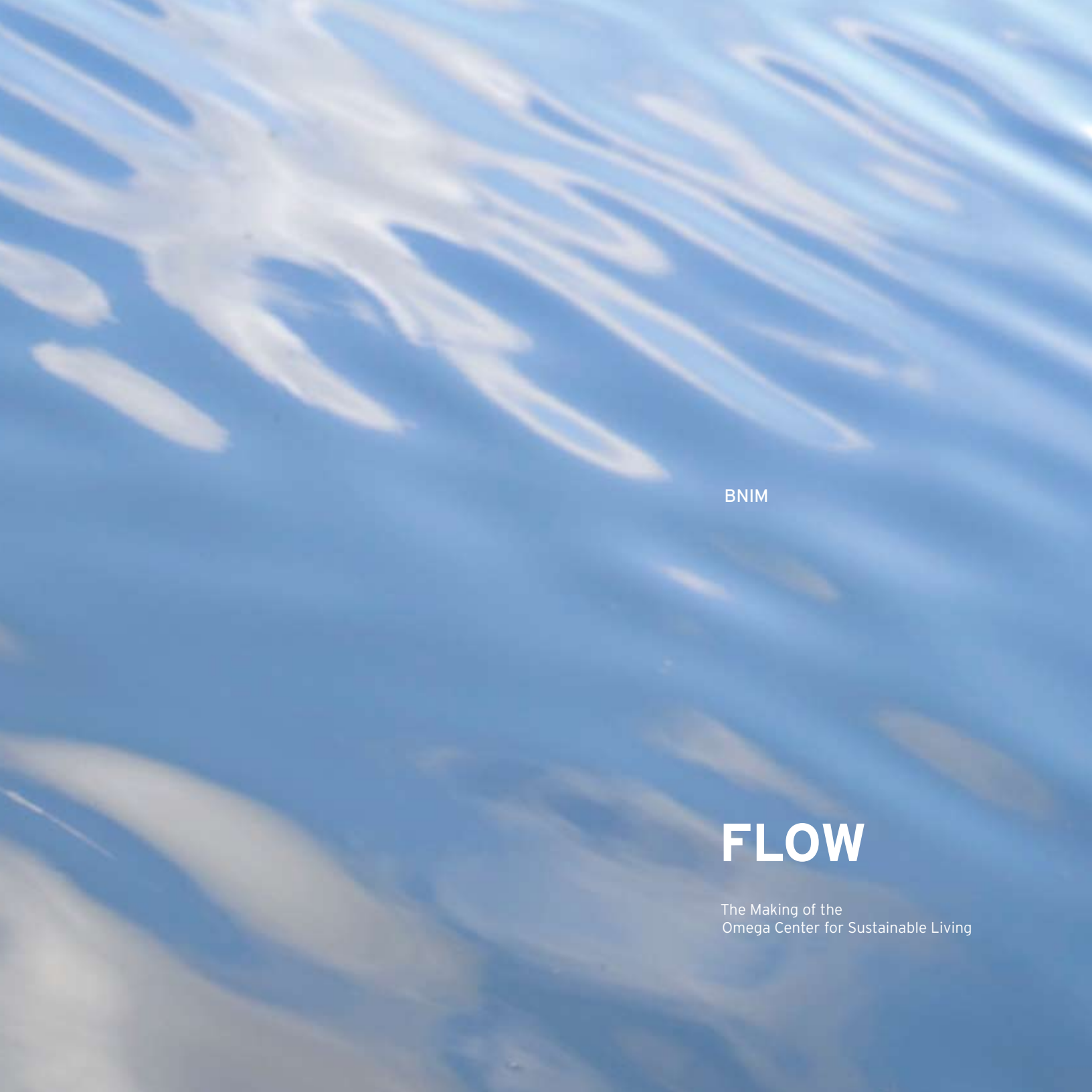

BNIM

FLOW

The Making of the
Omega Center for Sustainable Living

CREDITS
Many thanks to all those that have made this groundbreaking facility possible, including those noted below as well as donors, patrons and friends of the Omega Institute.

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Construction – David Sember Construction
Ecological Design - John Todd Ecological Design
Landscape Architect - Conservation Design Forum
Mechanical/Electrical/Plumbing Engineer - BGR Engineers
Structural Engineer – Tipping Mar + associates
Water Systems Engineer - Natural Systems International

IMAGERY
Courtesy of Andi Milford: pages 2-3, 4, 7, 8, 11, 23, 37 / PlanetReuse: page 32 / Tipping Mar + associates: pages 28, 29 / Google Earth: pages 16, 17, 18-19 / Omega Institute: page 20 (top right) and page 23 / BNIM: all others

BNIM

FLOW

The Making of the
Omega Center for Sustainable Living

at the

Omega Institute for Holistic Studies
Rhinebeck, New York

DEDICATION

Congratulations to Skip Backus and the Omega Institute for what you have accomplished in the Omega Center for Sustainable Living. Not only has this facility helped redefine our relationship with water, but it has greatly influenced the larger reconnection of nature and human nature. As many in the developing world have sought to *dominate nature*, this facility demonstrates a way of understanding our *interdependence with nature*, of learning nature's principles and living within them.

While this achievement would be remarkable in and of itself, Omega has also embraced the notion of sustainable design and construction to its fullest. As a leader in the Living Building movement, Skip Backus and his team have furthered the industry's understanding of true sustainability. As more and more claims to "green" are filling our world, Omega can genuinely be proud of investing in a facility that has diligently examined every aspect of our built environment – from site selection, water use and energy generation, to material sourcing and selection, construction waste management, beauty and inspiration.

In this endeavor, Omega has held true to their vision and has deepened our collective understanding of our relationship with the natural and spiritual worlds. We at BNIM thank you and consider it an honor to have worked alongside you.

MESSAGE FROM SKIP BACKUS
ADAPTED FROM THE RHINEBECK CAMPUS GUIDE

Dear Friends,

I like to think historians will look back on this decade and say it was the beginning of a renaissance – a time when the understanding of the interdependence of all life became a blueprint for living; a time when individuals, organizations, and cultures around the world woke up and took stock of what really matters.

Being optimists at heart, we at Omega Institute look at the crises of our times and we see opportunities for a reexamination of human values and ways of living. Since it seems that it's human nature to make big changes only when confronted with big challenges, we have the chance – now more than ever – to move from an old paradigm of exploitation to one of sustainability and creativity.

How do we do this? How do we resist becoming overwhelmed or pessimistic or frightened? First of all, it helps to suspend a cynical worldview long enough for a new vision to emerge. We need hope in times of change. We need skills like flexibility, tolerance and inner strength. And we need each other.

At Omega, you will find others with a passion for positive change – people co-creating a more hopeful future through everyday choices and more mindful ways of relating to each other and the world. Our mission is to be a resource for that future. For 30 years, we have offered holistic learning experiences with the world's most qualified and inspiring faculty – workshops, trainings and conferences that nourish the body, mind and soul, and that honor lifelong learning and personal growth.

New in 2009 is the Omega Center for Sustainable Living (OCSL). The center will be the anchor for our environmental efforts on campus. It will bring under one roof our state-of-the-art energy and waste systems, our efforts to work with area farms and organic growers, and a teaching facility that demonstrates local solutions to global problems. So, when you come to Omega, you become part of a growing community of people working together to jumpstart the renaissance!

Warmly,

Skip Backus

Robert "Skip" Backus, Chief Executive Officer

Turn Turn Turn

Song composed by Pete Seeger in 1959. Performed live on October 11, 2007 at the OCSL groundbreaking.

To Everything (Turn, Turn, Turn)
There is a season (Turn, Turn, Turn)
And a time for every purpose, under Heaven

A time to be born, a time to die
A time to plant, a time to reap
A time to kill, a time to heal
A time to laugh, a time to weep

To Everything (Turn, Turn, Turn)
There is a season (Turn, Turn, Turn)
And a time for every purpose, under Heaven

A time to build up, a time to break down
A time to dance, a time to mourn
A time to cast away stones,
a time to gather stones together

To Everything (Turn, Turn, Turn)
There is a season (Turn, Turn, Turn)
And a time for every purpose, under Heaven

A time of love, a time of hate
A time of war, a time of peace
A time you may embrace,
a time to refrain from embracing

To Everything (Turn, Turn, Turn)
There is a season (Turn, Turn, Turn)
And a time for every purpose, under Heaven

A time to gain, a time to lose
A time to rend, a time to sew
A time to love, a time to hate
A time for peace, I swear it's not too late

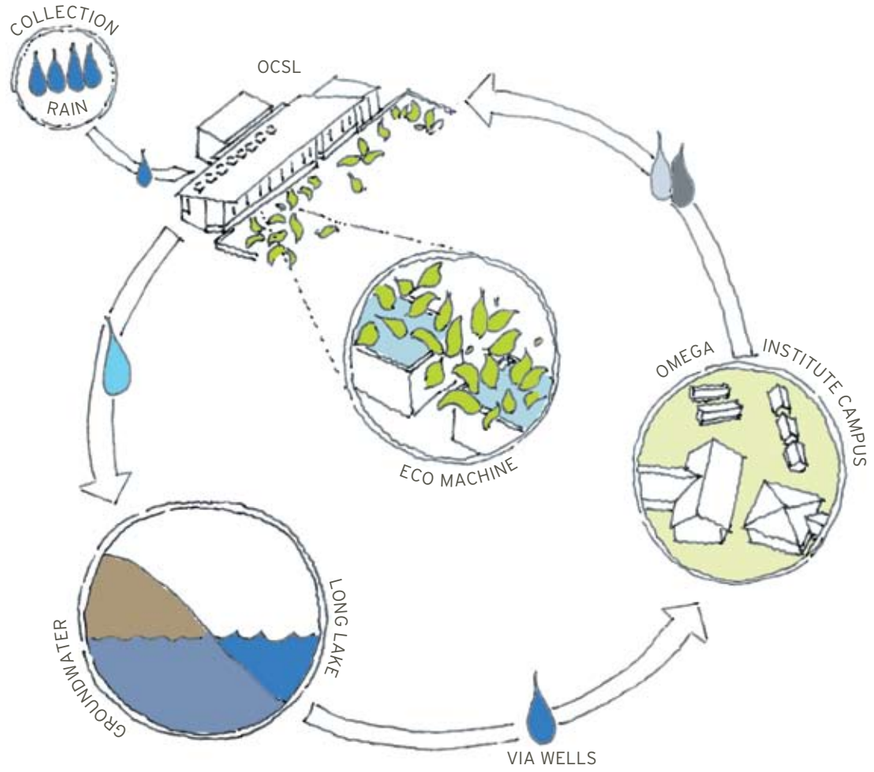
Living Buildings are informed by and heavily rooted in the indigenous characteristics of a building's eco-region in order to renewably generate their own energy; capture, treat and use their own water; and operate by embracing the essence of what the site can provide. In this way, each "Living Building" strives to have a net zero impact.

The Living Building Challenge, a program of the International Living Building Institute, is a certification program dedicated to ensuring that buildings are achieving stringent guidelines in key areas of site, energy, materials, water, indoor quality and beauty and inspiration. Certification is based on actual performance rather than estimated performance, therefore a 12-month verification period is required before buildings will be evaluated.

The Omega Institute is situated within one of the most important watersheds in the world, the 13,400 square mile Hudson River watershed basin.

The river is 315 miles long and divided into three sections with the Omega campus lying within the 154-mile lower basin. This basin provides water for over 12 million people through surface water, groundwater and a series of reservoirs. It is a critical component of the local and regional ecosystem.

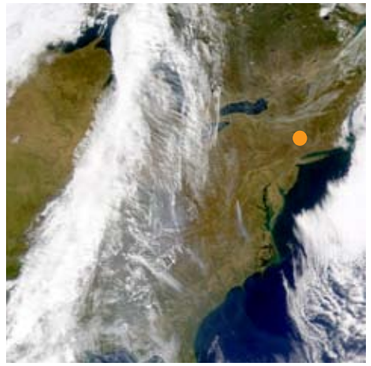
Water management at Omega influences water quality for the immediate surroundings of the campus as well as the downstream lake and waterways within the watershed, so that responsible stewardship here will benefit one of the world's most populous urban areas.



As the world's population approaches seven billion, the need for even greater amounts of clean water will grow. At the same time, our actions are reducing the amount of accessible clean water. It is time to change the patterns of the past, water abuse among them.

Water supply on the Omega Campus at Rhinebeck is provided directly from the groundwater via wells on campus. Prior to the construction of the Omega Center for Sustainable Living, water was drawn from the wells, used for multiple human activities, then piped to a septic / leach field system along Lake Drive. The Omega Center's Eco Machine now returns a higher quality of water back to the earth using natural systems that see our waste as food. For potable water uses, well water is still drawn from the earth. For toilet flushing, rainwater is collected from the Omega Center's roof. For all other water use on campus, black and grey water is sent to the Eco Machine lagoons and constructed wetlands at the Omega Center for purification. Within the Omega Center building, and throughout the campus, low-flow plumbing fixtures have been installed to minimize water consumption, including waterless urinals in the men's restroom. By the end of this cycle that uses natural systems, cleaner water is reintroduced to the groundwater and lake.

Earth

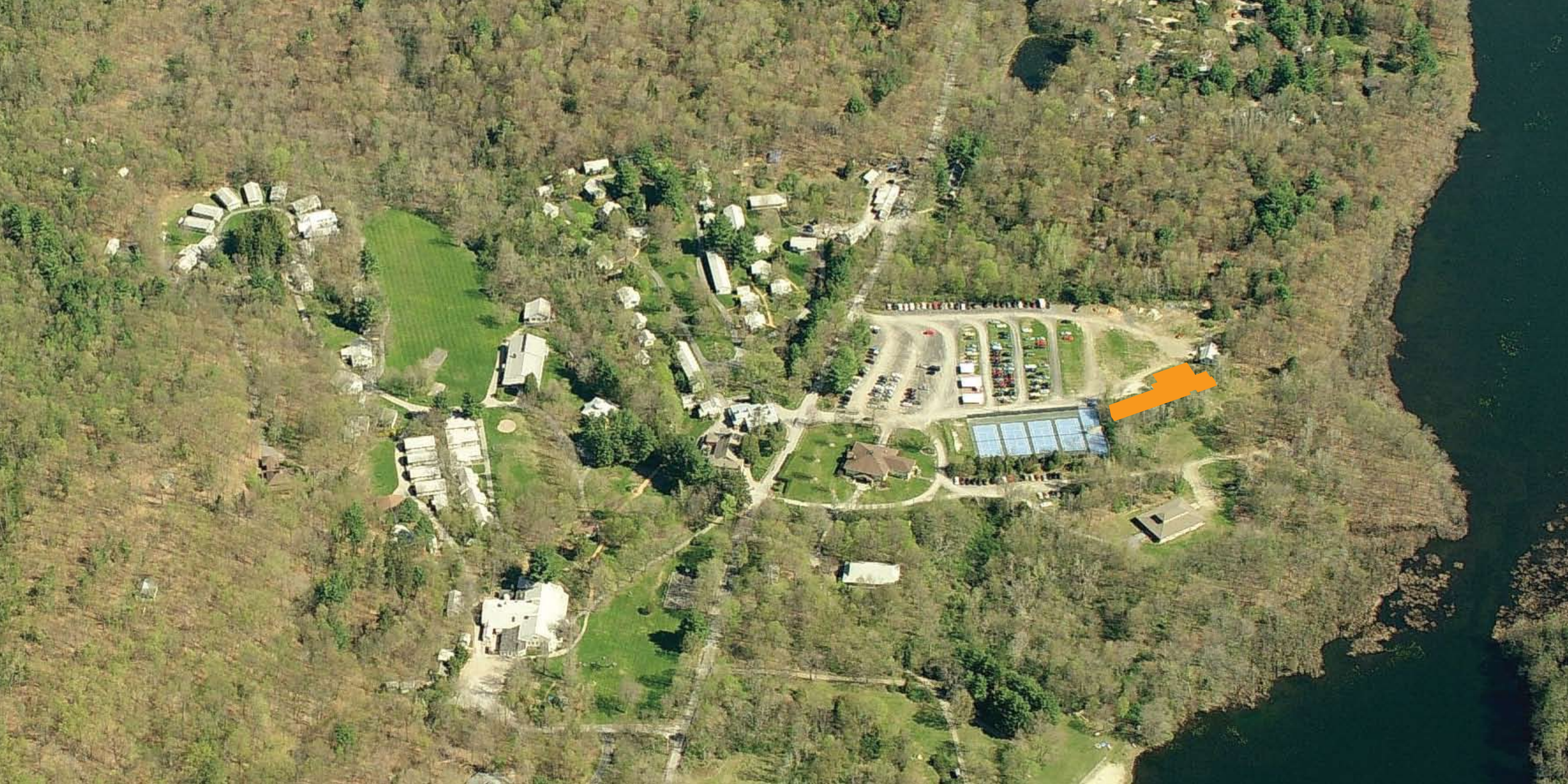


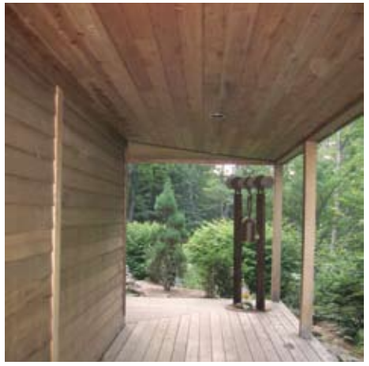
Atlantic Seaboard

Hudson River Valley

Omega Institute of Sustainable Living

Omega Institute Campus and Environs











Omega 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.

While Omega has grown, the mission remains the same. Omega is not aligned with any particular healing method or spiritual tradition. The programs feature all of the world's wisdom traditions and are committed to offering people an opportunity to explore their own path to better health, personal growth, and inner peace.

The name "Omega" was inspired by the writings of Teilhard de Chardin, a 20th-century mystic and philosopher who used the word "Omega" to describe the point where all thought converges. This refers particularly to that point within each one of us where our inner, spiritual nature meets our outer, worldly nature. Teilhard believed that in the synthesis of these two domains of life lay the greatest challenge—and the greatest hope—for human evolution. Of his belief in the balance between world and spirit, Teilhard wrote, "I am going to broadcast the seed and let the wind carry it where it will."

Omega has taken on the task of helping spread that seed so that a better world for all of us can continue to take root and grow.

Omega generates a significant quantity of wastewater daily. The previous waste disposal system, made up primarily of leach fields, was constructed in the 1950s by the previous owner. The age of the fields, coupled with Omega's desire to achieve greater control over the amount of water used daily, contributed to the need to develop an alternative to the conventional disposal methods.

After careful consideration, Omega decided on an alternative state-of-the-art filtration system. After reviewing all the standard options, one unique alternative was found to be both efficient and educational. Developed by John Todd, the Eco Machine is based on the same natural science as estuaries – nature's own water filtration system. The system involves the use of plants and natural bacteria to break down waste by-products and purify the water. This filtration system reflects Omega's commitment to environmental stewardship, and moves toward its goal of reducing water consumption and returning clean water to the ecosystem. Through it, Omega will be able to provide irrigation for its gardens and implement a grey water recovery system, greatly increasing the amount of water that can be reused.

Beyond the wastewater filtration system, the Omega Center for Sustainable Living also acts as a pedagogical tool in teaching sustainable design and construction. Early in the design process, Omega and the design team adopted the Living Building Challenge as a guide towards achieving true sustainability in the design and construction of the facility. Educational workshops will be designed around the ecological impact of the filtration system as well as our profound relationship with water. Omega plans to 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 treatment solutions; and
- visitors from surrounding communities to view a working model that demonstrates improved wastewater treatment efforts.

Accountability
We expect each of us to do what we say we will do, to meet commitments, and be dependable and responsible.

Holism
We honor the mind, body, heart, and spirit in each individual, knowing the need to balance and blend all these elements. In our programming, we encourage authenticity as a means to build trust, and as essential to the growth and development of the whole.

Integrity
In business and in relationships we conduct ourselves with honesty, fairness, truth, candor, and respect. We treat others, as we ourselves would want to be treated. We focus on the collective good.

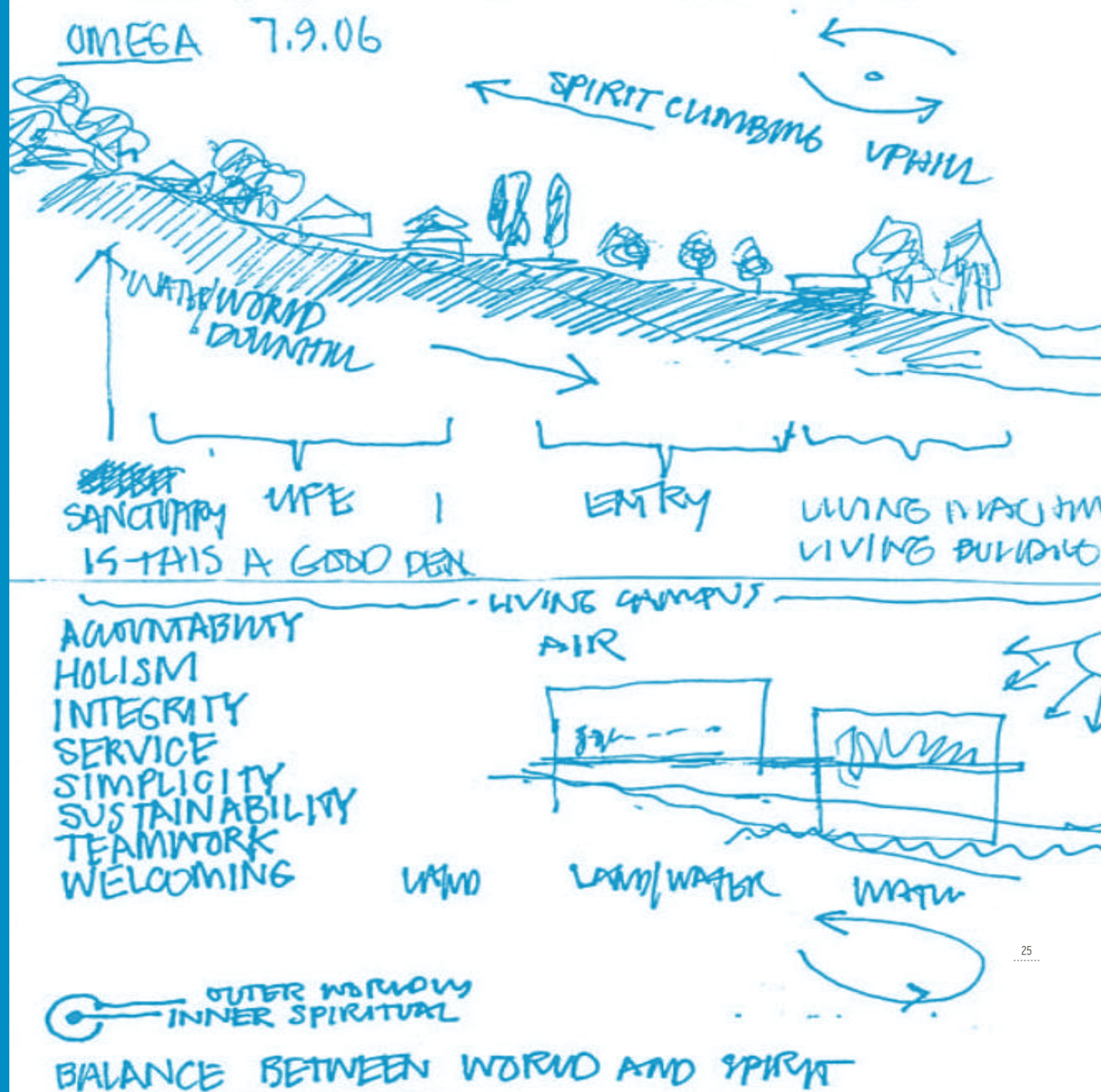
Service
We value the practice of service and what it teaches us about ourselves, and our relation to others. Our participants are here to experience the world in new ways. We are attuned to and care about their experience, needs, and expectations. We treat each other with similar grace.

Simplicity
We strive for clear, direct, and unambiguous communication. We seek true, underlying meaning, and employ spiritual guidance in that quest. In this way, we work to make sense of the complexities of modern life.

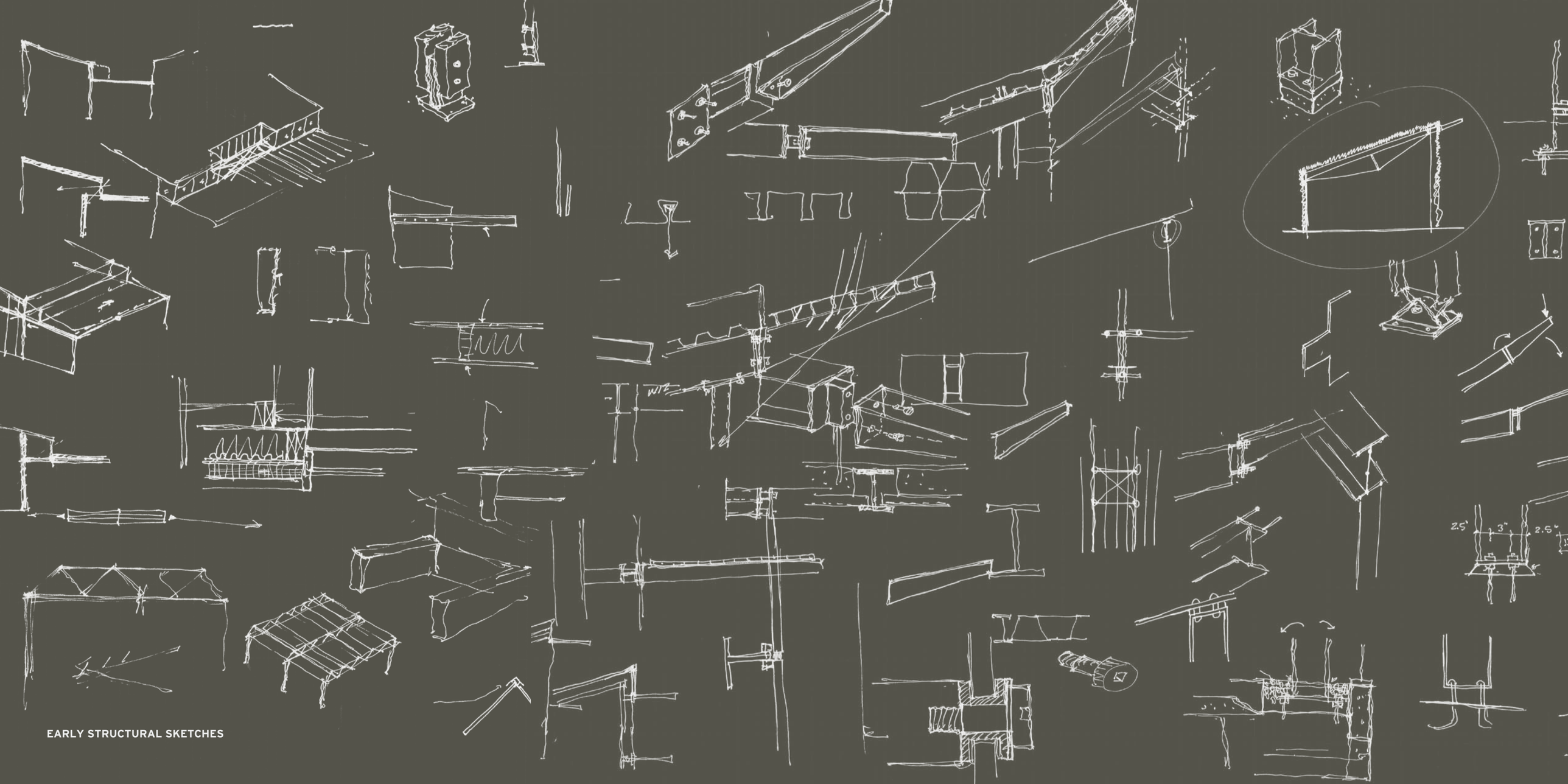
Sustainability
We consider the impact of our actions. We advocate for fairness in the treatment of all species, make decisions for the common good, and encourage activism as a means to social justice. Our facilities are grounded in the awareness of our relationship to the environment. We endeavor to have our work in the world be self-sustaining.

Teamwork
We work together, inclusively, collaboratively, with energy, intention, and commitment. We keep each other informed, share what we are thinking and doing, and expect the same in return.

Welcoming
We invite people to find space here, to feel safe, to create community, to feel at home, and find nourishment. Our environment is nurturing, relaxing, stimulating, and inspiring.




NEW ENTRY
ECO MACHINE
CLASSROOM
LEARNING LABORATORY
THE STORY OF WATER
OMEGA INSTITUTE
TOWN OF CLINTON, NEW YORK
BNIM ARCHITECTS



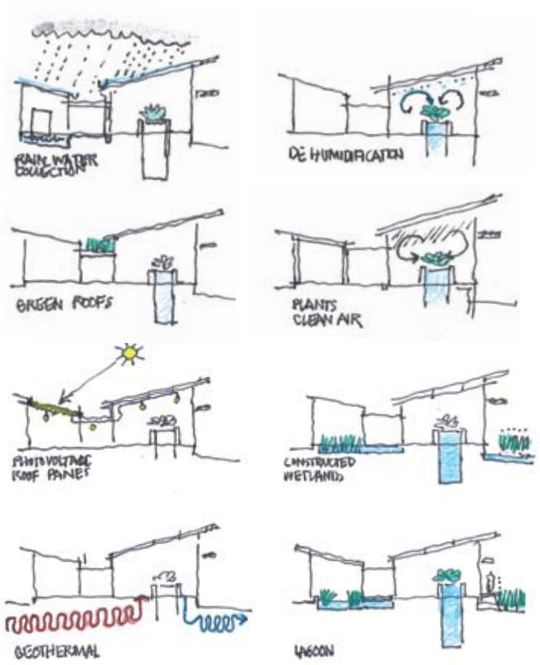
EARLY STRUCTURAL SKETCHES

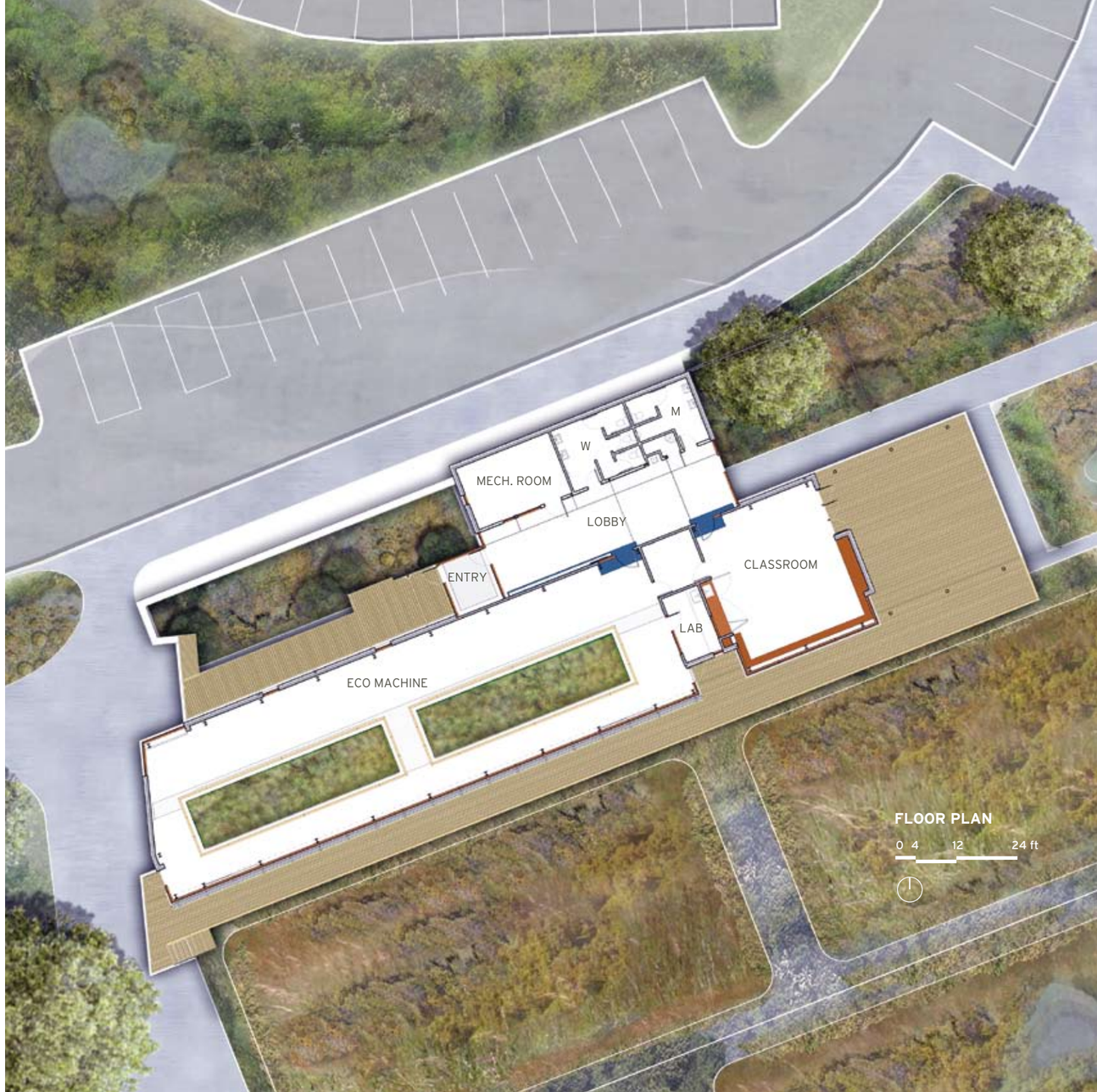
Approach

Though the most obvious function of this facility is to house an ecological wastewater treatment system, the Omega Center for Sustainable Living (OCSL) has also become a powerful demonstration 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.

The location of the building on the site comes from a desire to link the sanctuary at the "top" west edge of the campus with this new building (see page 26). Use of water at both locations, both functionally and symbolically, help make this connection. Though the two buildings are not directly linked, they form the ends of an axis that runs through the campus. Locating the OCSL along this axis, which starts at the Omega campus entry point – the parking lot and administration building on the east side of Lake Drive – proved an important step in making this connection to the rest of the campus.

The orientation of the building comes from both this primary campus axis as well as a response to optimizing solar orientation for the building. In this case, a long east-west axis for the building allows more control over access to sunlight and heat gain.





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 as 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 – the 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 addressing another piece of the broader 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.

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.

EAST ELEVATION

0 10 30 60 ft

NORTH ELEVATION

SOUTH ELEVATION

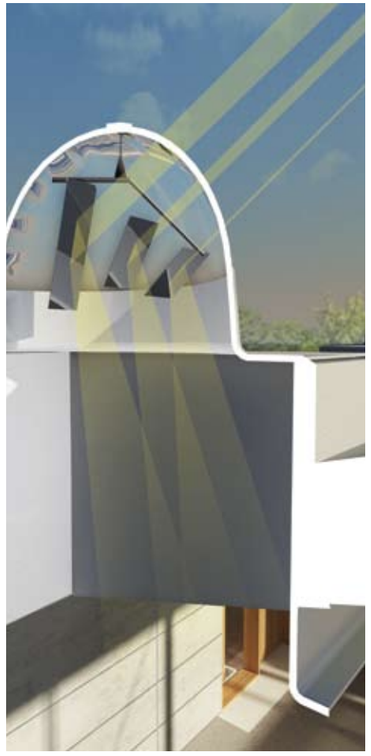
PLANETREUSE AND RECLAIMED MATERIALS Using reclaimed materials is one of the purest ways to build green, and an important consideration for Living Building certification. To discover the most effective ways to incorporate these materials into the Omega Center design, BNIM and Omega looked to PlanetReuse, whose focus is linking reclaimed materials with the design community. PlanetReuse insists that a great deal of building material headed to landfills can instead find new life in new building projects. The Omega Center is a perfect showcase for salvaged materials, and also demonstrates how easily any building can take advantage of material reuse. Working with the design team, PlanetReuse identified key areas for the use of reclaimed materials. They worked with five demolition and reclamation contractors to procure and test the materials, following the sourcing radius guidelines issued by the Living Building Challenge. The company provided documentation at every step to support the certification process. Reclaimed materials within the Omega Center include dimensional lumber, plywood, interior doors, beech wood paneling and toilet partitions, among others. The materials came from warehouses, schools, office buildings and other projects. Reclaimed materials typically offer 15 to 20 percent savings over new, and their use earns significant points towards LEED certification as well. Most significantly, reuse keeps tons of building materials out of landfills.

FLOW OF AIR, ENERGY, WATER

1

2

3



4

5

AIR FLOW

1 Clerestory windows ventilate the lobby, mechanical room and restrooms. Solar radiation heats the upper volume of air, then natural buoyancy induces STACK VENTILATION, which causes the air to push its way out of the open windows and pull in fresh, cooler air from lower windows in the spaces.

2 The façade is clad with a WOOD RAINSCREEN SIDING made from reclaimed cypress lumber. This wall system allows the building skin to "breathe" and eliminates the need for painting. Operable windows integrated into the façade allow for NATURAL VENTILATION to assist in pushing hot air out of the building by channeling southern breezes that have been cooled from moving over the wetlands.

ENERGY FLOW

3 SOLAR TRACKING SKYLIGHTS maximize the sunlight available for the plants and people working in the greenhouse.

WATER FLOW

4 The Eco Machine is on display for all to see, carrying grey water through a reclamation process. At the end, the water may be utilized to support the needs of the building. In this step, additional wetlands plants are suspended in AERATED LAGOONS. In a symbiotic relationship, the plant roots act as a habitat for microbial populations that further scrub the water.

5 This diagram shows a DISTRIBUTION HEADER in one of the wetland's cells, which enables the grey water to be evenly distributed across the length of the cell. From here, the water leaches out of the chamber and flows below grade, bringing water and nutrients to the plants along the way, and eventually to a COLLECTION HEADER on the opposite end.

Integrated Water and Landscape Systems

Every element of the Omega Institute site development and infrastructure is designed to suggest a "water sensitive" relationship between the built and natural environment. 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 experience of the physical setting on campus reflects many of the core values of the Institute and the site improvements are a visible manifestation of how the experience of being at Omega is deeply rooted in these values. The landscape design is, therefore, regenerative of native site ecology, didactic in form, holistic in function, and above all, composes beautiful, inspiring landscapes within the ecological and cultural context of the campus.

Each element of the site and building is viewed with its potential for pedagogy — for its promise to impart knowledge to those who work at and visit Omega. The water-sensitive theme will be communicated in educational programming developed over time that utilizes site elements as demonstrations.

The site programming is based upon the sustainable site principles adopted by the design team:

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

OCSL WETLAND PLANTING On Earth Day, April 23, 2009, Omega staff and friends helped plant more than 8,000 plants in the constructed wetlands at the OCSL.

0 20 60 80 ft

SITE PLAN **1** SEPTIC TANKS (below grade): In this first treatment step, the majority of suspended solids settle out of the water. Naturally occurring microbial organisms living in the water work to digest the sludge that settles to the bottom of the tanks and the now partially clarified water is skimmed off into the Anaerobic Tank. **2** ANAEROBIC TANK (below grade): Here further settling and a process known as anaerobic digestion occurs. **3** CONSTRUCTED WETLANDS: Here the water flows through the root structure of wetland plants. The plants remove nitrates and reduce the Biological Oxygen Demand (BOD - a measure of the rate at which biological organisms use up the available oxygen) and suspended solids in the water. **4** AERATED LAGOONS: In this step, additional wetland plants are suspended in an Aerated Lagoon. In a symbiotic relationship, the plant roots act as a habitat for microbial populations that further scrub the water. **5** SAND FILTER: This stage is the final "polishing" of the water prior to being reintroduced to the environment. Microorganisms living on and between the grains of sand are fed by any remaining organic compounds in the water. **6** SUBSURFACE DISPERSAL (below the parking): At this stage the water is reintroduced to the soil via a subsurface network of chambers. The chambers are "flooded with the processed water and allowed to percolate into the soil. **7** RAIN GARDENS: Water shed from the building roof is temporarily detained here during a rain shower while plants work to cleanse the water of contaminants before it enters the Rainwater Cistern or is absorbed into the soil. **8** RAINWATER CISTERN: Water is stored here before being used for toilet flushing and other nonpotable uses at the OCSL. **9** MECHANICAL AND ELECTRICAL ROOM: This is the location of inverters for the PV system, rainwater system, and equipment for the eco-machine. Supporting the pedagogical nature of the project, windows between this room and the Lobby expose the inner workings of the building systems. **10** LEARNING LAB: Part of the classroom, this area provides a place for visiting students (everyone is a student here) to perform tests and experiments on the water. **11** WOODLANDS RESTORATION: Future projects will restore the woodlands surrounding the OCSL and elsewhere on campus to their natural state.

Conserve Water Resources

- Utilize landscapes that thrive without the use of supplemental irrigation water
- Harvest rainwater to supplement water needs

Avoid Surface Water Runoff

- Reuse runoff water where practicable
- Promote groundwater recharge and evaporation rather than surface runoff
- Avoid concentration of runoff and spread rainwater over the landscape through multiple appropriate design strategies
- Manage woodlands to reduce surface runoff from undeveloped areas

Avoid Surface & Groundwater Contamination

- Use bioretention swales, rain gardens, etc., to remove stormwater pollutants

Make Water Systems Transparent

- Where water is transferred from space to space, use surface conveyance rather than enclosed pipes
- Make visible subsurface seepage from permeable pavements, bioswales, etc.
- Incorporate constructed wetlands into landscape design as a garden-like feature

Sustainable Site Approach and Site Design Strategies by CONSERVATION DESIGN FORUM

BUILDING SECTION PERSPECTIVE **1** PHOTOVOLTAIC COLLECTORS: Strategically located throughout the facility, the photovoltaic collectors provide all of the buildings electricity. **2** METAL ROOF: Made from recycled metal, the reflective properties keep the interior spaces cooler and mitigate the "heat island" effect. **3** CONSTRUCTED WETLANDS: Here the water flows through the root structure of wetland plants. The plants remove nitrates and reduce the Biological Oxygen Demand and suspended solids in the water. **4** AERATED LAGOONS: Additional wetland plants are suspended in an Aerated Lagoon. In a symbiotic relationship, the plant roots act as a habitat for microbial populations that further scrub the water. **5** GREEN ROOF: This living roof system provides additional thermal insulation. **6** WOOD RAINSCREEN SIDING: Made from reclaimed cypress lumber, this wall system allows the building skin to "breathe" and eliminates the need for painting. **7** SOLAR TRACKING SKYLIGHTS: These maximize the sunlight available for the plants and people working in the greenhouse. **8** SUNSHADE: The sunshade serves two purposes. First, it works to bounce sunlight onto the ceiling of the greenhouse, more evenly distributing the light. Secondly, it shades the lower portion of the window wall from direct solar exposure during the summer. **9** MECHANICAL AND ELECTRICAL ROOM: Located here are the PV system inverters, and equipment for the Eco Machine and rainwater collection. Windows between this room and the Lobby expose the inner workings of the building systems. **10** INTERIOR FINISHES: Wherever possible, the structural materials and other elements of the building are exposed. With extra care given to making these elements attractive, fewer redundant materials and finishes were used for the project. **11** WOODLANDS RESTORATION: Future projects will restore the woodlands surrounding the OCSL and elsewhere on campus to their natural state.

PROJECT DATA

Building: 6,250 square feet
Site: 4.5 acres

SUSTAINABILITY METRICS

The project is on track to achieve LEED Platinum certification and meet the requirements outlined by the Living Building Challenge to become a Living Building.

Project Embodied CO_2: -1,387 metric tons (+/- 25%) (Estimated using buildcarbonneutral.com). The percentage of the shortgrass planting area being replaced with the wetlands plant area greatly offsets the embodied CO_2 of the construction project, which results in a negative number. Embodied carbon is the carbon released when a product is manufactured, shipped to a project site and installed.

The *Construction Carbon Calculator* estimates embodied carbon. This calculator looks at an entire project and takes into account the site disturbance, landscape and ecosystem installation or restoration, building size and base materials of construction. It does this simply, requiring only basic information that is available to a project team very early in the design process.

WATER

Reclamation Capacity:
- Designed for maximum 52,000 gpd flow (based on 700 campus guests)
- Measured maximum daily flow approx. 38,000 gpd (gallons per day)
- Estimated annual flow 5 million gallons

Rainwater Use for Toilet Flushing:
- Average daily demand 40 gallons
- 1800-gallon cistern stores enough water for at least 45 days

ELECTRICITY

Generation Capacity:
- Three solar arrays (211 photovoltaic panels, totaling 2830 square feet)
- 134.20 Kw/day (48.53 Kw/hour max output)

Demand:
- 132.77 Kw/day (average)

Total Usage:
- -1.43 Kw/day (average) – the building is designed to create more electricity than it uses

MATERIALS

All building materials and products were sourced according to the Living Building Challenge Guidelines radii:
- Renewable Energy Technologies (PV Systems) - 9000 miles
- Assemblies that actively contribute to building performance once installed - 3000 miles
- Lightweight Materials (Insulation, Carpet, Fabrics) - 1000 miles
- Medium Weight Materials (Wood Products) - 500 miles
- Heavy Materials (Brick, Stone, Concrete) - 250 miles

Construction Waste Recycling and Diversion (from landfill):
- 99% of metal scraps recycled
- 99% of cardboard scraps and waste recycled
- 99% of rigid foam waste was reused elsewhere or recycled
- 99% of wood waste was shredded for mulch or stored for future use
- 100% of food waste was composted
- 100% of glass, paper and plastic packaging waste was recycled

Materials were sourced to avoid those on the Red Materials List from the Living Building Challenge Guidelines including:
Cadmium, Chlorinated Polyethylene and Chlorosulfonated Polyethlene, Chlorofluorocarbons (CFCs), Chloroprene (Neoprene), Formaldehyde (added), Halogenated Flame Retardants, Hydrochlorofluorocarbons (HCFCs), Lead Mercury, Petrochemical Fertilizers and Pesticides, Phthalates, Polyvinyl Chloride (PVC), Wood Treatments containing Creosote, Arsenic or Pentachlorophenol

Wood: All wood is either from FSC Certified Forest sources or reclaimed sources
- Plywood roof and wall sheathing was reclaimed from the 2009 Presidential Inaugural Stage
- Framing lumber was reclaimed from several deconstructed buildings in New York State

Material Quantities (approximate):
- Concrete: Volume: 21,300 cubic feet; Weight: 3,201,600 lbs
- Gypsum Wall Board: Volume: 180 cubic feet; Weight: 7,400 lbs
- Glass: Volume: 300 cubic feet; Weight: 50,600 lbs
- Board Insulation (polyisocyanurate and expanded polystyrene): Volume: 4352 cubic feet; Weight: 6500 lbs
- Steel: Volume: 2300 cubic feet; Weight: 1,123,600 lbs
- Wood, Reclaimed (plywood, framing lumber, siding, doors, trim, paneling): Volume: 1200 cubic feet; Weight: 52,700 lbs
- Wood, FSC Certified (windows, exterior doors, glu-lam structure, roof sheathing): Volume: 111 cubic feet; Weight: 3700 lbs

IMPORTANT DATES

10. 11. 2007	Ceremonial groundbreaking
1. 20 2008	Start of construction
4. 24 2009	Wastewater system operational
5. 13 2009	First "full" building tour (in-progress tours given throughout construction)
5. 15. 2009	Photovoltaic systems in place; electric meters turned on
5. 19 2009	All major construction substantially complete
7. 16. 2009	Grand opening ribbon-cutting celebration



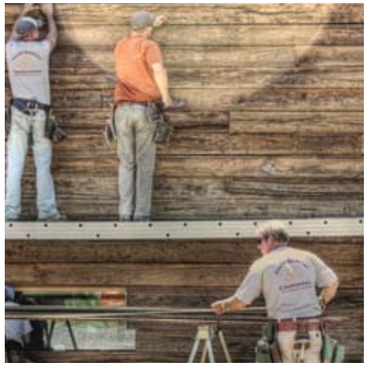
















"When the well's dry,
we know the worth of water."
- BENJAMIN FRANKLIN
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