**HYPHAE**

**VISION**

**The vision** of the design is to enable the growth of a community that will work symbiotically with the environment, nature and the surrounding events. The settlers will inhabit the area using structures created with the help of **mycelium**.

The essence of the design is creation of a building system and a construction principle of **modular objects**, which work on the **principle of upcycling using natural and artificial waste as substrate for mycelium growth**. The structures are variable, decomposable and easily assemblable.

The system is designed to respect and preserve the existing environment without any need of a negative intervention. This long-term sustainable way of building enables fast adaptability to changing natural conditions and at the same time provides an environment for meeting basic needs of the community: **shelter**, **production** and **culture**.

Developed vision goes hand in hand with the principles of the Burning Man community as well as the principles of a circular design.

**TECHNOLOGY**

The technology, which is **innovative**, but proven, combines **traditional** N. Paiute building techniques with the use of **fungal materials**. The mycelium is used as an ecological binding substance, which can be grown locally and can be easily replicated.

The construction system is based on 2 main principles using mycelium. Both are constructible at the site **within local conditions and materials**.

1. Using **plain mycelium** as a sheet to cover wicker structure - this way the building can have variable transparency and can serve as a shelter for many purposes.
2. Using **mycelium as a binder** for **recycled materials**. This method allows recycling of almost anything that exists in the area (mostly waste from the festival or from the ranch). This waste can be chopped and mixed with mycelium, which binds it together and creates solid objects in any shape and size.

**FUNCTION AND ACTIVITIES SUPPORTED**

The mycelium based structures can have variable thickness and transparency, so it can serve for different purposes. The main use is to become shelter more or less transparent for:

-very little transparent for **living**

-half transparent for **community activities** in form of hall or auditorium

-very transparent for **production purposes** in a form of greenhouse

-half open as a protection for routes

-and many others…

The main focus of the mycelium usage is to develop a primary building, which ignites the process of assimilation with the land – a building which gives shelter and conditions for growth of mass of mycelium for spreading the settlement. Then, when the first settlement – home of mycelium, is built, the grown mycelium from this production building can be used for another housing buildings, for more production buildings or as construction material for The Burning man festival.

**CIRCULAR ECONOMY**

The idea of sustainable growth is based on recycling used materials with emphasis on importing as few foreign materials, as it is even possible. Initial point for growth is to gather all spare resources from the festival and reuse or recycle them.

**income needed:**

-material (from nature, festival, ranch) such as chopped wood, biowaste, ashes etc.

-water (collected on spring from the runoff water from surrounding mountains

-mycelium (once cultivated can be replicable)

-human energy and enthusiasm

-wicker from local sources

-conditions for mycelium growth: regular summer temperatures

**outcome gained:**

The idea is to create not only structures for use, but also a life rhythm of the community. If enough of human energy is invested, there will be shelters and basic cover structures for all purposes based on the needs at the moment. The system provides:

-living shelters

-cultural halls

-water collection

-infrastructure protection

-production areas (greenhouses)

**dimensions:**

Since the system is not a specific object but more of a building system, there are not specific dimensions set. However it is important to keep in mind the level of transparency for different purposes.

**The complete list of materials needed:**

-chopped substrate (recycled)

-wicker

-mycelium

-water

-sun

-human energy

**the annual cycle**

The system works with the change of seasons, therefore there are different activities to be done during each season:

**spring**

In spring, the initial growth of material for settlement will start using the water, which comes from the surrounding mountains, and waste (wood, ash, etc.) from previous festivals. For finishing this substance, the mycelium is needed. When all mixed together and left in proper conditions, the first mycelium material is grown.

**summer**

During summer, there are temperatures rising outside enormously, which provides great conditions for drying up the grown mycelium plates. Those can be afterwards hot or cold pressed, which gives us the needed properties.

Meanwhile, the main construction, using the old method of payute inhabitants – the wooden baskets, are being built. Mycelium is used to cover those wooden constructions.

In summer, the place will be densely populated, connected by a network of roads and most of the events will take place here. Also, in the late summer, after the main festival occurs, all the waste materials are being gathered and stored for next year use.

**autumn**

In autumn the preparations for winter regime start. Transformation from summer housing structures, which are in the form of sun shades, to more isolating several layered constructions.

**winter**

In winter, when the conditions in the area are harsher, a substantial part of the structures can be demolished, recycled, or used for heating and the number of structures can be preserved only so that they can be managed.

**COST ESTIMATE**

The cost of the structures varies by the chosen size and shape. The main energy invested shall be for educational purposes of the local community. Once there are enough people who know how to use and operate the system, the costs can be very low.

**PROTOTYPE DEVELOPMENT**

Since this is a new building system, the prototypes could be on a very small scale. Solid elements grown from the mycelium would be the essential elements for the workshop to getting to know the technology. This phase would involve participation of the existing Fly Ranch community and everybody who would like to participate. After that, the experienced team would start the prototype of the skeleton and the mycelium skin for the first structure.

The rest of resources should be invested into educating the community members and building a mycelium farm in the area.

**ENVIRONMENTAL IMPACT OF THE COMMUNITY**

Our concept is the principle of building, which can be easily and ecologically produced, can be taught to locals and will persist in the community in the form of knowledge - not permanent material construction.

 According to our concept, the site will be settled gradually and variably, just as it was inhabited by the original population.

The community that will live in the area will have three main centers and connections between them. From these centers, settlement growth will take place as needed.

**production**

in the **northern part of the ranch** there are the most water sources and it is the most distant part from the surrounding settlement, this part should be used - if at all - mainly for **production** purposes

**housing**

the **middle part** will be the center from which the settlement of the area will be developed, this part will be used mainly for **shelter** purposes.

**culture**

the **southern part**, closest to the surrounding settlement and at the same time the location of the Burning Man festival in 1997 will serve as a cultural and iconic center of the community.

Like the original inhabitants, they had to react flexibly to changing seasons and natural conditions, the method of settlement proposed by us is also variable and it is possible to assume different intensity of settlement in winter and summer.

The community will live in the territory in complete symbiosis with the environment. It will use mainly festival waste and local resources for the construction of structures and will respect the natural cycles in the area and use them to its advantage and for the benefit of the surroundings.

It is our goal to make people living on the ranch aware of the need of

harmonious coexistence with the environment and to perceive changes and characteristics of the place as perceived by the former inhabitants.

The resulting community will create a space where people can discover their potentials, to express themselves freely, to form a strong relationship with the environment in which they find themselves, and with that help they have developed a relationship with a slow way of life and found their way back to their roots.