals that occupy the land.