NYIT Brief Contest Report: ARCHITECTURE

DESIGN

We believe that humans can live in harmony with Earth as part of one sustainable ecology. Green Machine/ Blue Space will demonstrate the regenerative power of our commonwealth: sun, earth and living things. Our philosophy is to tread (build) lightly. Our house will do no harm to the environment and will nourish and nurture the occupants throughout the course of its lifetime.

The design separates the mechanics of life from leisure space to create a house of two parts which can be adapted anywhere in the world.

In the Green Machine, the mechanics (power-users, heat-producers) of the house are removed from the living spaces to collectively form the beating heart of the entire house. This creates a warm, dense box that houses the processes of life: A roof garden to grow food that we eat, a kitchen to wash and prepare food, a bathroom for the waste we produce and a non-polluting hydrogen fuel cell that produces the cleanest form of energy. Grey water from appliances irrigates the roof garden and food waste is composted for use as an organic fertilizer. The Green Machine is a microcosm of the larger natural cycle of life.

The Blue Space is left unencumbered by appliances and other mechanics. This large, noble space is open and adjustable for the inhabitants to spread out and live in comfortably. The Blue Space has a second story loft for sleeping or reading with plenty of light from clerestory windows. When up in the loft, one has views of the backyard and the roof garden of Green Machine. A bridge connects the loft to the garden.

Photovoltaics on the roof of Blue Space provide overhangs to shade the south facing windows to prevent solar gain in the summer; the windows allow the lower winter sun to warm the space. Strategically placed windows encourage cross ventilation in several directions and the stack effect in the double height space.

The link between Green Machine and Blue Space is transparent and allows for a view straight through the house, visually connecting the front yard to the backyard. This split closely resembles a southern United States typology called the “Dog Trot” house where the center of the house is open to capture the prevailing winds and provide natural ventilation throughout the house.

MATERIALS

The materials of the house have been chosen responsibly. Blue Space will be constructed out of completely biodegradable compressed straw panels called Agriboard. The panels are pre-cut in a factory like a kit of parts. The parts are assembled to form five modules that can be taken apart, shipped, and reassembled. Agriboard is a structurally insulated panel made of compressed wheat straw between two pieces of oriented-strand-board. The straw is an agricultural by-product that is heated and compressed which releases a natural adhesive that binds itself together without the use of chemical binders or adhesives. The panels are used for the walls, roof and floor and are set in a steel frame foundation.

GLOBAL/LOCAL DESIGN STRATEGY

We considered the need for a global design approach as well as the comfort and ownership of a locally designed home. In tandem, Blue Space and Green Machine work as one complete, self-sustaining unit.

Green Machine is a modified, used shipping container that houses the elements of a regenerative cycle of life. This makes it self-sufficient as long as it's connected to a Blue Space that gathers power from our natural world without destroying it. The Green Machine supports that which is necessary for survival: food, water, power storage and transformation.

The Green Machine is built to be deployed anywhere in the world. We consider the container a universal building material since they are found in every port on every continent. We modified the container slightly, then insulated it for protection from cold weather. The roof garden will cool the house in hot, arid climates.

Blue Space can therefore be indigenous to its locale. Its size, construction, and architecture can change according to the climate and conditions of its site. Our Blue Space is designed for Northeastern American climate.

The NYIT Team is proud to present to the world our entry for the 2005 Solar Decathlon- Green Machine/Blue Space.