Design Details

Cultural Tension

At UrbnEarth, we incorporated this cultural tension into the design challenge and set out to design an experience that had a minimal impact on the user's lifestyle and would provide consistent, manageable access to safe, fresh salad greens for people who have limited time, lack gardening expertise, and desire organically grown fresh greens at a lower cost.

User Experience & Functionality

In addition to an ideal user experience, we had many plant-based requirements that shaped the physical system design. Using the concept of biomimicry, we drew inspiration from the planet's very own evolutionary design. Biodiversity promotes plant health, but too many plants can overwhelm the user; thus, we designed four identically molded modules to house the plants and keep lower tooling cost. Each module is removable to ensure simple post-harvest composting, and in case the user moves houses, they can take apart the Planter and easily take it with them.

Designing an Eco-System

Bio-Mimicry Inspiration

The reservoir and watering function was the next consideration. When exposed to sunlight on extremely hot days, water can reach near-boiling temperatures, thereby damaging plant leaves. The water reservoir had to be kept out of direct sunlight. We chose to have water move from below the plants by way of a pump strong enough to push water up two feet and disperse it across a two-foot radius, also requiring AC power and a long enough cord. To minimize potential damage during harvest, we designed a pressure driven piston that would raise when the pump is on and recess when not in use. Plants take up water through roots in wet-to-dry cycles, so proper drainage is drilled into each module that diverts into a catchment where excess water can evaporate.

We chose to create the Planter raised off the ground to deter pests and make harvesting ergonomic so users would not have to kneel on the ground. The diameter of the Planter was selected based on an average of arm lengths so a user could harvest from any edge. We also designed the canopy, a protective shade covering that further protected against pests and keeps plants cool during the day while trapping heat at night, thereby extending the growing season of the Planter.

The final design embodies a micro-ecosystem. Clean and untouched water is insulated in the core, away from sunlight and debris. The water is brought up to the “atmosphere” and rains across the soil layer. The canopy acts as the ozone layer, keeping plants protected from the elements, including the life-giving but also harsh UV rays from the sun. The shape mimics that of Greek goddess Gaia, the earth mother who holds the key to sustainable life.