**Veil** ...an armature containing **void**

**Provocation.** Buildings have become inherently flawed as a wave of sameness has washed over new residential architecture in America. With a building’s form eclipsing a building’s function, western architectural practice has de-evolved to rely on the import of low-cost, non-native building materials from foreign locations to one site in order to reach a preconceived/preformulated design absent of considerations for local site context. Meaning that before construction even begins, the building has already accumulated a net carbon loss from excessive transportation across local, state, and even international lines, all in efforts to pander to inexpensive construction solutions that generate a proliferation of cheap livable spaces.

This was not always the case. Buildings were once site specific. Consider the wickiup – a dome-shaped hut native to the Northern Paiute people – in which long flexible branches were bound together with yucca fibers to create a lattice framework for sagebrush or willow to be fastened/woven to. Or consider the hogan – a cone-shaped, adobe hut native to the Navajo people – in which a wooden armature (wattle) is then clad in mud or clay (daub). Through an understanding of this history, these low tech building solutions provide blueprints for designing through local materials, applying an architectural vernacular relying solely on the native resources surrounding the existing site and ultimately eliminating the environmental impact associated with material transport. As we develop the future of the site, we must acknowledge the past and recognize the original custodian’s connection to the land.

**Proposition.** Fly ranch, a site rich in natural but precious resources, provides a sea of possibilities for development. Much like the explorers journeying across the vast oceans to discover what lies beyond the grasp of their current understandings. Ships adrift in isolation from the surrounding world, a closed-loop system for harnessing energy and sheltering crewmates, requiring the creative re-use of limited resources like food and water when separated from ports for extended periods of time. This provides a basis for inhabiting the ranch by creating “ships” isolated within the landscape of the earth – an earthship – in order to create spaces of cohabitation, generating zero waste and providing food and shelter to the new explorers/observers of the site.

Veil leverages the five fundamental elements of the Japanese Buddhist belief – wind, water, earth, fire, and void – to create shelter. Veil is a pneumatic armature containing void. By challenging impermanence, a temporary formwork becomes permanent as a three-dimensional, flexible cement-impregnated fabric, laminated against a UV treated polyvinyl carbonate membrane, hardens through hydration. Wind – in the form of air – inflates the form. Water hydrates the cloth and catalyzes the structure. Earth – a mixture of mud, clay, sand, and invasive/organic plant/aggregate – clads the armature. Fire – in the form of solar heat – hardens the earth – a subtle nod to early wattle and daub construction techniques. The resulting product is a void, framed by a veil, contained within the landscape. A pavilion which becomes individually unique with each added layer of clay – shaped through the collaboration of the community. Through their hands, they leave behind their identity; the residue of their fingerprints imprinted on the sculpted adobe structure.

The structure’s form becomes derived from its function. At the scale of the site, the pavilion craters the ground, creating a protected courtyard within the surrounding ring, deflecting wind while framing horizons, connecting the heavens to the earth. With its expansive surface area, the courtyard aids in the collection of precipitation, creating a large catchment basin with the potential to accumulate 225,000 liters of water annually. Within the interior of the structure lies a sunken greenhouse – a walipini – with a southern-facing orientation ideal for soaking up light throughout the day. This sunlight becomes trapped within the vinyl membrane of the veil, creating a passive-solar heat source for the plants/people within. As nothing is wasted within the construction process, the temporary formwork of the veil finds its use integrated into the final product of the design, a membrane regulating internal heat through solar radiance.

It contains spaces for harvesting food and processing waste, a system in which precious, limited resources can be re-cycled at multiple stages of the design. Aided only by the natural forces of gravity, the staggered foundation and sloping planes allow water to naturally flow through each stage of re-use. (1) Rainwater is first collected, filtered, and stored for potential use in future sinks and showers. (2) The grey water then travels through a series of planting beds – botanical cells – were the plants absorb nutrients from the water. (3) After flowing through these cells, the water is stored in a deep well to be used in the toilets. (4) Once flushed, it gets evacuated into a black water cistern for the eventual irrigation of the surrounding landscape. Through these conservation efforts water goes through a series of four different use cycles while providing plants valuable nutrients without the overconsumption of limited resources.

Through this system, plants can be grown, harvested, consumed, and composted, becoming the foundation for the next harvest to be grown again – depicted as an ouroboros or the infinite cycle of re-use. Through these understandings, I believe the overall form of the design begins to take on the abstraction of a snake eating its tail, a grand allegory to a continuous cycle of life. What can be abstracted as a snake’s skeletal spine and ribs, is actually a series of staggered archways skinned along an inflated pneumatic formwork. As a construction methodology, this technique can be employed at various scales, from something as large as a building to something as small as a piece of furniture/botanical cell.

Veil opperates under the premise that a small change can create a large impact, in both the observable, the expansion of the formwork during the inflation process, and the non-observeable, the low carbon cost associated with the erection/transportation of the required building materials. This project looks to the past to solve the problems of the present. Rather then trying to introduce some foreign structure to the site, this project tries to create a union between the people, the land and the shelter with the Veil acting as the glue, holding it all together. It is an intervening force that creates an occupiable void within a monolithic earth.