

The Omega Center for Sustainable Living
Living Building Competition
October 5, 2007

Omega Institute for Holistic Studies was founded in 1977 at a time when holistic health, psychological inquiry, world music and art, meditation and new forms of spiritual practice were just budding in American culture. The mission was as simple as it was large: To look everywhere for the most effective strategies and inspiring traditions that might help people bring more meaning and vitality into their lives.

Since then, Omega has become the nation's largest holistic learning center. Every year more than 20,000 people attend workshops, retreats, and conferences on its 195-acre campus in the countryside of Rhinebeck, New York, and at other sites around the country.

Guiding the Institute's structure, practices and function are two fundamental promises: 1) Strive to make the Rhinebeck, New York campus a model of environmental sustainability by holding nature sacred; 2) and live lightly on this earth through the food they eat and by the ways they use and generate energy, treat their waste, and maintain their forests, gardens and watershed.

To uphold these promises and to promote the Institute's mission, vision and values of the Institute, the new Omega Center for Sustainable Living will function on several levels to manage the campus' wastewater and care for its watershed, to provide space for teaching and gathering and to serve as a learning and motivational experience for building users and visitors as they interact with the building and site.

Project Background

Omega generates large quantities of wastewater daily. After careful consideration, Omega decided to replace its 50-year-old septic system with an alternative filtration system based on the same natural science as estuaries - nature's own water filtration system. This system and the building that houses its primary treatment tanks reflects Omega's commitment to environmental stewardship and moves toward its goal of reducing water consumption and returning clean water into the ecosystem. Through it, Omega will be able to provide irrigation for its gardens and implement a greywater recovery system, greatly increasing the amount of water that can be reused.

An important motivation for this building and its surrounding landscape is that it also offers Omega a new teaching tool. Workshops will be designed around the ecological impact of the filtration system, so that the Institute can invite:

- area school children to learn about water purification and wetland composition during field trips and on-site classes;
- university students to use the facility as an eco-lab, modeling alternative wastewater solutions;
- surrounding communities to view a working model that will show how they can improve their own wastewater treatment efforts.

BEAUTY, SPIRIT, INSPIRATION AND EDUCATION

Though the most straightforward program for the new Center is to house a wastewater treatment system, this facility clearly has the potential to become a powerful example of transforming Omega Institute's vision and values into the form of an integrated landscape and building that serves the campus both functionally and pedagogically.

Water, as the primary inspiration for the new building, takes on a ubiquitous role throughout the building and site. Its natural presence on the site, its uses on site and within the building, its movement through the site and building and its treatment and reuse systems are all transparent and highlighted. In this way, water becomes the impetus for a series of integrated design features that serve their intended functions but that also present valuable and inspiring learning and teaching opportunities. In one particular instance, a fountain is introduced into the main lobby to remind each visitor of the acoustic and tactile qualities of water. This feature, using rainwater captured from the roof, is intended to remind each visitor of the acoustic and tactile qualities of water and provide a soothing entry sequence into the building. The final form of the fountain will rely on both the team's initial design as well as the craftsmanship of the local builder.

Building Form/Design

The building form largely evolves from the practical need to serve the plants doing the work of wastewater treatment in the Eco Machine as well to provide an inviting and comfortable place for those who use or visit the building. Early research revealed that typical greenhouse design attempts simply to maximize the sunlight to the plants. This defies the desire, in this instance, to maintain comfortable internal temperatures for the workers maintaining the system and educational visitors to the facility. Recognizing that the plants used in the Eco Machine reach a light saturation point at around 30,000 lux -- that is, the maximum amount of light they can physically use -- a design goal became to flatten the amount of light falling on the plants' surfaces during the summer months to this level in order to minimize the heat taken on by the space. Conversely, during the colder months of the year, the amount of light allowed to penetrate the building envelope is maximized, in order to warm or help warm the space.

Similar to the manner in which the building meters light for the plants' needs, the building form and layout work to meter and orchestrate a visitor's experience of the systems at work within. Thus the experience becomes that of passing through, both physically and experientially, a series of layers; each layer "talking" about a portion of the bigger ecological puzzle. These layers of building become an articulation of a path from the Omega campus down to the lake edge, parallel to the path the water takes from the campus, eventually returning to the ground and ultimately to the lake.

Consideration of the properties and characteristics of water, vegetation, people and light influence each design decision, reflecting the building's intended programmatic use, the local climate and its place on the land.

Materiality/Detailing

The architectural expression of materials is one of simplicity and transparency and is heavily influenced by the colors and textures of the region. No effort is made to mask the underlying nature of a material, but every effort is made to express the unique beauty of each. Overall, the strategy is to render the building as a background or a lens through which the Eco Machine and surrounding landscape can be viewed and

understood. Areas in which people will come into contact with the building are treated with more refined materials and detailing.

- Local wood rainscreen siding: Treated as a rainscreen for breathe-ability and allowed to weather to a warm grey hue over time.
- Standing seam metal roof: Chosen for its longevity and natural resistance to decay, with recycled content material.
- Concrete with local aggregates: Used throughout the building for durability, its desirable thermal mass, and as an expression of connectedness to the earth.
- Local stone: Used as a sitting wall around the rainwater collection pond and as an inlay in the concrete floor, expressing the passage from lobby to the Greenhouse or Classroom.
- Concrete block: This material is used in the construction of the Greenhouse walls for its resistance to moisture and its thermal mass. The hollow core of the blocks allow for a simple and effective method to flush heat from the wall.

SUSTAINABLE SITE

Integrated Water and Landscape Systems

Every element of the Omega Institute site development and infrastructure is designed to reinforce an educational and inspirational experience for all who work at and visit the campus that suggests a “water sensitive” relationship between the built and natural environment. This phase of improvements includes arrival and drop-off space, parking facilities, wastewater recycling and reuse facilities, and connecting walkways and paths. Since this space is the first experience for visitors to Omega, its design is most important. Underlying the design team’s approach is an appreciation that all water is a precious resource that nurtures all residents. To achieve this quality, site improvements must meet or exceed traditional regulatory, functional and programmatic requirements, be didactic in form, holistic in function, and above all, create beautiful, inspiring landscapes within the ecological and cultural context of the campus.

The integration of water and landscape systems supports and reinforces the fundamental mission of the Omega Institute: “Through innovative educational experiences that awaken the best in the human spirit, Omega provides hope and healing for individuals and society.”

The proposed site improvements begin to lay a visible framework for how these connections can occur. The water-sensitive theme will be communicated in educational programming developed over time that will utilize site elements as demonstrations. In addition, site elements will also provide opportunities for independent exploration and reflection. Thematic expression will be embodied in subtle landscape patterns and features near the welcome area, classroom building and in the immediate environs. With this in mind, the design team has treated all site, building and infrastructure improvements, as well as operations and maintenance, as learning opportunities. The site programming is based upon the sustainable site principles adopted by the design team:

1. Treat all water as a precious resource; never squander it as a waste product.
2. Restore health and stability to the site and surrounding landscape through the redevelopment process.
3. Utilize integrated design to achieve multiple objectives with each element of site infrastructure.

RESULTS

The Omega Center for Sustainable Living will embody and propagate the Institute's commitment to holistic wellbeing. Functioning like a cycle found in nature, the Center will use natural resources to turn its waste into food – literally, for reuse and re-growth on site; and metaphorically, to foster new and greater growth in the form of heightened awareness and positive change for each of its visitors.