TRANSFORMATION

TRANSFORMATION

Odum School
of Ecology
The University of Georgia

You can be a part of the transformation!

The Odum School of Ecology at the University of Georgia became the world's first stand-alone college of ecology on July 1, 2007. Now we are developing the world's first living laboratory to house our diverse academic, research and public service and outreach programs. A next generation facility designed from the ground up on the foundation of core ecological science and systems thinking. We are excited to share with you some of our initial work on the new building and invite you to join us in completing our transformation.

CONCEPT TEAM

University of Georgia
Odum School of Ecology
BNIM
Biohabitats
Supersymmetry
Vivian Loftness
Costing Services Group

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INTRODUCTION

THE FUTURE OF ECOLOGY

The Odum School of Ecology is the first stand-alone college of ecology in the world. Many universities have departments of ecology and colleges that focus on the broader field of environmental studies, but the Odum School is the only one specifically devoted to the science of ecology and its immediate applications. The Odum School is recognized as one of the nation's top programs in ecological sciences based on the strength of its faculty, reputation of its degree programs and international stature.

RESEARCH APPROACH

The school adheres to Eugene P. Odum's holistic approach to ecological studies, while strengthening and expanding in key areas such as infectious diseases, ecosystem ecology, watershed ecology, evolutionary ecology and sustainability. Researchers in the Odum School work on timely and complex issues, including global climate change, conservation, invasive species and much more.

The School emphasizes an interdisciplinary, collaborative approach to teaching, research and service by integrating expertise and resources from many other schools and colleges at UGA. These include law, forestry, genetics, anthropology, marine biology, economics, and agricultural and medical sciences, as well as public service units such as The Fanning Institute and the Carl Vinson Institute of Government.

EDUCATION

The Odum School offers undergraduate and graduate degrees in ecology, as well as a master's degree in conservation and sustainable development. In addition, the School offers a Graduate Certificate in Conservation Ecology. Rigorous coursework, interdisciplinary studies, skills in ecological problem solving and vital field experience prepare graduates to secure top jobs such as academic, business, government, non-profits and more.

OUTREACH/POLICY

Public service work is conducted primarily through the School's River Basin Center. The Center, which is unique among academic institutions, focuses on the connection between land use and water resources. Its interdisciplinary team of scientists and lawyers help communities move from simply identifying environmental problems to developing policies to manage or eliminate those problems. Graduate and undergraduate students are involved in all aspects of the River Basin Center's work.

INTERNATIONAL REACH

The School expands UGA's international presence through research programs in other countries. In the area of tropical ecology, key research is conducted at the UGA San Luis Research Station in Costa Rica and the Choco-Andes Corridor in Ecuador in partnership with the Maquipucuna Foundation.

OUR VISION

Our understanding of emerging global economic and environmental issues leads us to forge a sustainable building ethic for the world's first college-level ecology program—*the Odum School of Ecology*. Our goal is a building that is ecologically resilient, socially just and economically sound.



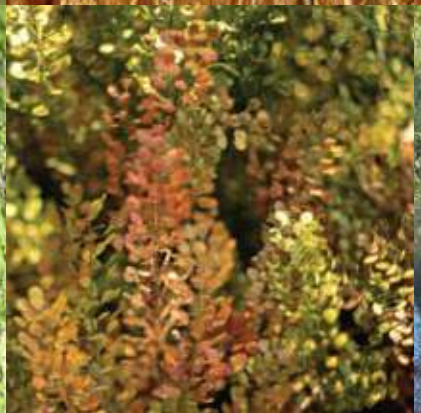










ODUM SCHOOL OF ECOLOGY

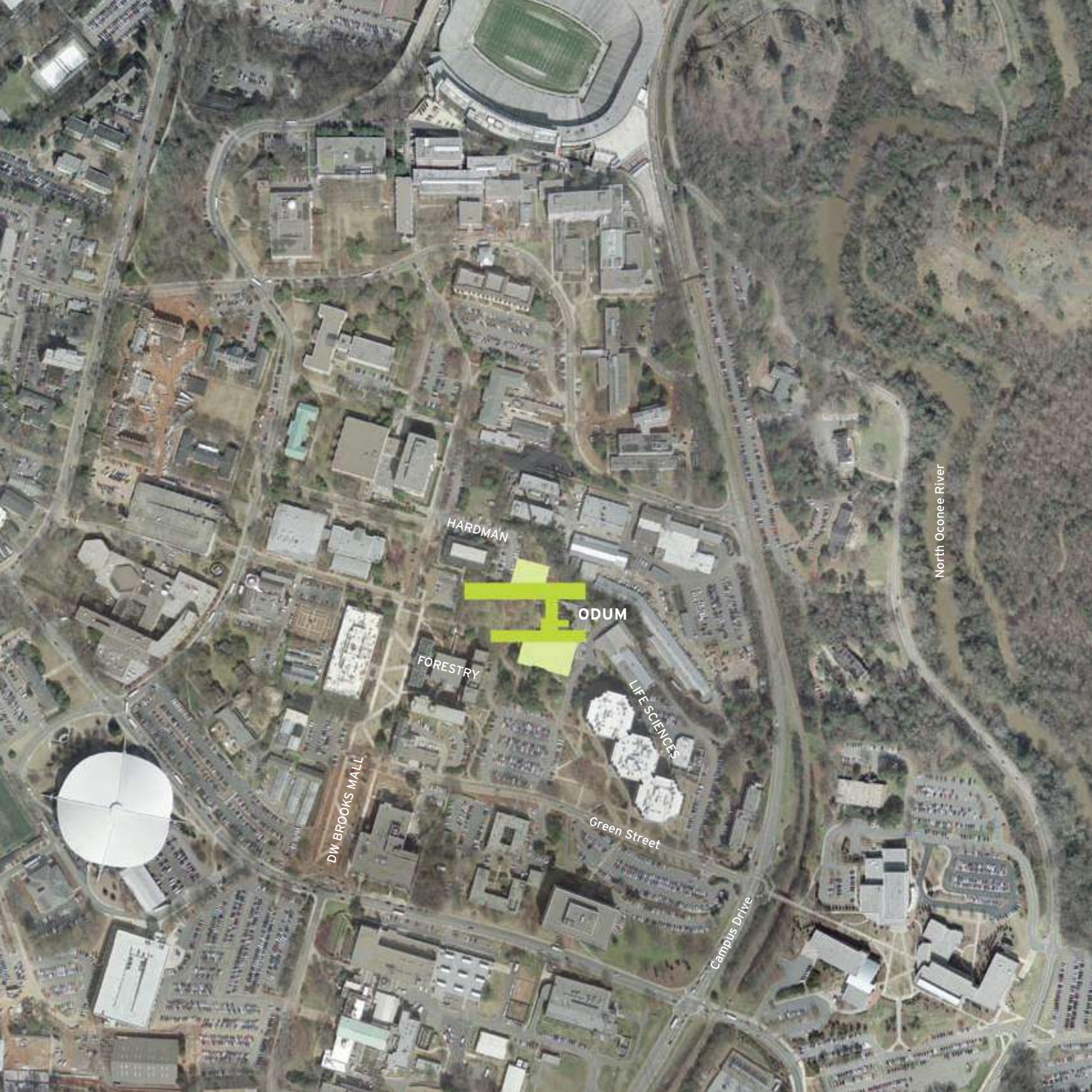
CREATING AN INTERNATIONAL MODEL TO ADVANCE THE STUDY OF ECOLOGY AND SUSTAINABLE DESIGN

Envision a world where the earth's complex living systems are intricately linked and in delicate, harmonious balance with their surroundings. Serving as a model for how natural and built environments will collaborate in the future, the Odum School of Ecology will transform education and research and set an example for a future sustainable society.

The Odum School of Ecology Building will:

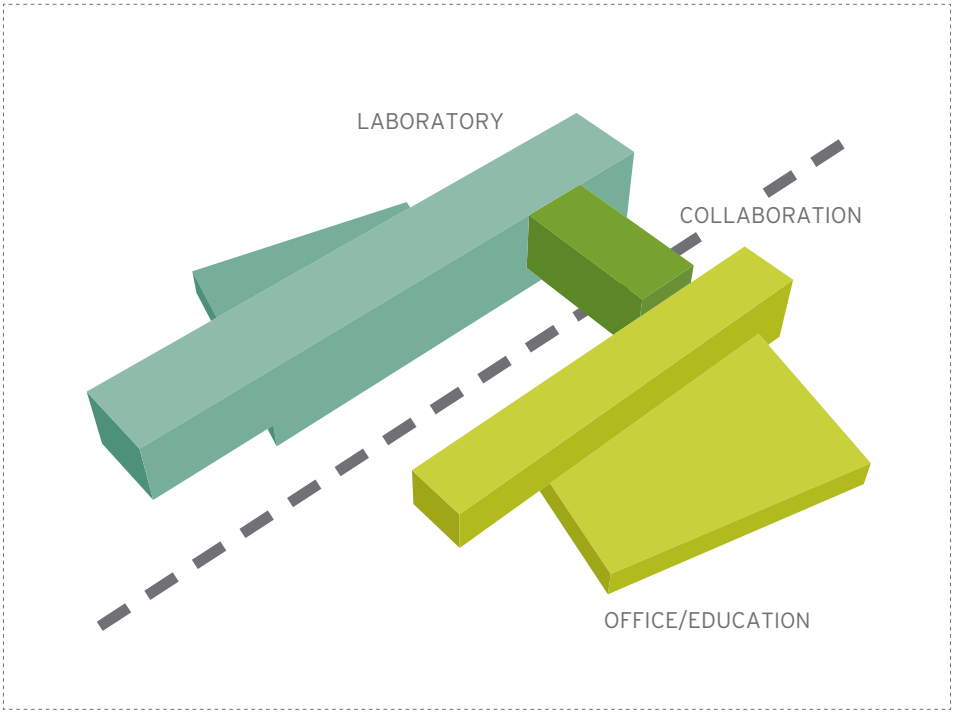
- Set a new benchmark as the world's most sustainable academic lab facility
- Provide a learning environment that transforms education based on the principles of nature's ability to adapt to changing conditions
- Employ a building system that demonstrates linkages between the ecological systems of water, energy, nutrients, humans and other living systems
- Be a catalyst to attract and retain the highest quality students, faculty and staff devoted to solving the world's ecological issues
- Foster a collaborative dialogue between academic disciplines and with other institutions about holistic ecological problem-solving
- Embody a function that is living, regenerative, and beautiful

The Odum School of Ecology, founded upon Eugene Odum's approach for ecosystem ecology, is building a new home that functions as a **living laboratory** and fosters **regenerative symbiotic relationships** between **humans and natural systems.**


HARDMAN
ODUM
FORESTRY
LIFE SCIENCES
DW BROOKS MALL
Green Street
Campus Drive
North Oconee River

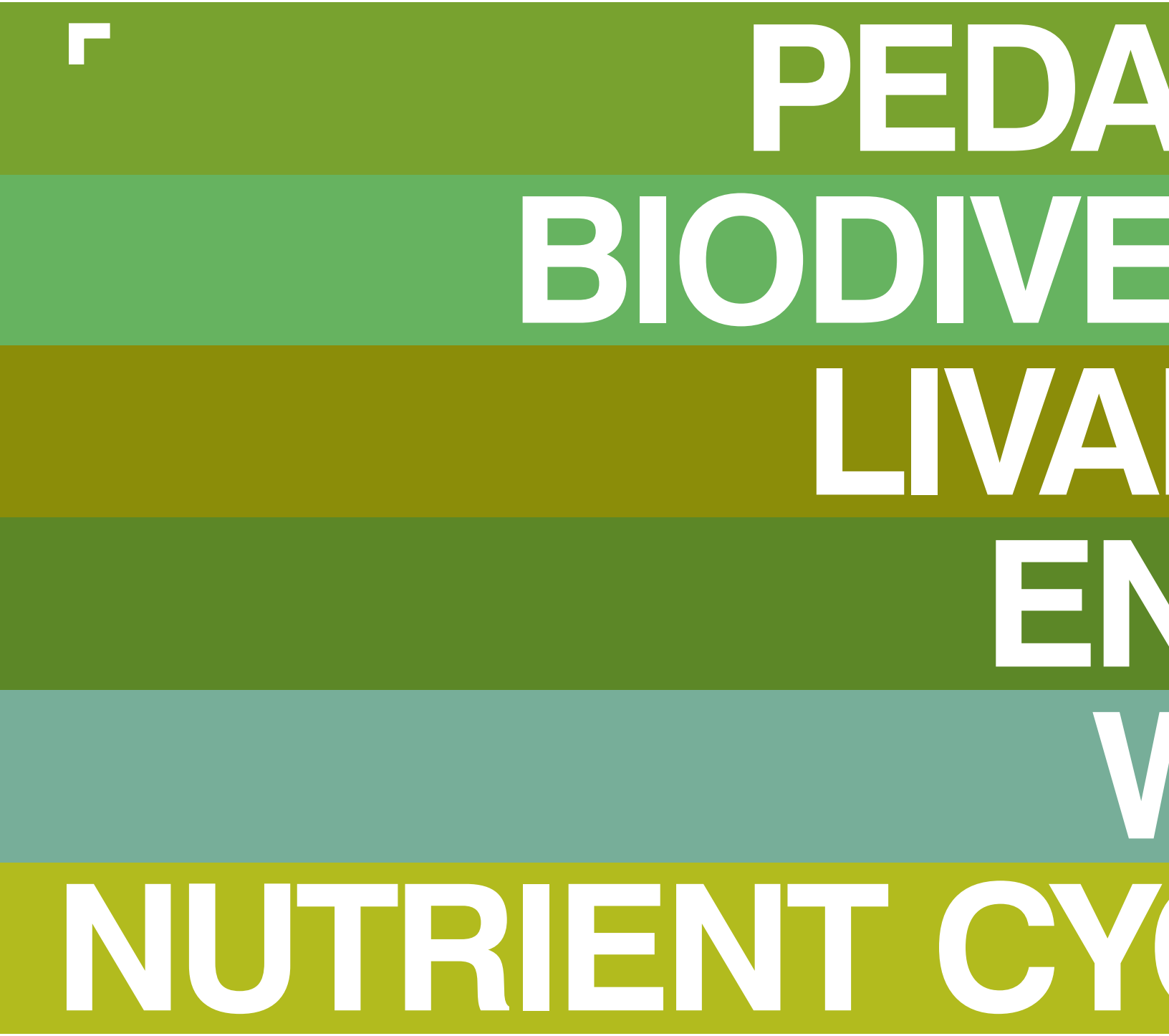
BUILDING HABITAT+SPECIES

Left: The aerial view of the future Odum School of Ecology and the immediate neighborhood shows the future building which will replace the current Ecology building on a ridge of an Oconee watershed. One of the foundational design strategies is orienting the building to true solar south, offering the greatest potential for both active and passive solar strategies. In concert with the master plan for this part of campus, site restoration and redevelopment extends west to DW Brooks Mall and south to Green Street.



The Odum building will be organized by its building "Species", Laboratory, Office and Collaboration. Each species is then optimized for its individual performance taking advantage of synergies with the entire building ecosystem.

0 100 300 400 ft


PEDA
BIODIVE
LIVA
EN
W
NUTRIENT CY

AGOGY

To create change, the building and site will serve as a **transparent living laboratory** available to everyone.

ERSITY

Embracing ecological diversity, complexity and resiliency, the building and site will allow natural systems to **self organize, heal and regenerate** ecological processes. This, in turn, will provide food, fiber and shelter for **living species** including humans.

BILITY

By encouraging **interaction and collaboration,** and incorporating the **healthiest building practices**, this project will create **inspiring and healthy** indoor and outdoor spaces where people long to work, study and visit.

NERGY

The building will operate on a **carbon neutral** basis that demonstrates **appropriate demand and supply** technologies at various scales.

VATER

Occupying a headwater to the Oconee River watershed, the project will celebrate water by **conserving and regenerating freshwater cycles**, directly linking the building site to the river.

CLING

Mimicking nature, the building will operate **waste-free** by integrating **natural systems** and adopting and inventing **sustainable operating practices** that harvest nutrients.

PEDAGOGY

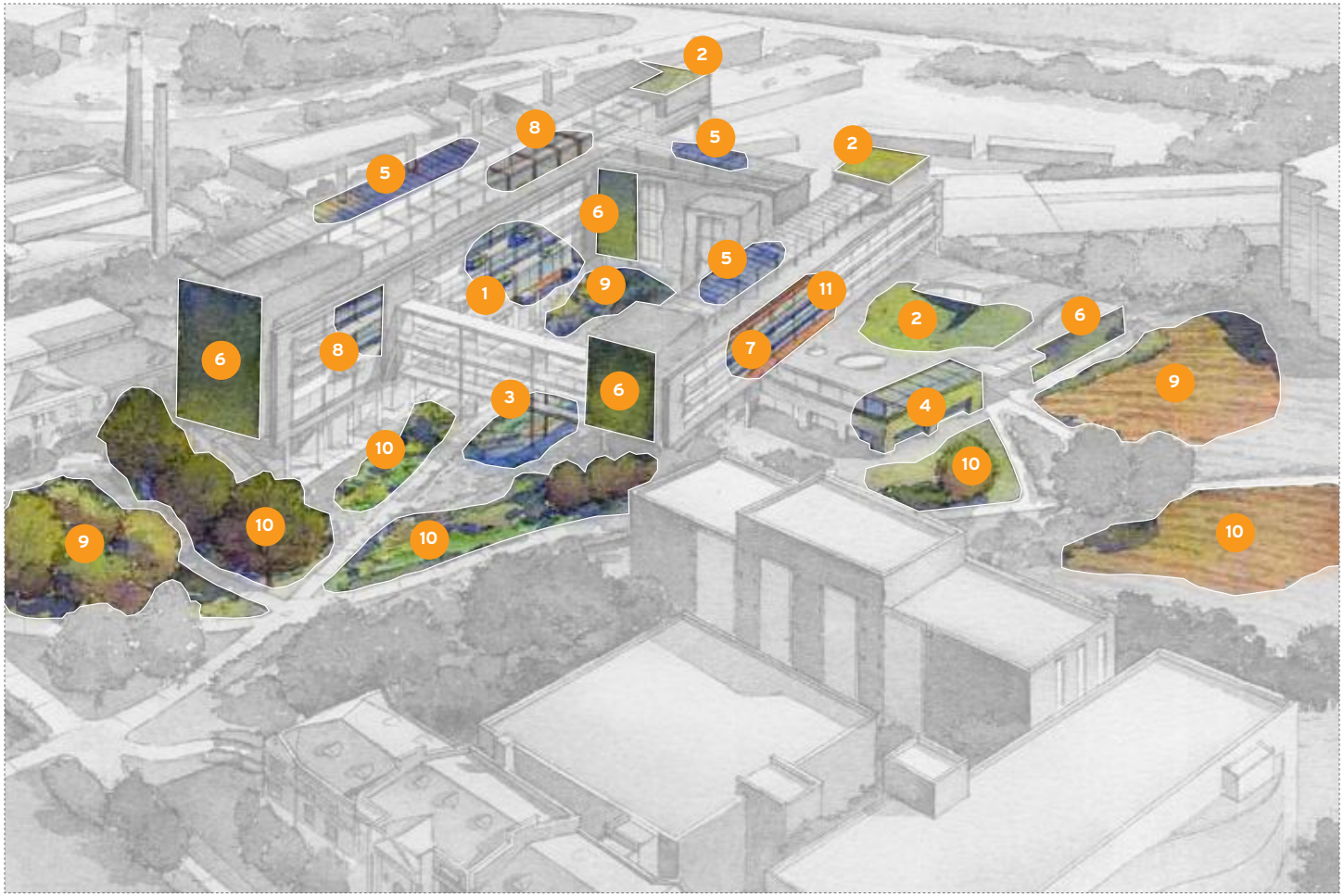
RESEARCH DOLLARS

LEARNING

To create change, the building and site will serve as a **transparent living laboratory** available to everyone.

POTENTIAL STRATEGIES

- Integrate curriculum with building and grounds
- Demonstrate most appropriate technology and incorporate into research
- Provide accessible collaboration spaces for all ecology students, staff and outside partners
- Make immediate feedback loops for resource utilization available for conservation education, internal competition
- Set a template for performance improvement over time
- Reward positive behavior change
- Endow a staff position to manage building as a learning laboratory



1 Balconies in the canopy promote interaction between human activities and the eco-culture of the courtyard
2 Green roofs serve as living laboratories and demonstration gardens
3 The stream through the courtyard illustrates the continuity of the watershed to the river
4 Eco-machines purify black water and serve experimentation in the main entry space
5 Rooftop photovoltaic panels demonstrate the building's use of renewable energy sources
6 Green walls provide shade, cool through evapotranspiration and filter views in and out
7 Sun shades and light shelves articulate the facades and demonstrate the daylighting function of the building skin
8 Rooftop greenhouse serves as a living laboratory
9 Sustainable habitats, wetlands, grasslands and stream provide outdoor educational settings
10 Lawn and ground cover test areas, organic and container farming test areas and demonstration gardens are integrated into the project
11 "Breathing facades" save energy costs and improve indoor air quality

- Indoor greenhouses and terrariums with regional and tropical habitats, aquariums, compelling soil lab walls for hydrologic processes, indoor eco-machines for wetland ecologies, in a processional that dramatically enriches the building experience.
- Interactive computational study centers are distributed throughout to immerse students in G.I.S. based geo-tracking and geo-infomatics
- Annual updates and the links between eco-systems and climate, population, infectious diseases, crops and crop systems, plant reproduction, etc. will be made publically accessible through Odum's posters and screen saver series and publicly displayed.
- Rainwater collected from the roof and purified water from the eco-machine feed the stream and is used for on-site irrigation
- A regional/seasonal cafe is located in the main public space


HARDMAN
ODUM
ODUM
FORESTRY
LIFE SCIENCES
DW Brooks Mall
Green Street
A
B
C
D
E
F
G
H
I
0 25 75 125 ft

Potential research area

Outdoor classroom

Environmental classroom

A ECOL 1000 ECOL 3000
Plant and Animal Abundance
(courtyard and garden)

B ECOL 3700
Agroforesty in Historic Garden

C ECOL 3700 ECOL 4271
Agrofestry in Historic Garden

D ECOL 3520
Environmental Toxicology &
Restoration (courtyard & garden)

E ECOL 4010
Earth Sheltered Architecture

F ECOL 8220
Stream Ecology

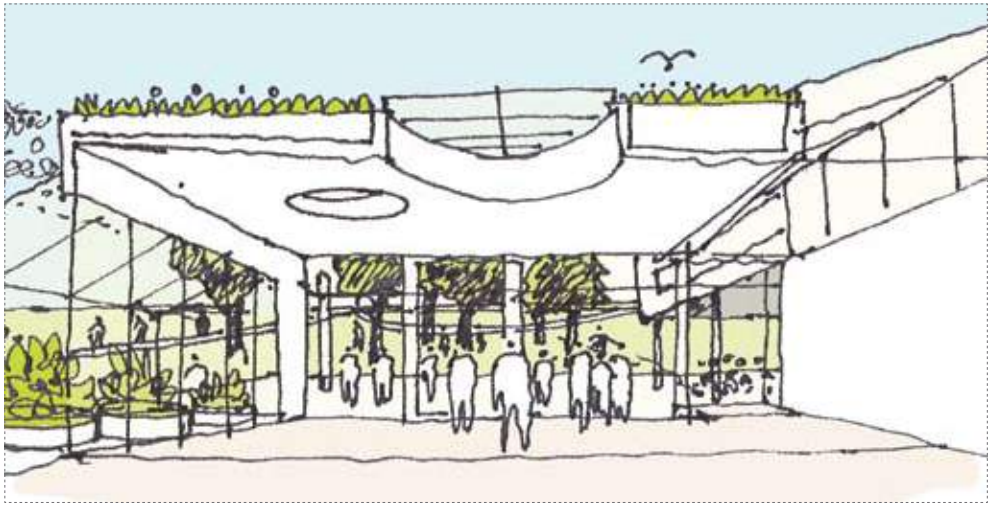
G ECOL 3500 ECOL 8650
Lawn and Ground-cover Study Area
with Nutrient Cycling

H ECOL 4100 ECOL 8660
Soil Biology Study for Ground Covers

I ECOL 4020 ECOL 4310
On-Campus Watershed Comparisons -
Piped and Daylit

Left: The existing site area, west to DW Brooks Mall and south to Green St, will be transformed into a series of natural working systems that support Ecology, Forestry and other UGA curricula. New outdoor educational settings – sustainable habitats, wetlands, grasslands, and streams - will demonstrate the power of landscape to restore plant and animal diversity, stream ecologies, watersheds and soils.

View looking north from Green Street at the south entry, with lawn and ground cover test areas, organic and container farming test areas, and other demonstration gardens in the foreground.



Users who come from the South will enter under a green roof research area and have a direct view of the ecological wastewater treatment system that will be cared for by the students and the faculty.

BIODIVERSITY

CURRENT

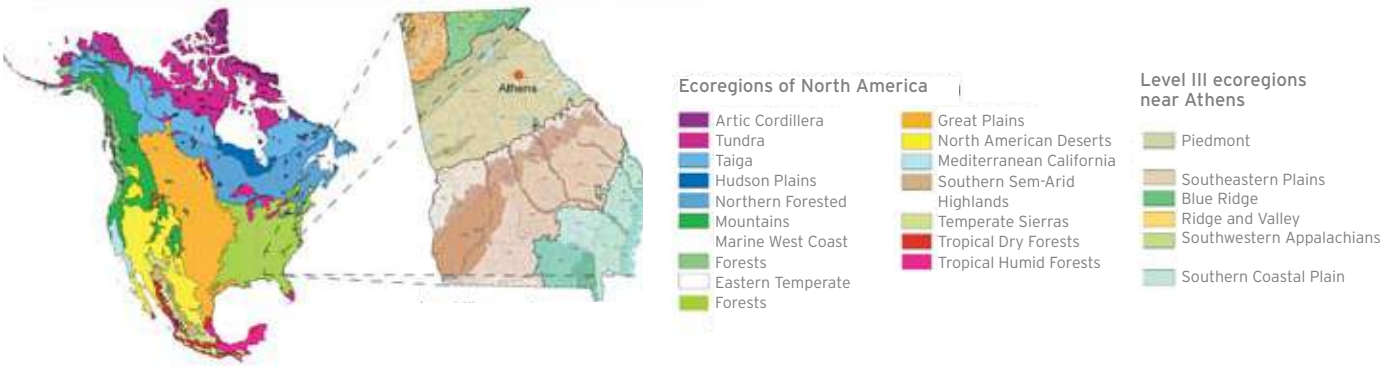
FUTURE

SPECIES

Embracing ecological diversity, complexity and resiliency, the project will allow natural systems to **self organize, heal and regenerate** ecological processes. This, in turn, will provide food, fiber and shelter for **living species** including humans.

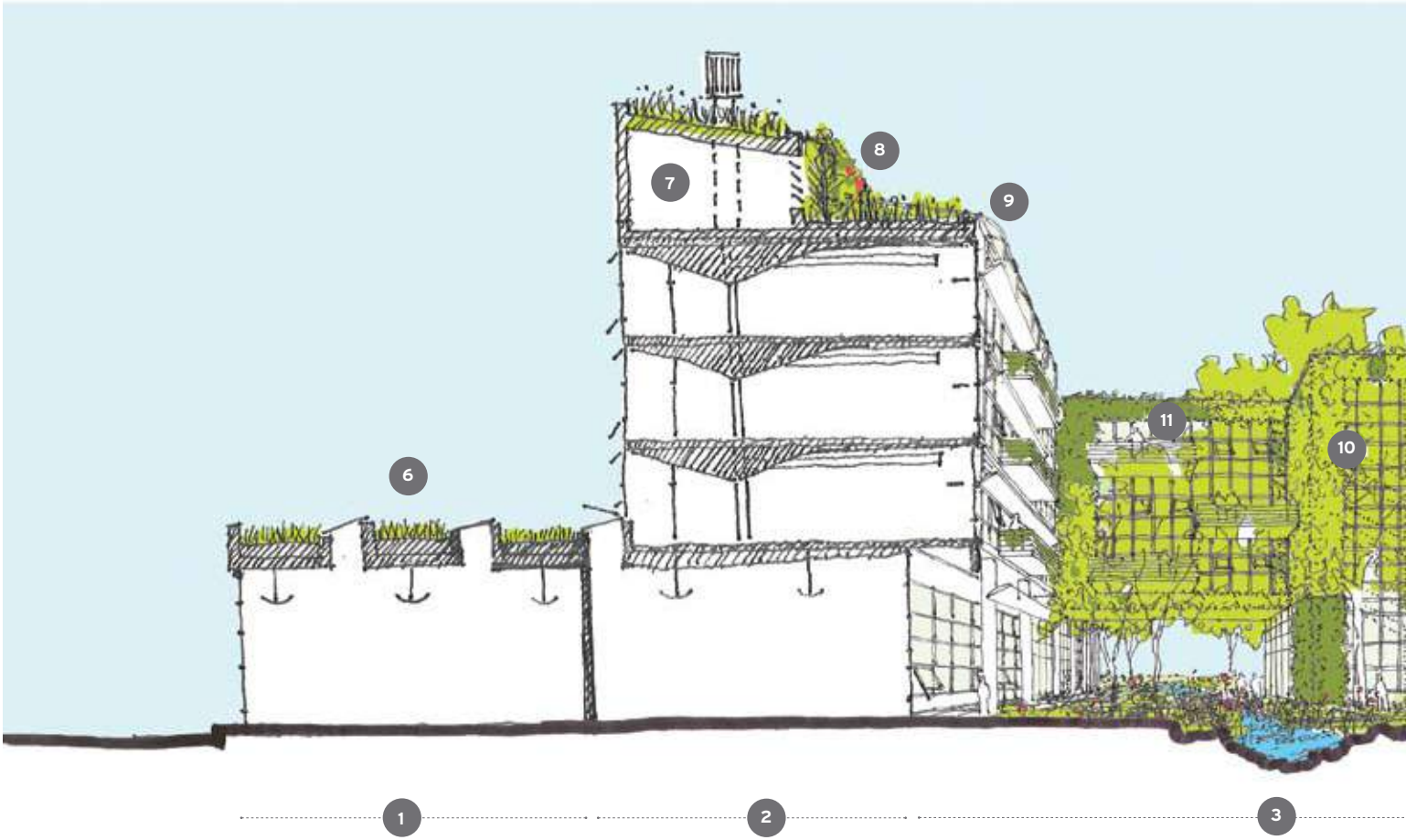
POTENTIAL STRATEGIES

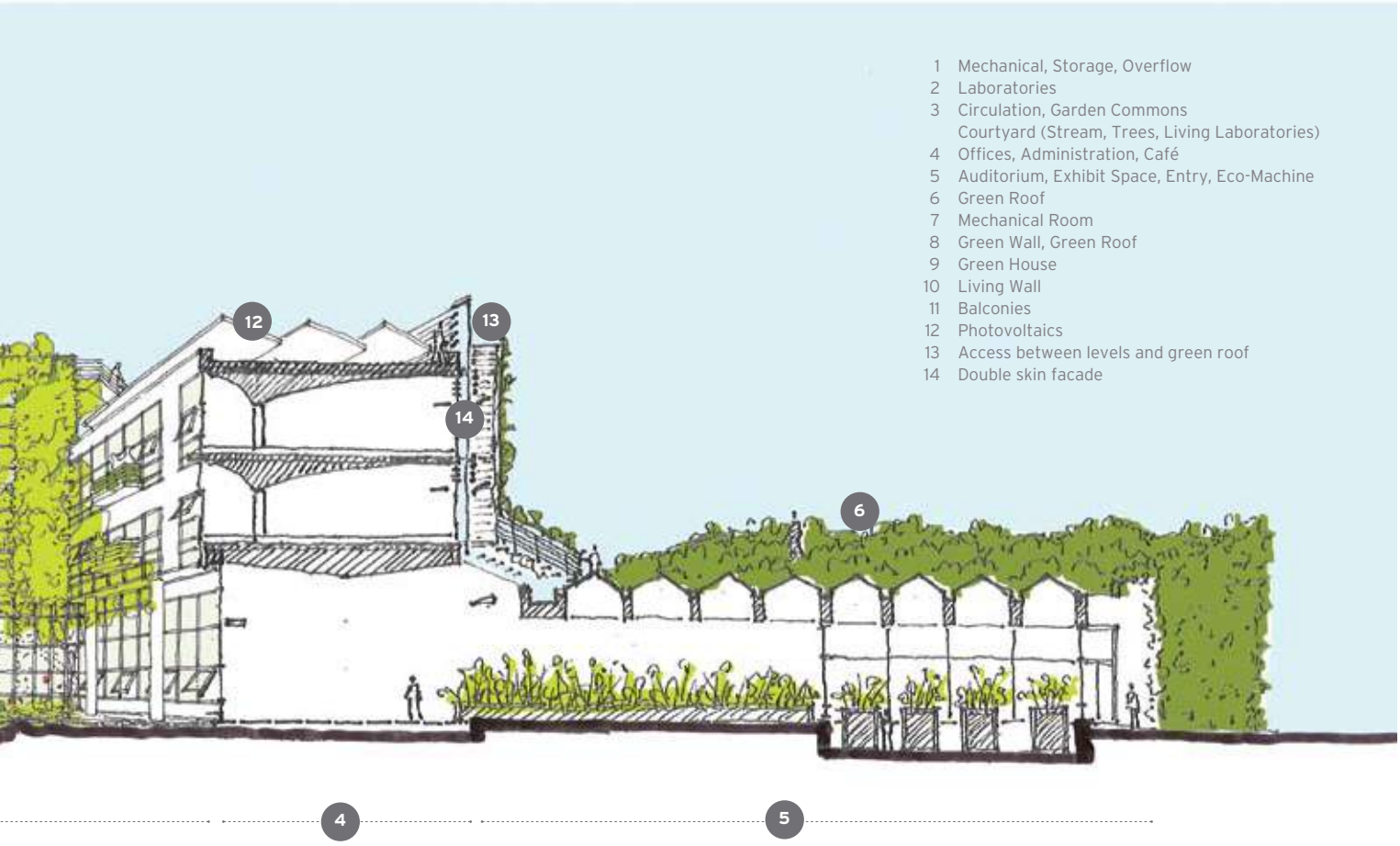
- Make natural resources tangible
- Building acts as part of nature improving natural systems
- Provide a diverse set of plant species for habitat diversity and function
- Create opportunities at all elevations
- Demonstrate agro-forestry, garden, toxicology, lawn study, ground cover study, soil regeneration, organic farming, container farming, wetland, stream, historic restoration
- Stock the café with Ecology School farm resources
- Innovate a new biomimetic product



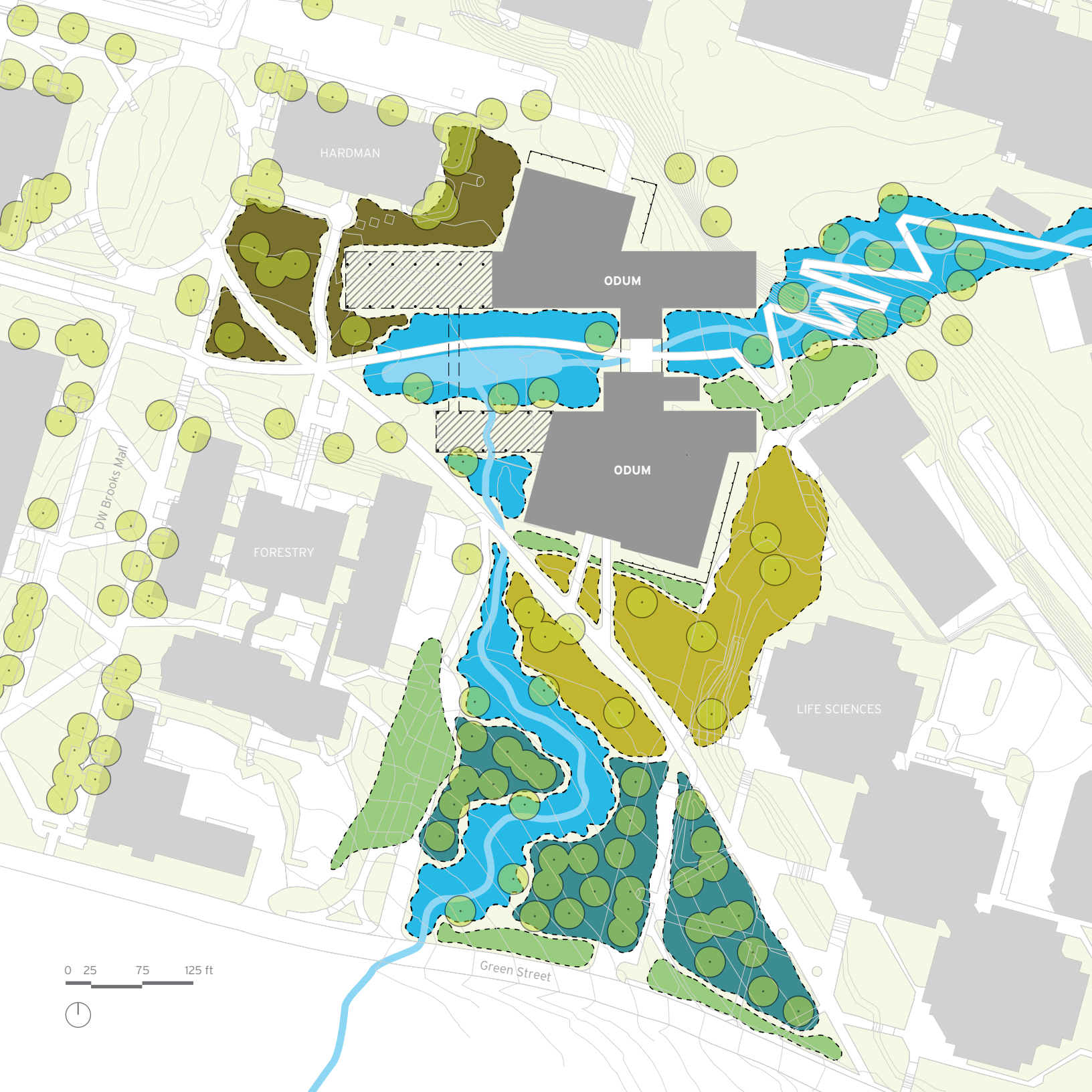
Site development will support and be respectful of the indigenous species of flora and fauna, expanding the opportunity to provide ongoing education about the importance of biodiversity.

Building Section





Section perspective looking east showing concept ideas for creating a new habitat.
The enriched experience provides extensive green roofs planted in conjunction with lab curriculum to attract desired species; integrated green walls for shading and habitat; and rainwater capture and reuse to develop wetlands, grasslands and streams.


HARDMAN
ODUM
ODUM
DW Brooks Mall
FORESTRY
LIFE SCIENCES
Green Street
0 25 75 125 ft

Piedmont forest

Riparian corridor

Native meadow

Permaculture

Arboretum

Environmental classroom

Left: An overview of the biodiversity zones going west to DW Brooks Mall and south to Green St. The sensitivity and diversity of developing the site this way offers a more appropriate headwaters condition, increases habitat potential, offers curriculum opportunities and provides readily accessible public demonstration areas.

Perspective of the interior courtyard looking east, with the larger trees removed to convey the transparency and connection between the indoor and outdoor learning environments.

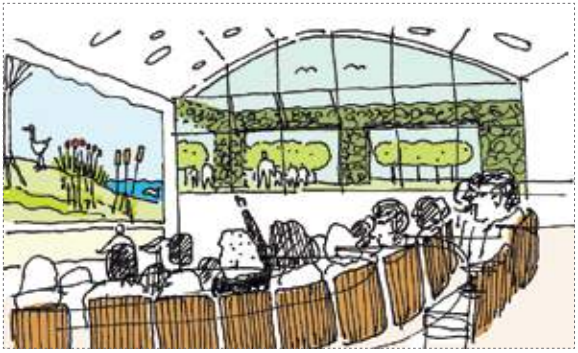
LIVABILITY

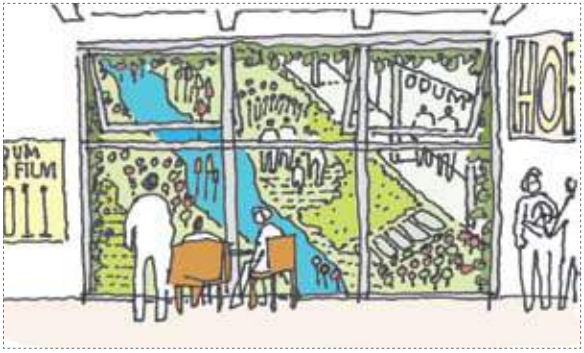
ATTRACTION/RETENTION

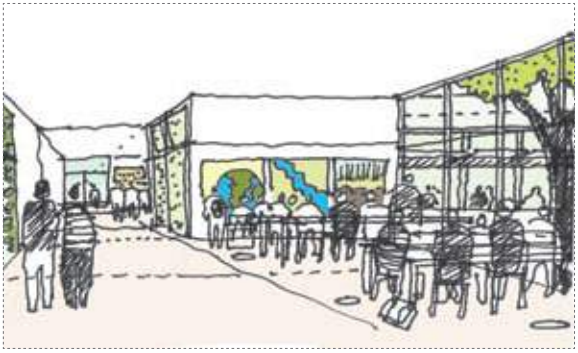
By encouraging **interaction and collaboration** and by incorporating the healthiest **building practices**, this project will create i**nspiring, healthy** indoor and outdoor spaces where people long to work, study and visit.

POTENTIAL STRATEGIES

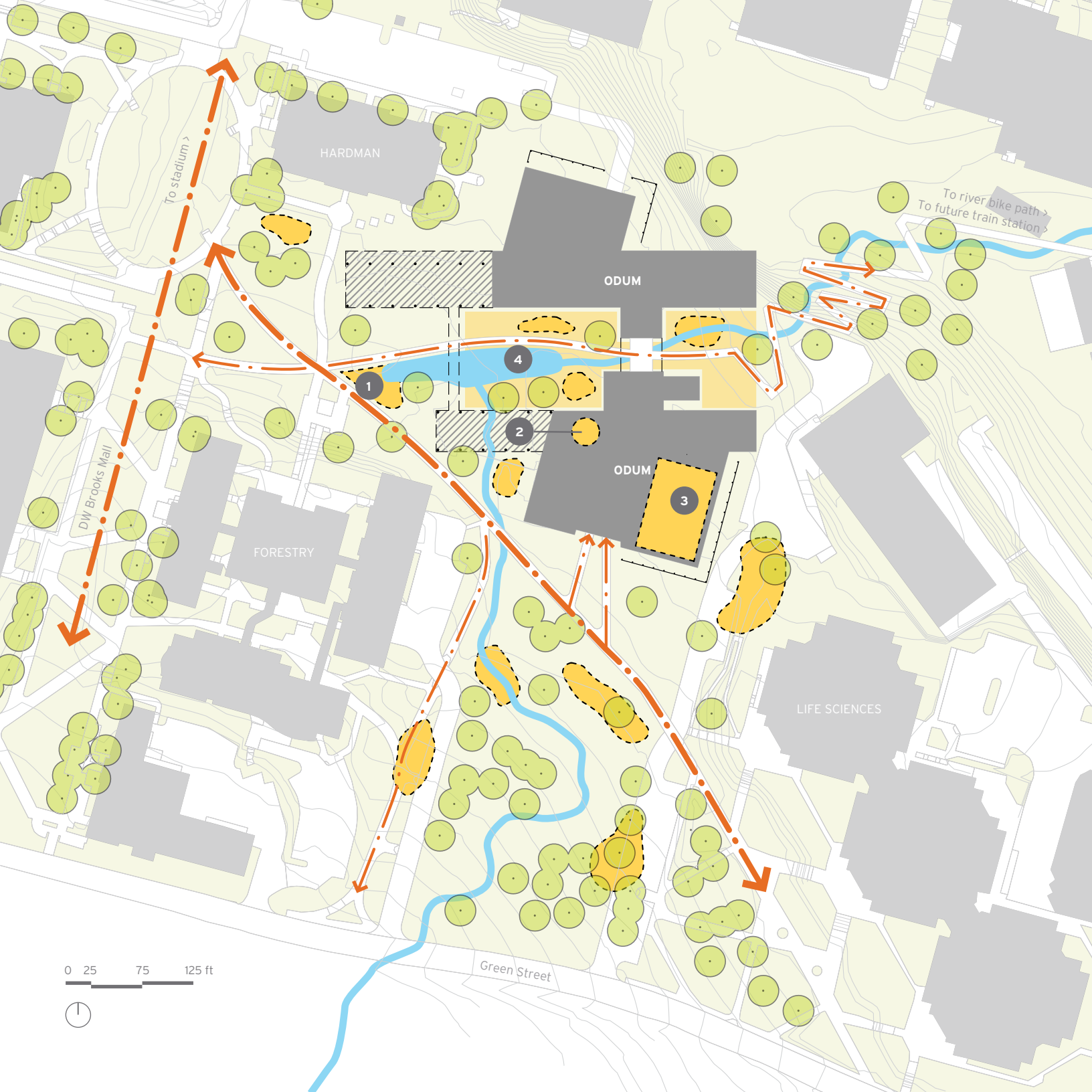
- Incorporate a courtyard that blends inside with outside allowing a place to celebrate and learn
- Promote user control of systems
- Provide access to outside experiences, daylight, natural ventilation, views
- Blend appropriate adjacencies for collaboration and efficiency
- Create and promote integrated environmental art, greenwalls, natural canopies, and waterways
- Partner with campus, community, corporate partners, and government
- Develop a ride share program and discourage single user vehicle use







Interior perspective view of the collaboration corridor, which connects the north and south wings of the building. The collaboration corridor provides gathering spaces for teams of students and faculty to meet both formally and informally. A large window offers daylight and views to the outdoor learning environment.


HARDMAN
To stadium >
ODUM
ODUM
To river bike path >
To future train station >
DW Brooks Mall
FORESTRY
LIFE SCIENCES
Green Street
1
2
3
4
0 25 75 125 ft

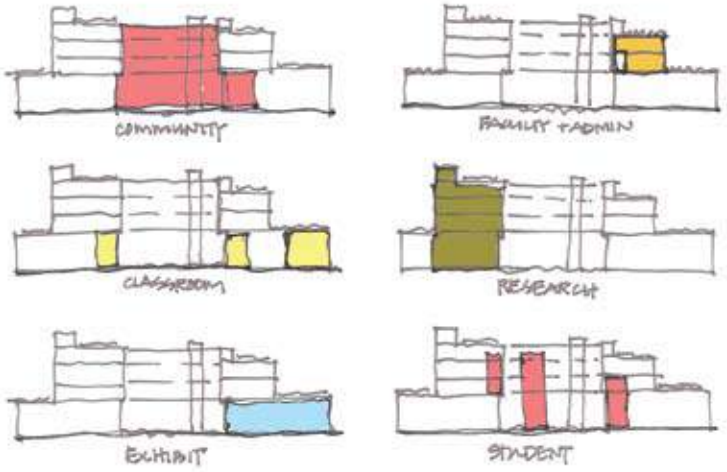
Cultural amenities

Primary circulation

Environmental classroom

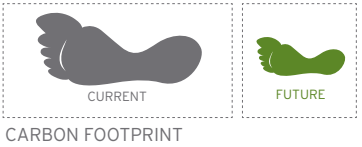
1 Mary Kahrs Warnell Garden
2 Environmental Cafe
3 Audtitorium
4 Courtyard

Left: The site of the Odum School of Ecology is at the intersection of two main pedestrian thoroughfares of the University of Georgia Campus. The vision for this gateway connection is to increase the outreach of neighboring schools' work through the experience of the passer-by. Cultural amenities unique to the function of the School of Ecology are readily accessible within the interior courtyard.



Conceptual level building program types are highlighted in rough section sketches and compared by total square foot percentage.

ENERGY

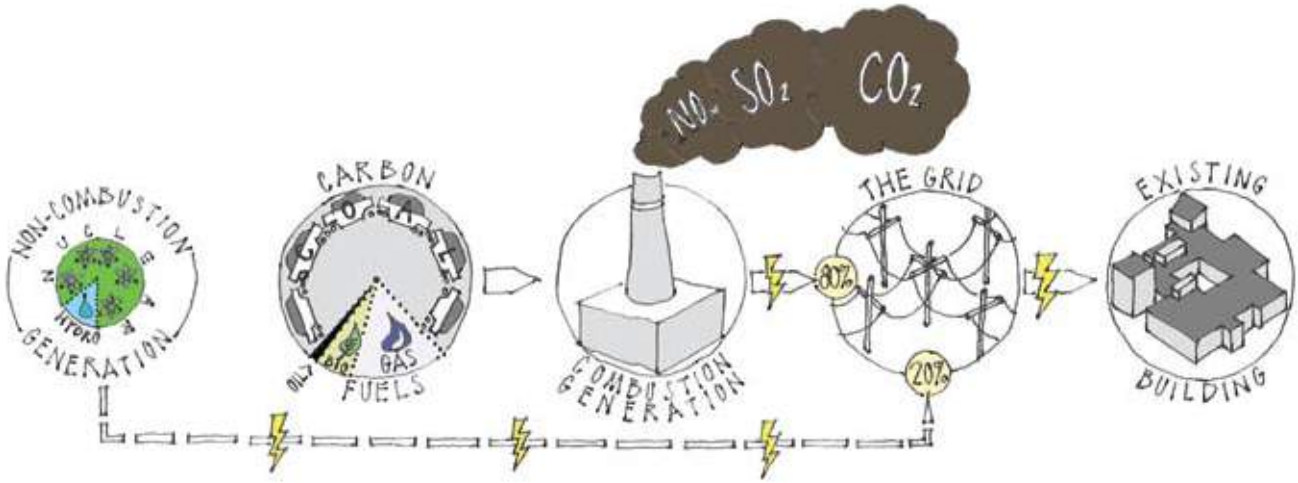


CARBON FOOTPRINT

The building will operate on a **carbon neutral** basis that demonstrates **appropriate demand and supply** technologies at various scales.

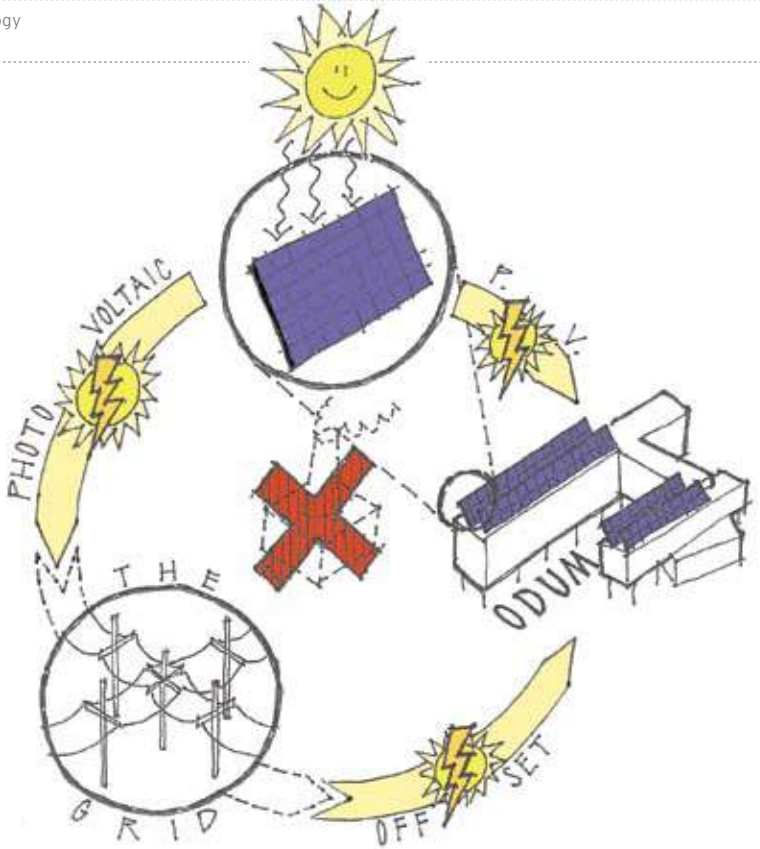
POTENTIAL STRATEGIES

- Use identified building species for organizational and building systems development
- Pair conservation and efficiency to set a new low benchmark for energy use in laboratories
- Specify efficient equipment and use conservation features
- Establish operational policies that support responsible use
- Supply enough on-site renewable energy via photovoltaics and biomass to be a net-energy producer on an annual basis
- Provide a 100% daylit building, supported by active shading
- Provide mixed mode ventilation, with preference to natural passive systems
- Reuse traditional waste thermal energy for building thermal needs



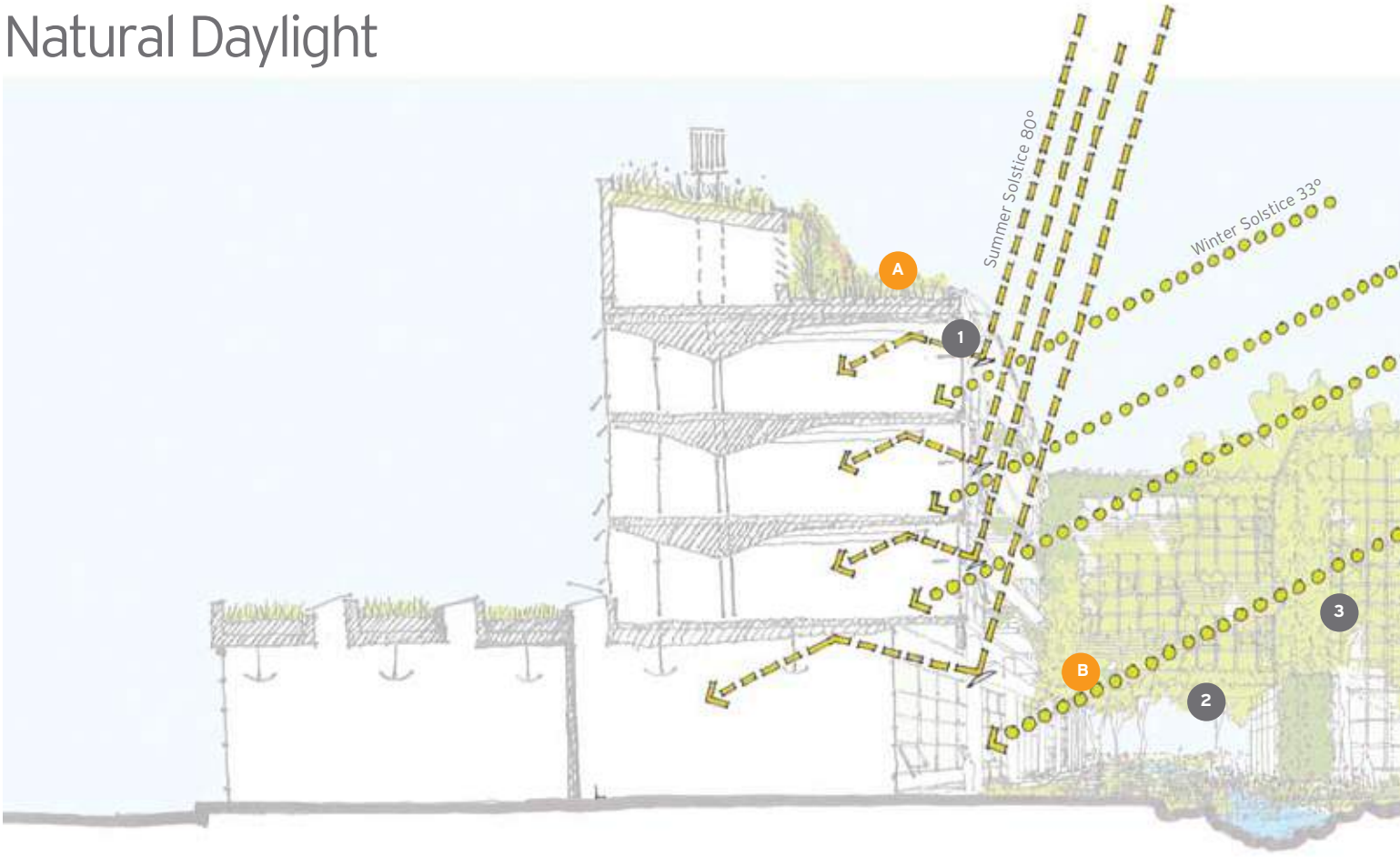
Existing Life of Energy for Odum School of Ecology

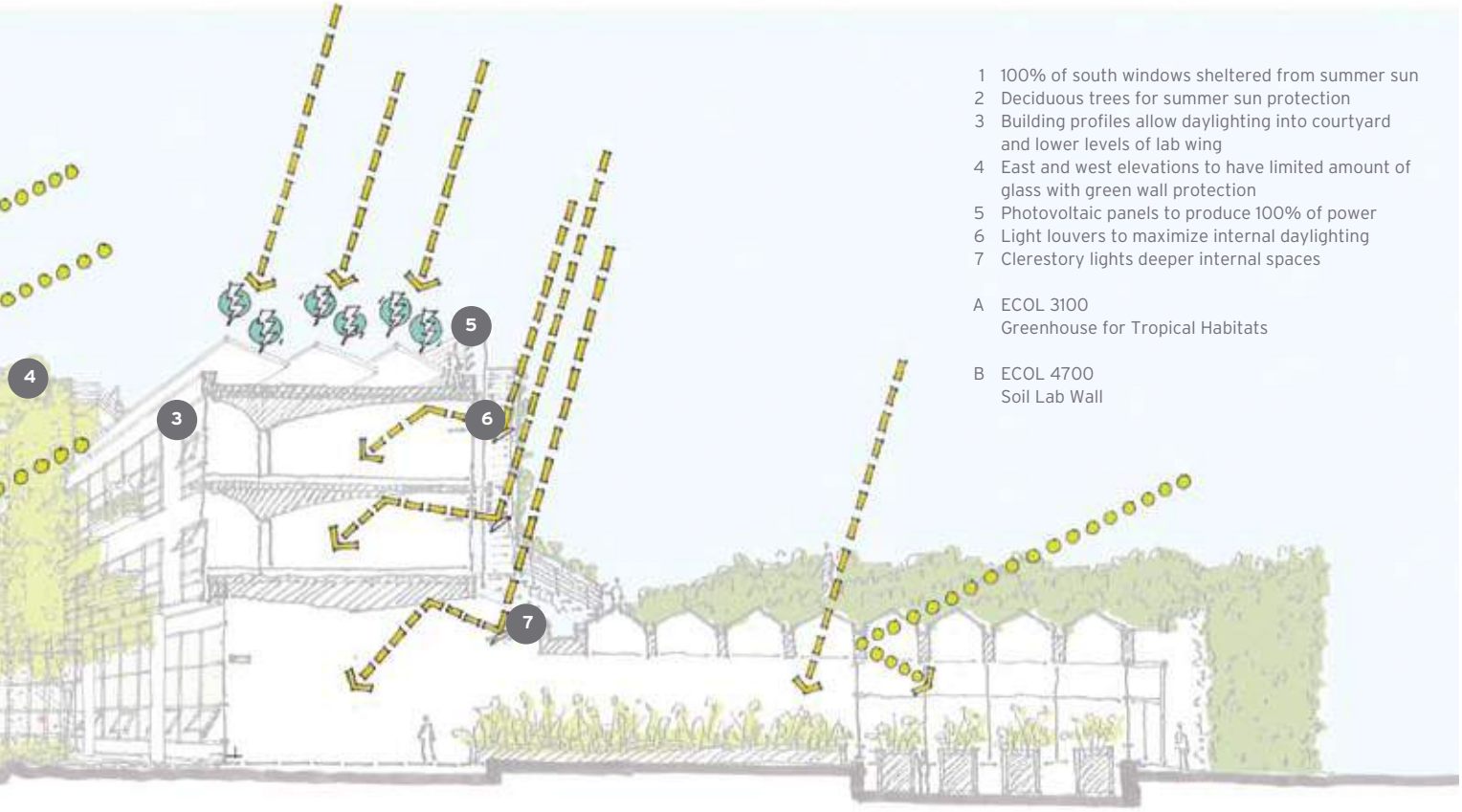
80%
LESS ENERGY



Future Life of Energy for Odum School of Ecology

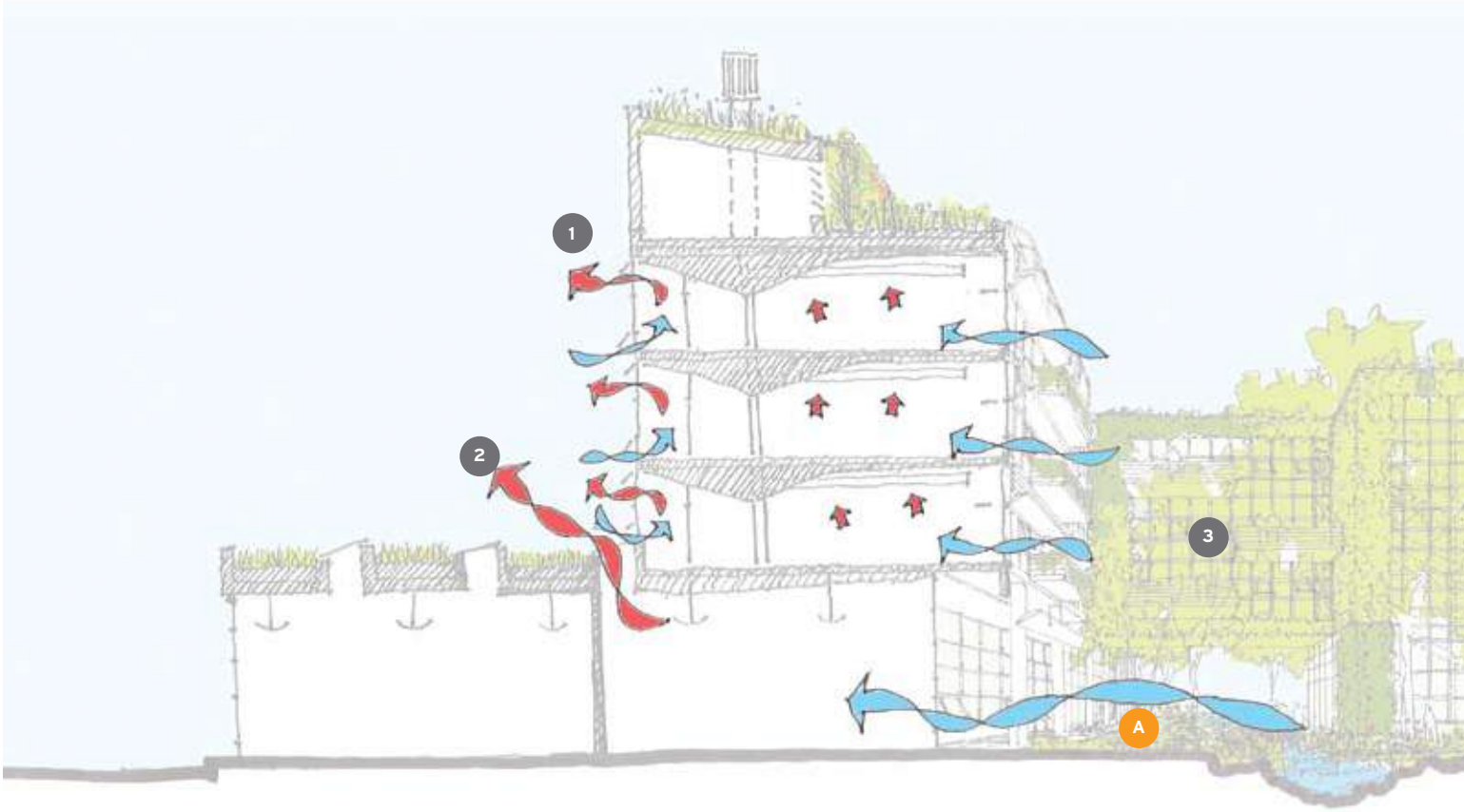
Natural Daylight

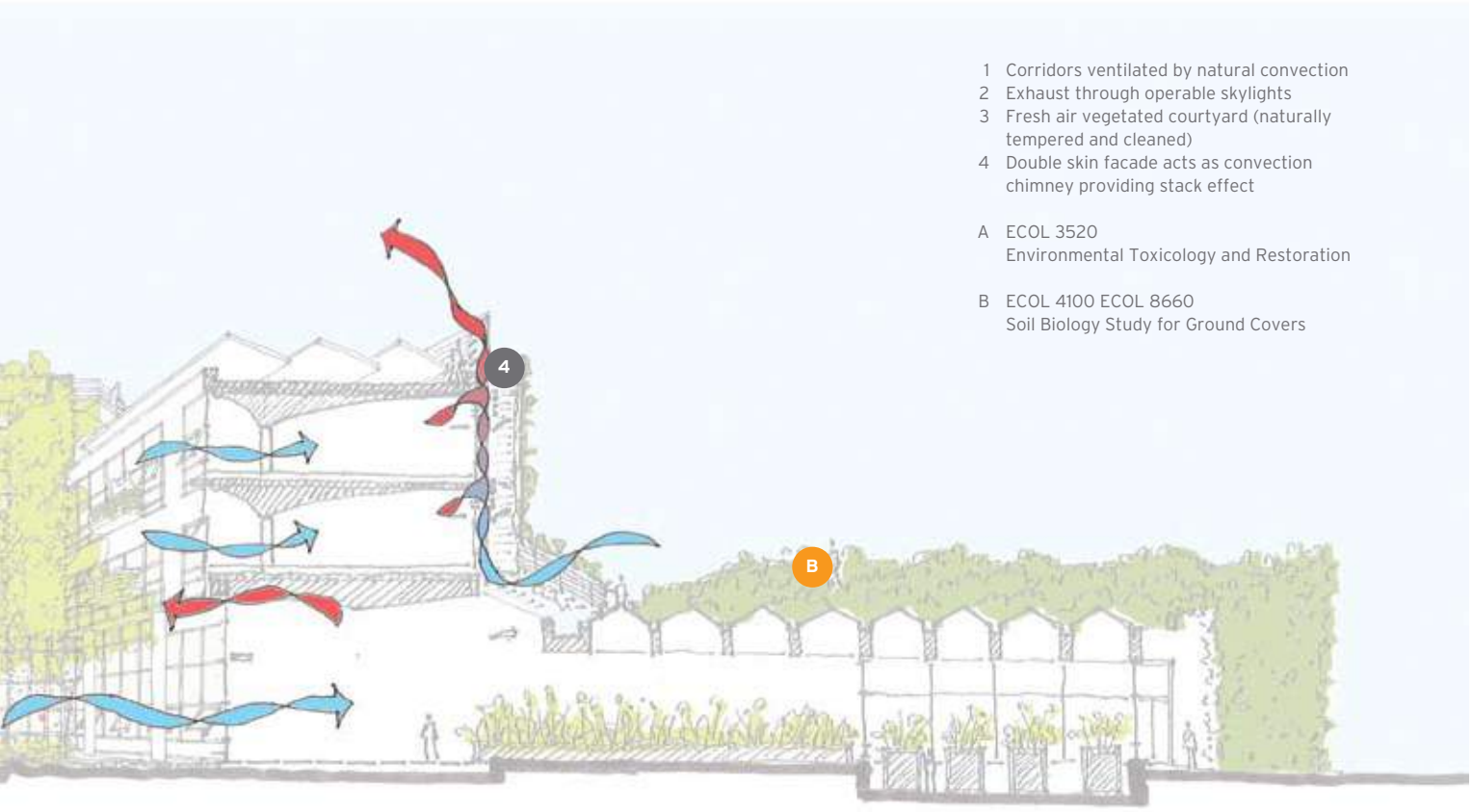




The section perspective (looking east) above shows the advantages of providing orientation to solar south.
The building is designed to face solar south, providing the best access to both passive and active strategies available daily from sunlight. 100% of all interior spaces will be naturally daylit. Access to daylight has been shown to increase productivity and accuracy of building users. Use of photovoltaics (solar panels) will be the primary energy source for the school. Solar panels will be located on the roof, on grade and integrated into the building façade and shading devices.

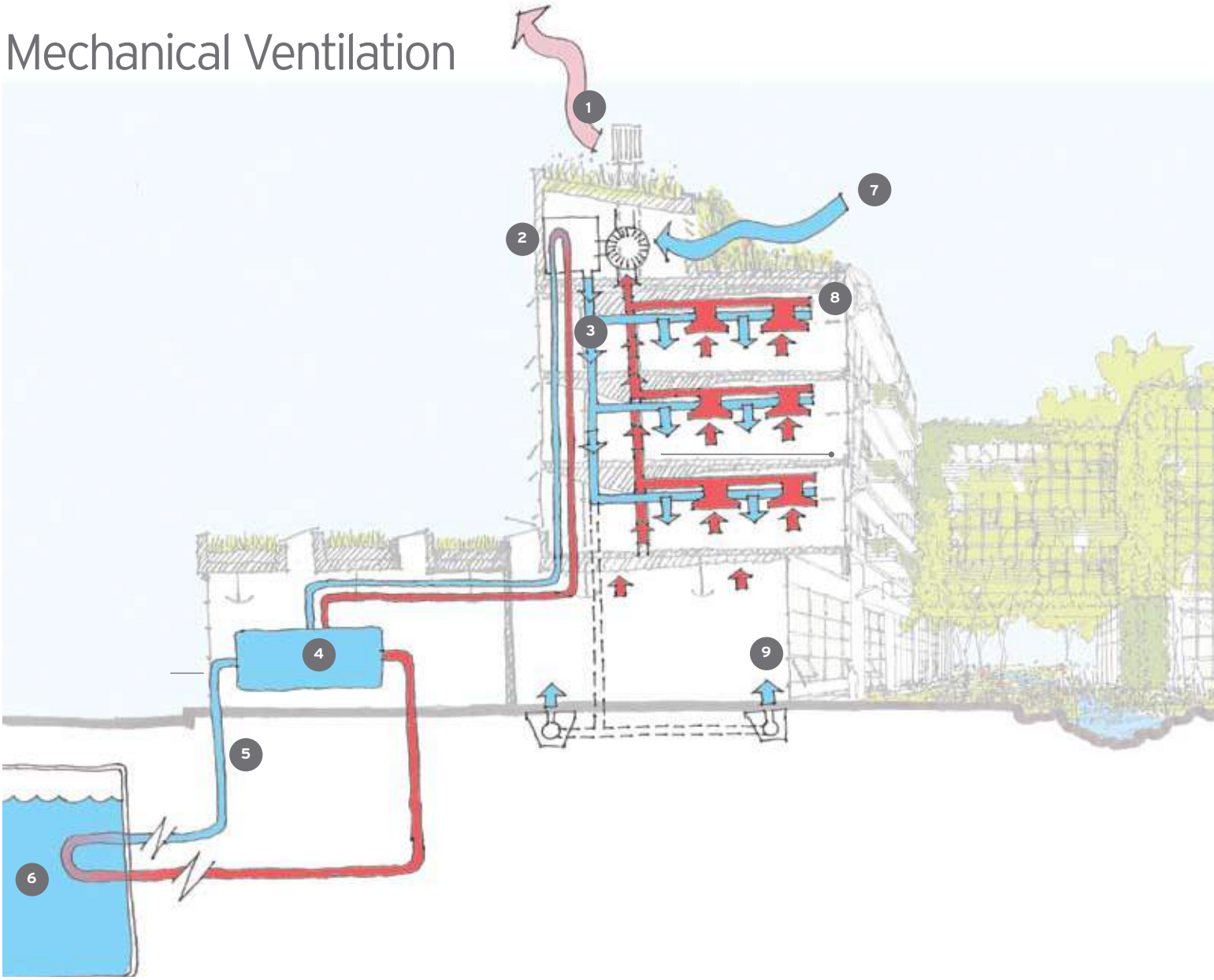
Natural Ventilation

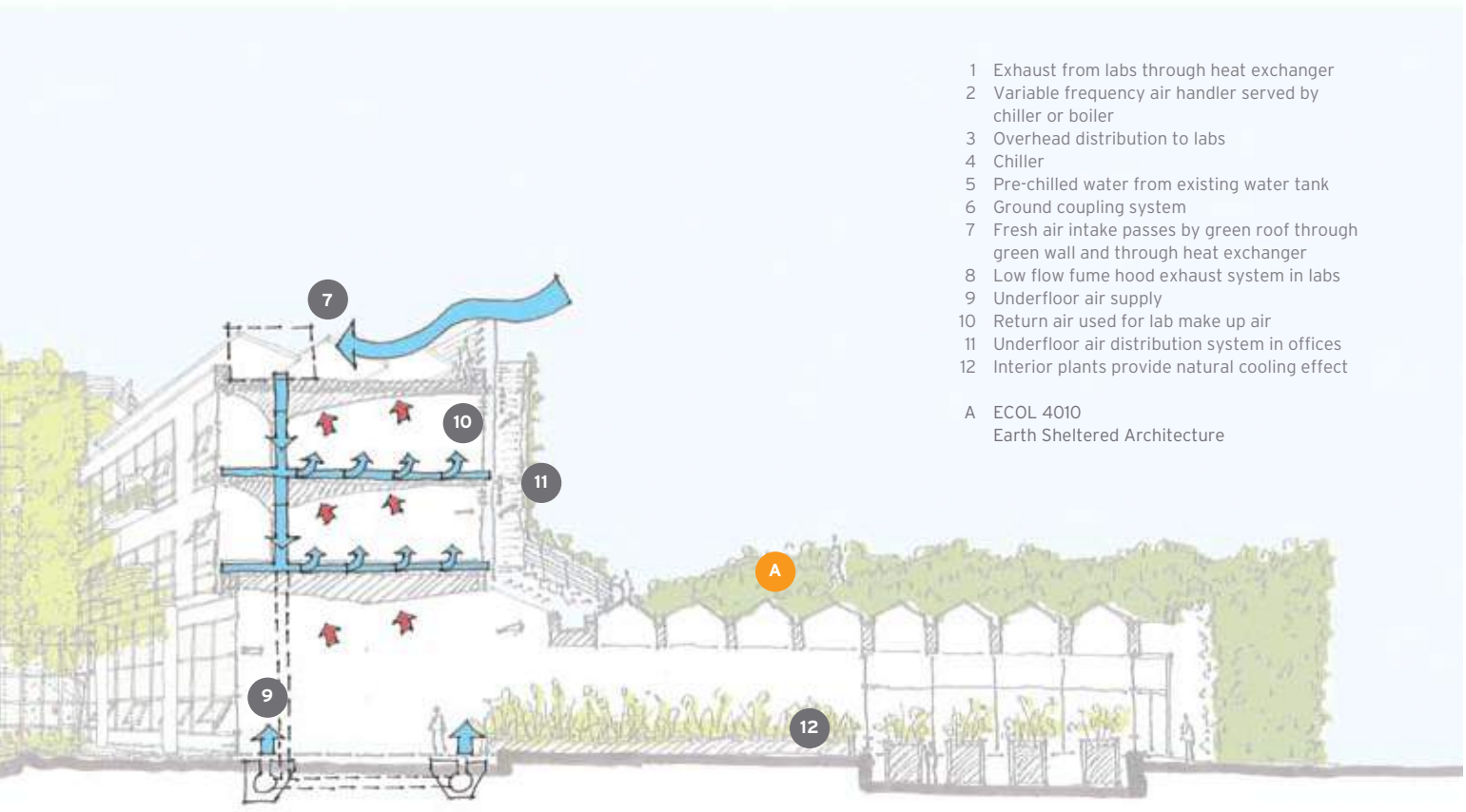




The section perspective (looking East) above shows a design concept of how the two main species of the building lab (left) and office (right) act in natural ventilation mode. Every time the building or a portion of the building operates in natural ventilation mode the Odum School's impact on the environment is reduced. The office wing uses a double skin facade on the south side and accepts fresh air from the summer dominant WNW winds. Lab research spaces receive air from operable windows on the south side and exhaust air through the filtered mechanical system.

Mechanical Ventilation





1 Exhaust from labs through heat exchanger
2 Variable frequency air handler served by chiller or boiler
3 Overhead distribution to labs
4 Chiller
5 Pre-chilled water from existing water tank
6 Ground coupling system
7 Fresh air intake passes by green roof through green wall and through heat exchanger
8 Low flow fume hood exhaust system in labs
9 Underfloor air supply
10 Return air used for lab make up air
11 Underfloor air distribution system in offices
12 Interior plants provide natural cooling effect

A ECOL 4010
Earth Sheltered Architecture

The section perspective (looking East) above shows a design concept of how the two main species of the building lab (left) and office (right) act in mechanical ventilation mode. In the office wing uses an underfloor air system, delivering the air where it is needed most. This system lowers air delivery temperature, reducing the energy required for cooling while providing individual control over the airflow and direction. Lab areas use an efficient overhead supply system with a heat exchange recovery wheel on the return side to capture reusable heat as the conditioned air leaves the exhaust stack.

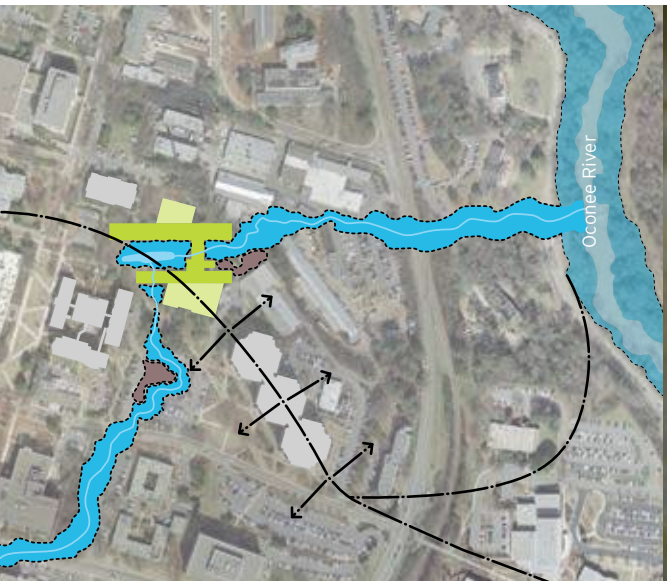
WATER

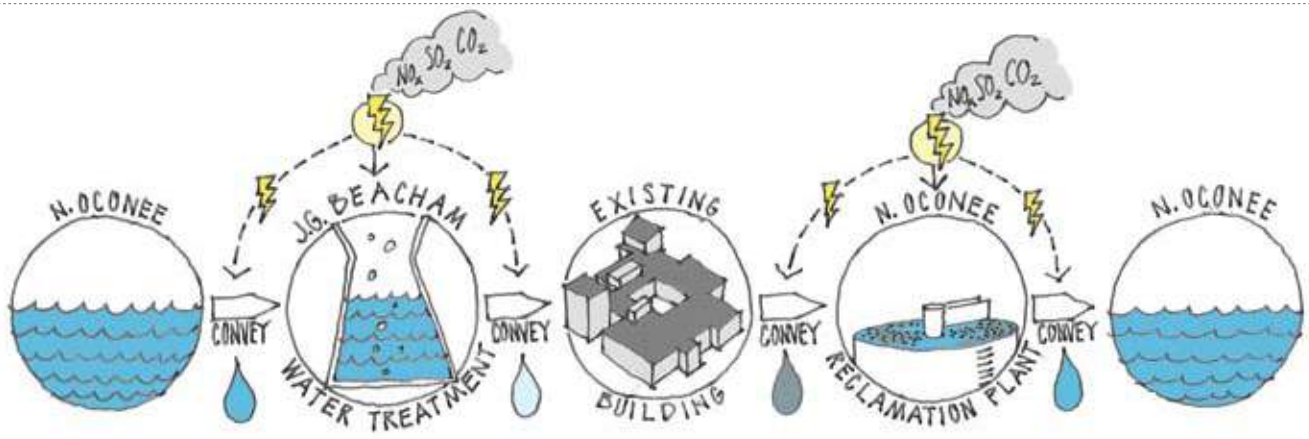
QUALITY + QUANTITY

Occupying a headwater to the Oconee River watershed, the project will celebrate water by **conserving and regenerating freshwater cycles**, directly linking the building site to the river.

POTENTIAL STRATEGIES

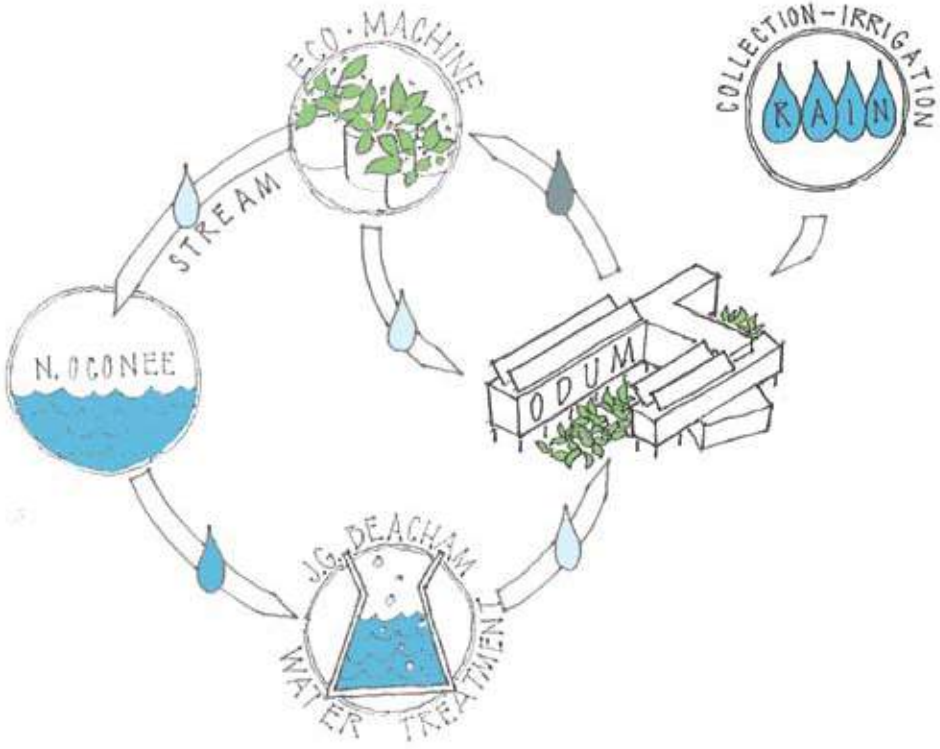
- Conserve with low flow fixtures
- Introduce extensive green roofs
- Capture rainwater and greywater for building use
- Utilize indigenous natural systems
- Demonstrate appropriate technologies
- Treat water on-site via combination of eco-machine and working landscapes
- Eco-machine will be run by students and faculty
- Store excess water in restored oil tank for chiller system heat sink
- Restore currently piped waterway to surface





Existing life of water for Odum School of Ecology

75%
REDUCTION



Future life of water for Odum School of Ecology


HARDMAN
ODUM
ODUM
FORESTRY
LIFE SCIENCES
DW Brooks Mall
Green Street
To North Oconee River
1
2
3
A
B
0 25 75 125 ft

Riparian corridor

Rainwater collection area

Drainage area divide

1 Headwater of two streams
2 Restore/daylight historic stream
3 Potential riparian corridor

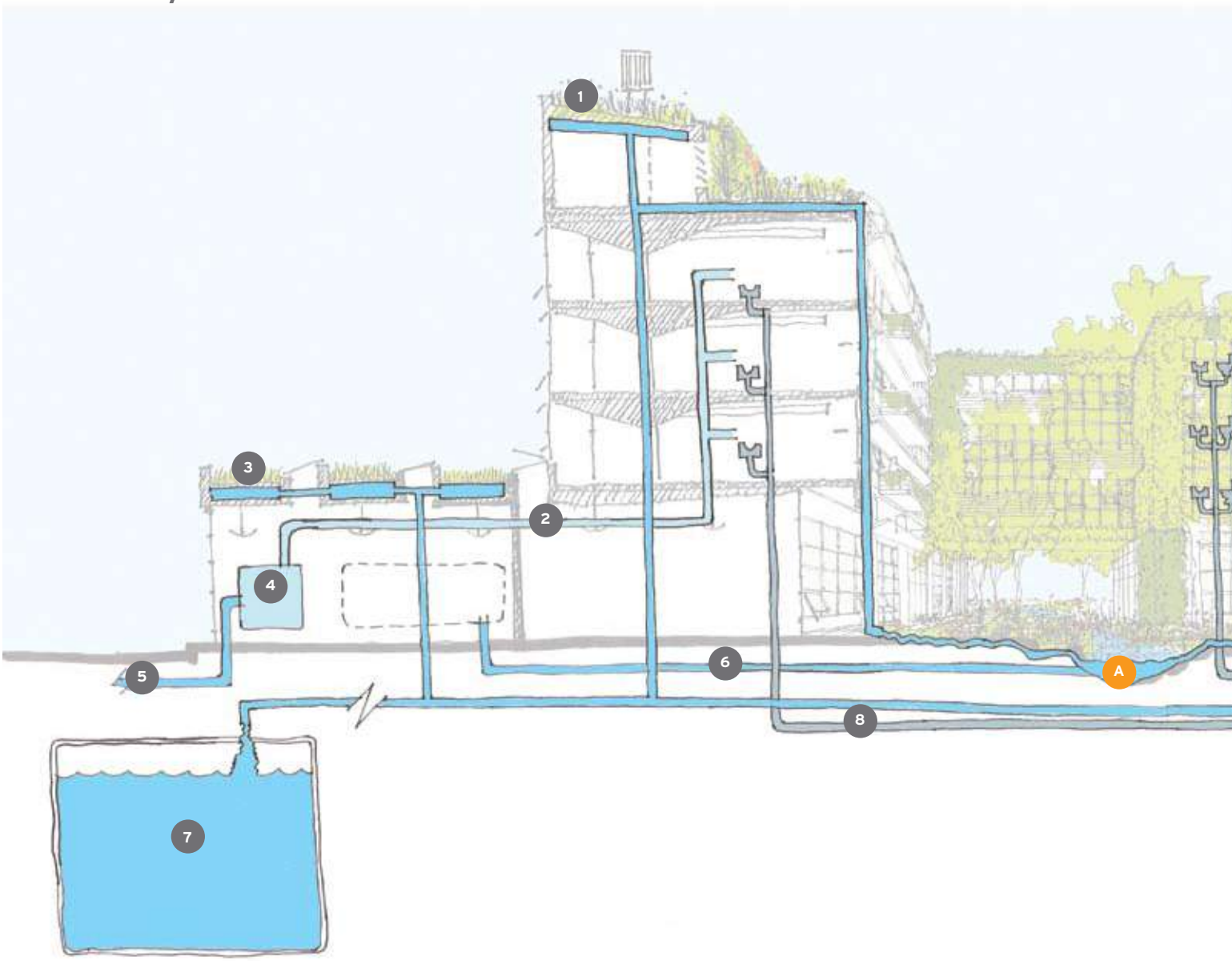
A ECOL 4020 ECOL 4310
On-campus Watershed Comparisons
Piped and Daylit Historic Stream

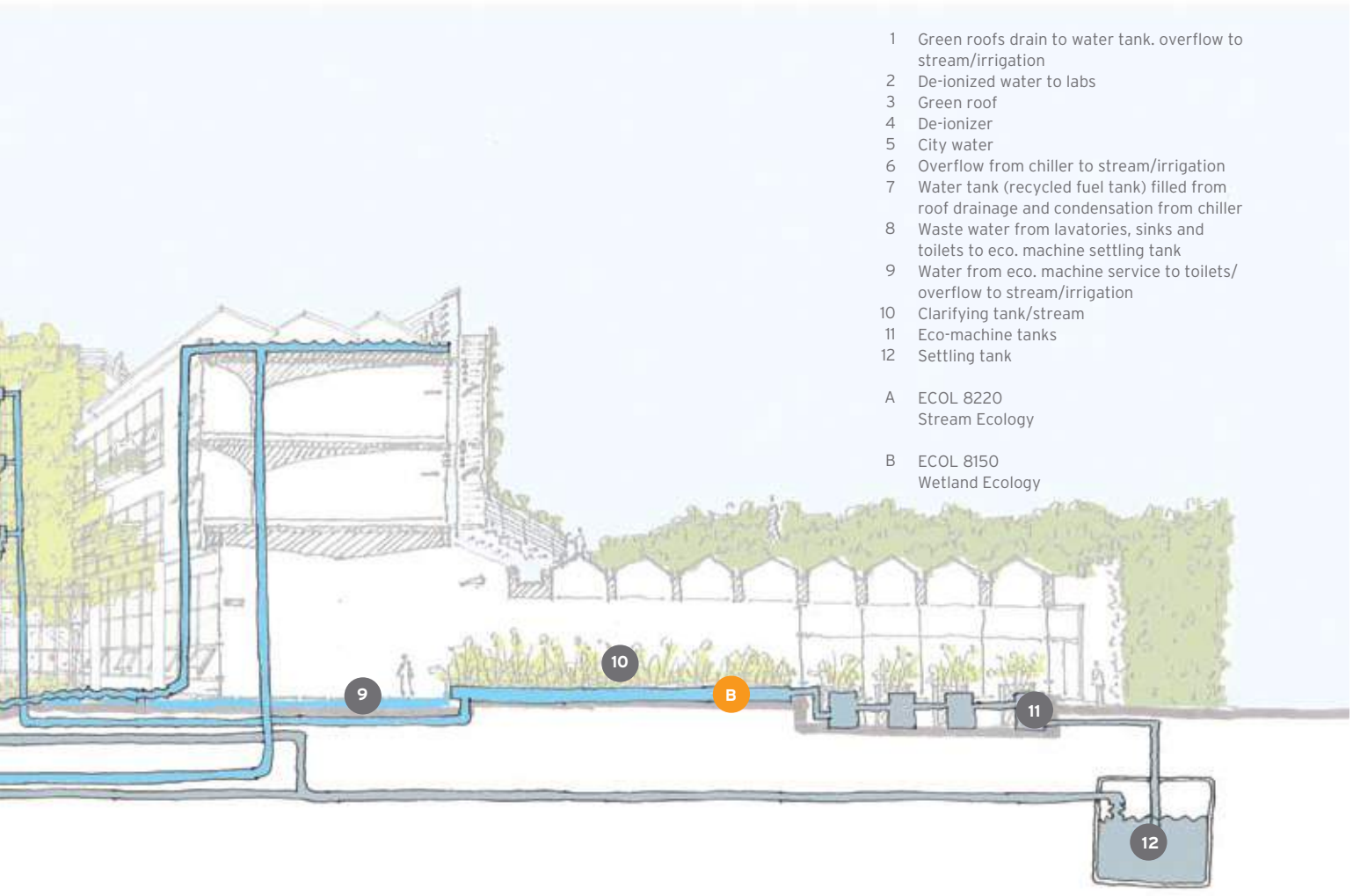
B ECOL 8220
Stream Ecology

Left: The project site area straddles a ridge that divides two drainage areas which are both part of the Oconee watershed. Current site design rapidly puts all storm water into pipes sending it away. Environmentally regenerative and restorative techniques at the new site development will create attractive, usable and educational habitat zones along the exposed waterways.

As pedestrians turn east off of DW Brooks Mall they will experience a more natural set of surroundings including a natural streambed flowing from the Odum School of Ecology courtyard.

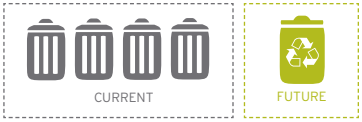
Water Systems





The above section perspective (looking east) showcases how the building fabric can be a source of fresh water and uses every drop at least twice.
The building will manifest the highest level of water conservation possible for building type and location. In addition to capturing rain water, it will recapture grey water and black water through the eco-machine, ensuring the lowest water use with the highest ecological richness.

NUTRIENT CYCLING

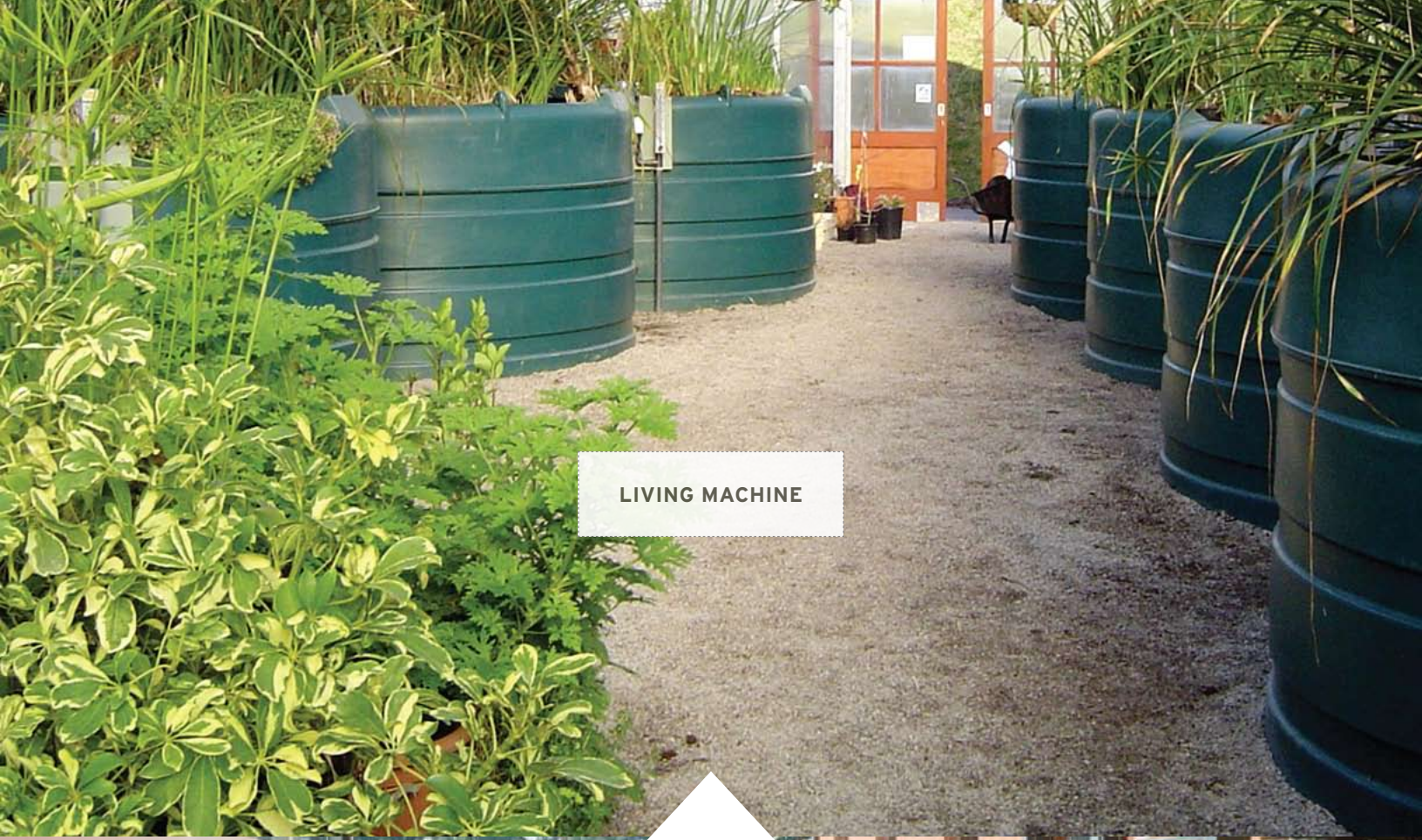


NUTRIENT CYCLING

Mimicking nature, the building will operate **waste-free** by integrating **natural systems** and adopting and inventing **sustainable operating practices** that harvest nutrients.

POTENTIAL STRATEGIES

- Create a system for zero waste
- Eco-machine for blackwater run by the students and faculty
- Select only environmentally preferred building material products based on a systems approach
- Eliminate any applied materials
- Harvest materials from existing Ecology School building
- Develop cradle-to-cradle operational practices for materials and products
- Compost all cafe products
- Offset any negative environmental impacts



LIVING MACHINE

CAFETERIA

Material Narrative

GOALS

The Odum School of Ecology will showcase how materials and assemblies in the building fabric can be integrated into the curriculum. The opportunities are significant, regional materials with high agricultural and forestry content, natural materials and assemblies with high recycled content, low outgassing, no waste, and long life through cherishable craftsmanship and design for disassembly. Cradle to cradle decision making will be pursued, with a visionary pursuit of biomimetic innovations from self cleaning to breathing facades with zero net energy, zero net water, zero net waste.

CRITERIA FOR MATERIAL SELECTION

Criteria for sustainable material selection for the project could include the following. The order of importance or weighting of the criteria should be discussed further as a project team.

Energy and Water Use in the Building

Does the product or assembly reduce the energy and water consumption of the building over its lifetime?

Environmental and Human Health Systems

Does the product or assembly throughout its lifecycle reduce the negative impact on life-support systems?

Occupant Well-being

Does the product or assembly eliminate hazards to indoor air quality, while improving indoor environmental quality and occupant wellbeing?

Durability, Performance and Maintenance

Does the product or assembly perform its intended function elegantly for at least 100 years?

Recycled Content

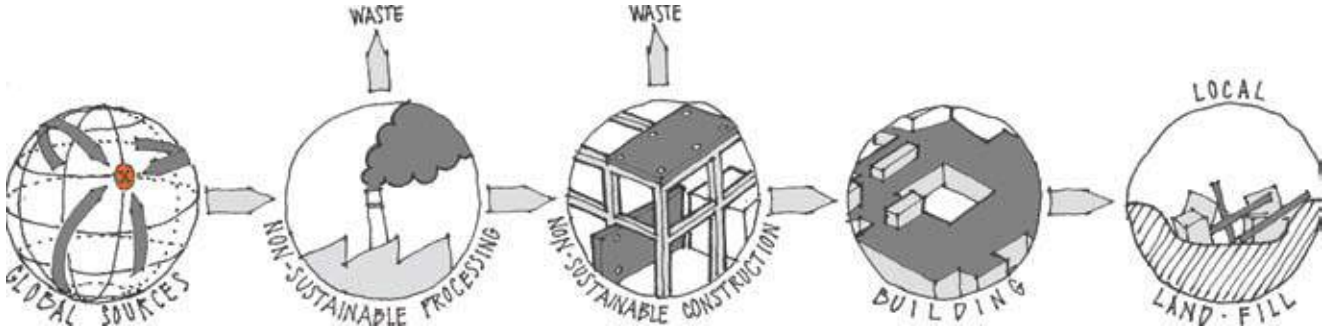
Is the product or assembly produced with recycled material stock reducing the demand for virgin raw materials?

Resource Limitation

Is the product or assembly made from materials that are rapidly renewable or are they rare and endangered?

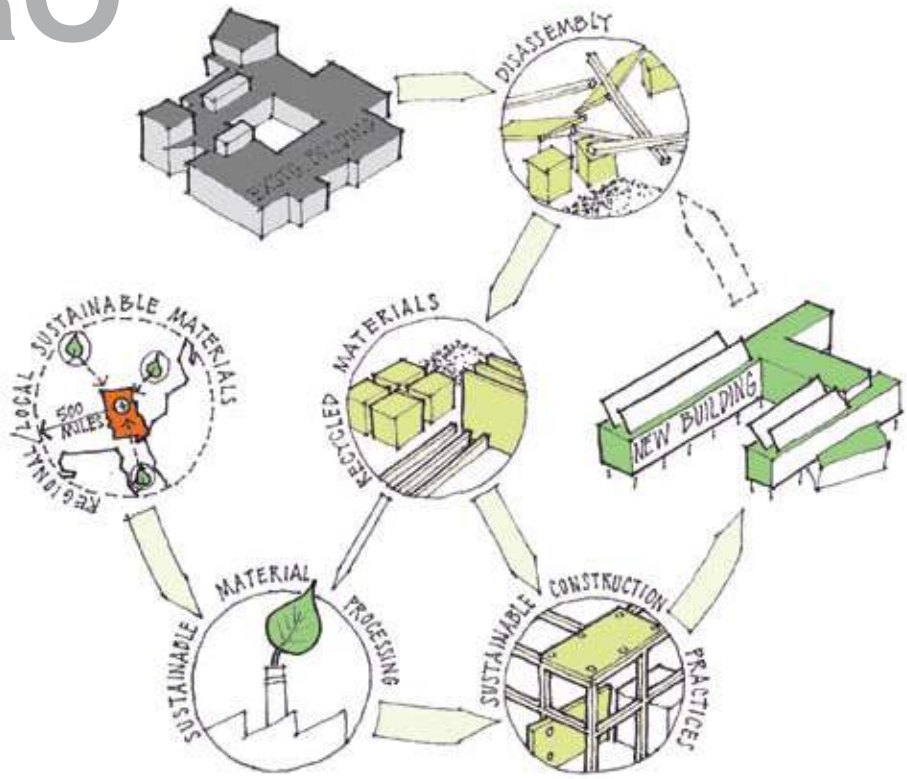
Waste Management

Is the product or assembly produced in a way that limits the generation of solid waste and is the material itself reusable or recyclable at the end of its useful life in the building?



Existing use of materials for the Odum School of Ecology

ZERO
WASTE



Future use of materials for the Odum School of Ecology

FIRST STEPS TOWARDS TRANSFORMATION

Potential Biomimics

According to the Biomimicry Guild, biomimicry is an innovation method that emulates natures' sustainable solutions of time-tested patterns and strategies, e.g., a solar cell inspired by a leaf. The goal is to create products, processes, and policies---new ways of living---that are well-adapted to life on earth over the long haul.

In the concept design phase we identified some potential biomimics. As we move into the next phase of design more will be identified and then selected for emulation as either a product, process or policy.

- **FIRE ANT**
  A community pioneer that creates better soil, via aeration, to enable prairie succession, and may also directly benefit certain plants
- **BARK OF PEIDMONT FOREST HARDWOOD SPECIES**
  Ability to protect the tree from small fires and other fauna species
- **NATURE'S ECOSYSTEM**
  Abundant energy, water conservation, succession, resiliency, habitat creation and sustenance, zero waste
- **DIVERSITY AND SUCCESSION OF PIEDMONT FOREST**
  Poly-culture of species aiding and succeeding together during different timeframes. Design for change
- **VISUAL FEEDBACK**
  Wilting of plants, sprouting of new stalks when damaged
- **PIEDMONT DENSITY AND OPENNESS**
  Tall dense and low open spaces (discovered during ecology students historical investigation)
- **ELEVATIONS OF THE PIEDMONT**
  There is a great elevation change in the region that can be incorporated into the design ideas as can the ecologies in those elevation changes (idea from ecology students)
- **GRANITES**
  One of the prominent geological formations in the region
- **THE PIEDMONT FALL LINE**
  Look at this as a mimic for entry and passage (idea from ecology students)
- **NATIVE VINES**
  Students suggest this plant species should be utilized for passive cooling on the building (less of a mimic, but more of a direct interpretation)
- **FIRE**
  This played a huge role in the ecological change in the region, both Native American and natural fires











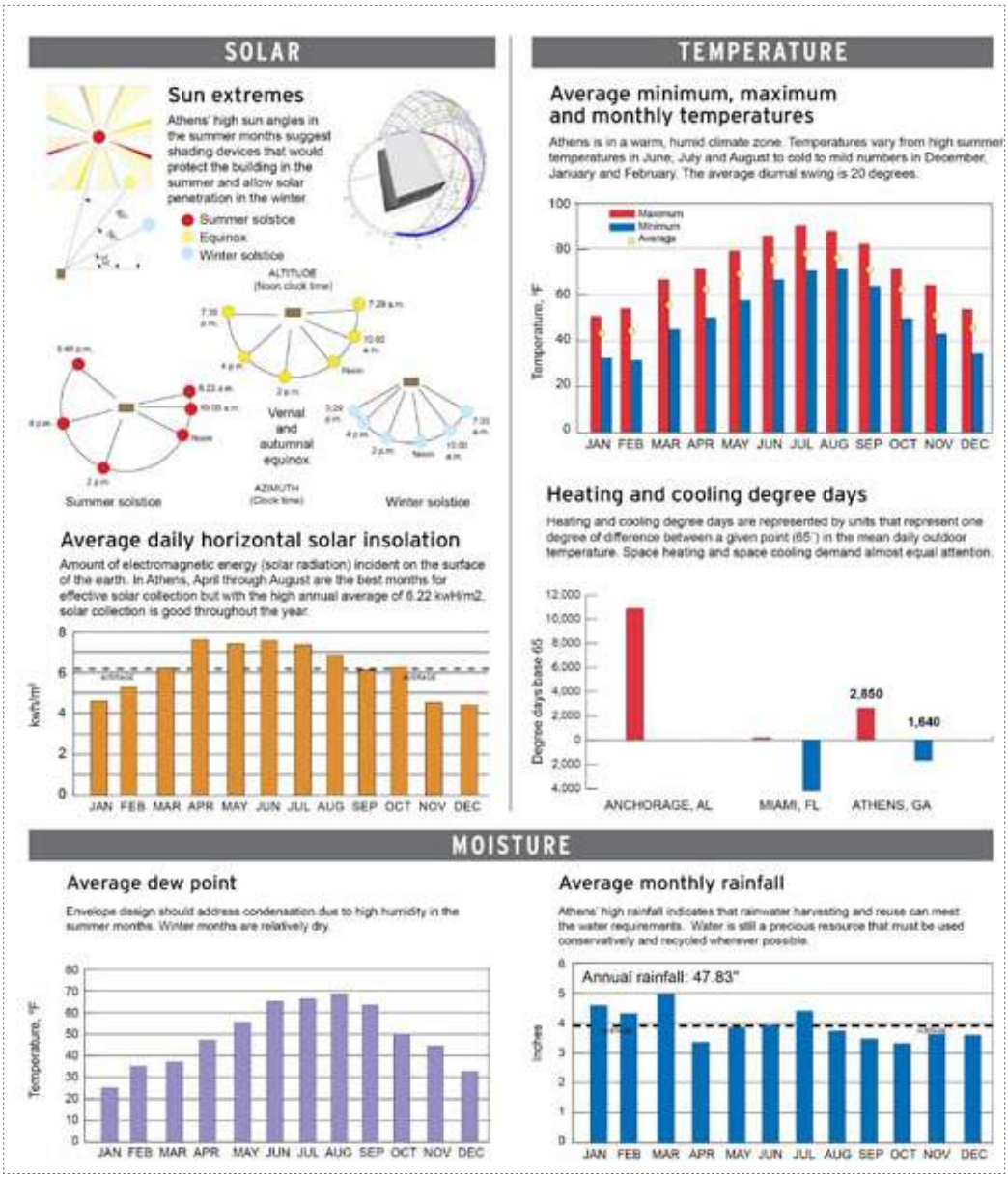




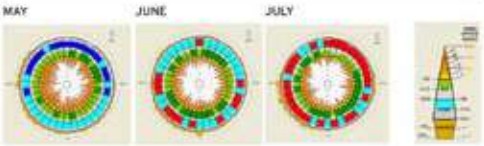

Climate Chart

ATHENS, GEORGIA

Understanding the climate of the area you inhabit is paramount to success for many things including building design. This climate chart depicts the basics of our natural system which have an affect on how we design, construct, operate and use our built environments.

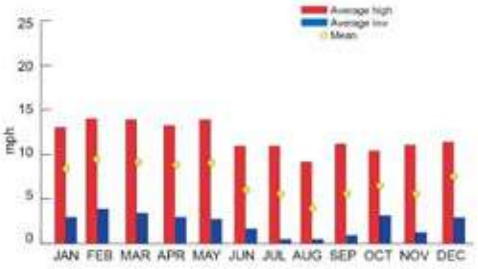


WIND



Average wind speed

Wind speed averages in Athens remain consistent throughout the year with spring bringing slightly higher gusts. The spring and summer months of May, June and July, with south winds and warmer temperatures, offer times when natural ventilation can be used to cool buildings and offer fresh air. Harvesting wind energy is a viable option.



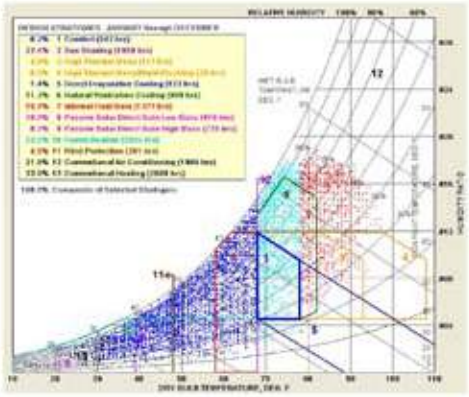
PSYCHROMETRIC DATA

LEGEND

DRY-BULB TEMP (degrees F)

19%		< 32
56%		32 - 60
14%		60 - 78
14%		78 - 100
6%		> 100

Humidification in dry winter months, wind protection and sunshading in summer are the top three strategies that will help achieve comfort in Athens.



ECOSYSTEMS

Level III ecoregions near Athens

- 45. Piedmont
- 65. Southeastern Plains
- 66. Blue Ridge
- 67. Ridge and Valley
- 68. Southwestern Appalachians
- 75. Southern Coastal Plain

Indigenous plant and animal species

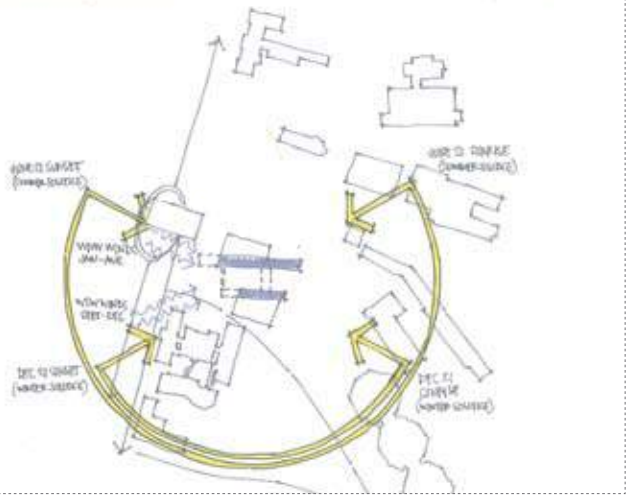
Forbs and Wildflowers
Ashy Sunflower
Black Eyed Susan
Blanket Flower
Butterfly Milkweed
Compass Plant
Plains Larkspur
Heath Aster
Hoary Pucooon
Indian Paint Brush
New England Aster
Prairie Coneflower
Curled Dock
Purple Prairie Clover
Rocky Mountain Zinnia
Rose Verbena
Spiderwort
Stiff Goldenrod
Giant Goldenrod
Thickspike Gayfeather
Big Flower Coreopsis
Wild Hyacinth
White Beardtounge
White Wild Indigo

Grasses and Sedges
Big Bluestem
Blue Grama
Bottlebrush Sedge
Buffalo Grass
Burr Reed Sedge
Bushes Sedge
Canada Wild Rye
Fox Sedge
Great Plains Flatsedge
Fowl Managrass
Indian Grass
Leavenworth's Sedge
Little Bluestem
Prairie Cordgrass
Prairie Dropseed
Porcupine Sedge
Rattlesnake Grass
Rice Cutgrass
Side-Oats Grama
Switch Grass
Common Scouring Rush

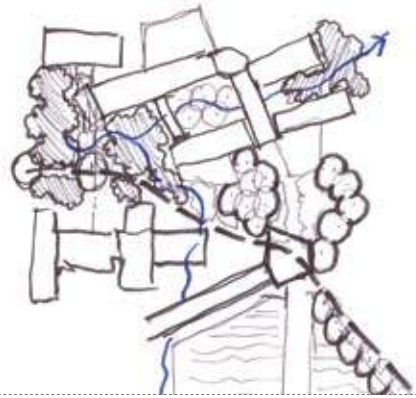
Shrubs and Trees
Ash
Baldcypress
Basswood
Birch
Boxelder
Butternut
Catalpa
Cedar
Cherry
Chestnut
Cottonwood
Dogwood
Elm
Hawthorn
Hemlock
Hickory
Locust
Magnolia
Oak
Pine
Persimmon
Poplar
Redbud
Sassafras
Silverbell
Sweetgum
Sycamore
Tupelo
Walnut
Willow

Wildlife
American Alligator
American Beaver
American Black Bear
American Toad
Bald Eagle
Barn Owl
Bobcat
Brown Pelican
Bullfrog
Cedar Waxwing
Copperhead
Crayfish
Eastern Box Turtle
Eastern Cottontail
Eastern Fence Lizard
Eastern Meadowlark
Eastern Newt
Eastern Red Bat
Golden-winged Warbler
Great Egret
Mourning Dove
Nine-banded Armadillo
Northern River Otter
Nutria
Purple Martin
Rat Snake
Red Fox
Round-tailed Muskrat
Spotted Salamander
White-tailed Deer
Wild Pig
Wild Turkey
Wood Duck

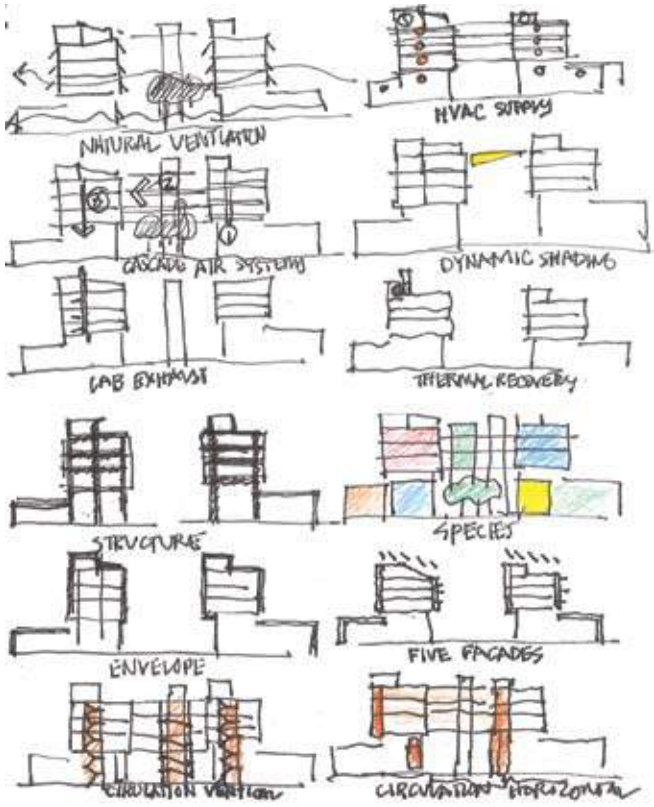
Intuitive Ideas



50% concept plan summary from Design Workshop One showing adjacency to neighbors, site curriculum integration, passive orientation, redevelopment of streambeds and preservation of diagonal pedestrian circulation to DW Brooks Mall.



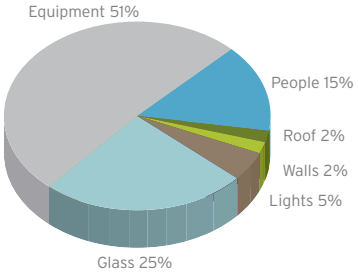
Initial study of macro climate conditions for solar orientation and annual wind directions.



Concept strategy diagrams for major organizing features of the building focused on material and energy resource efficiency.

Scientific Studies

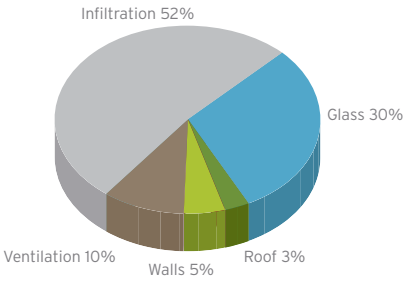
Source Cooling Loads



A major source of heating and cooling loads not shown above is the lab exhaust volume. For this study we assumed an exhaust volume of 10,000 cfm. The cooling load increases one ton for every 300 cfm of exhaust in this climate.

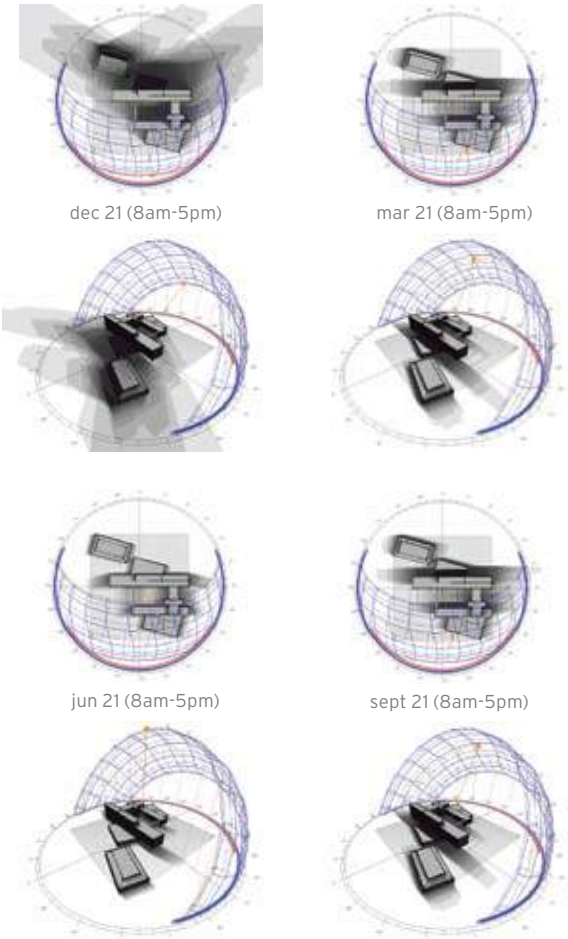
Source Heating Loads

The pie chart below shows what percent of the heating load is contributed by each building element in the day lighting (best) case.



The high infiltration load is caused by high population (725). When this number is adjusted downward, this number will reduce.

Heating and Cooling Studies



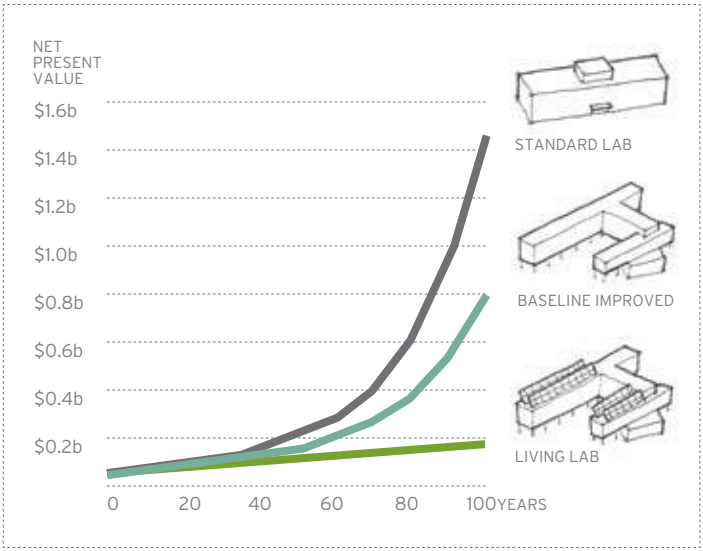
Daylight Potential and shading Studies

COST+SCHEDULE

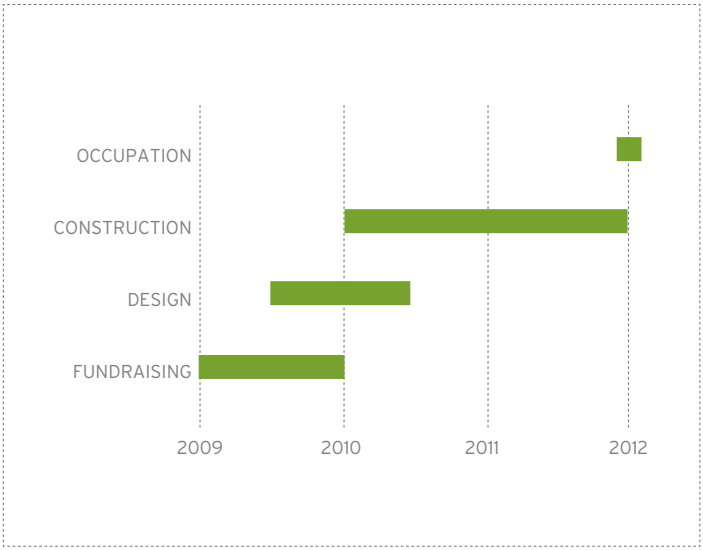
The Odum School of Ecology "living laboratory" is to be an example of sound economics that expresses the fundamental balance of investing for the long term while addressing the needs for the school today.

The chart below shows a life cycle cost analysis of the "living laboratory" compared to two others. One a typical lab building that is not designed to its specific environment and the other a lab building that has been designed to work within the same climate as the "living laboratory" using standard energy systems.

The preliminary first cost for the Odum Living laboratory is estimated to be **$93,000,000.** Over the life of the building, this initial investment in regenerative design strategies will keep total building expenditures extremely low relative to standard design options show below.



Cost Cycle Analysis



Proposed Schedule

PHOTOVOLTAIC PANELS 100% OFFSET

$$$

LIVING WALLS

$$

GREEN ROOFS

$$

HEADWATER RESTORATION

$

INTERACTIVE RESOURCE USE FEEDBACK SYSTEM

$

AUTOMATED DAYLIGHT TRACKING SYSTEM

$$

AUTOMATED NATURAL VENTILATION CONTROLS

$

If you would like to **be part of the transformation**, here are some unique opportunities.

HIGH EFFICIENCY LAB EQUIPMENT

$$

ENTRY LOBBY EXHIBIT

$$

GREENHOUSE

$$

ECOLOGICAL CAFÉ

$

RESEARCH CLASSROOMS

$$

OIL RESERVE TANK TO GEOTHERMAL WATER TANK CONVERSION

$$

ECOLOGICAL WASTE WATER TREATMENT SYSTEM

$

FACULTY OFFICES

$

OUTDOOR CLASSROOMS

$$

2ND FLOOR OR 3RD FLOOR COLLABORATION CORRIDOR

$$

PRIMARY LECTURE HALL OR SECONDARY LECTURE HALL

$$

STUDENT LOUNGE

$

PERMA CULTURE GARDEN

$$

STUDENT CARRELS

$

FULL TIME BUILDING SYSTEMS COORDINATOR AND EDUCATOR

$$

Be a part of this historical transformation!

The Odum School's new home will inspire all who pass through. It will provide a living example of the work, study, and health benefits of daily interactions with the natural environment. It will demonstrate the feasibility of renewable technologies and the effectiveness of water conservation and reuse. Not only will the structure serve as a home and laboratory to the Odum School, the first stand-alone college of ecology in the world, but as a benchmark for sustainable design world-wide. Others will follow our lead, and generations of students, legislators, industry leaders, and schoolchildren will remember the start of a new era at the University of Georgia.

Join us as we plan and construct the world's **first living laboratory.** Your commitment of time, resources, and ideas will establish an **inestimable legacy.**

A human being is part of a whole, called by us the universe, a part limited in time and space. He experiences himself, his thoughts and feelings, as something separated from the rest—a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest us. Our task must be to free ourselves from this prison by widening our circles of compassion to embrace all living creatures and the whole of nature in its beauty.

- Albert Einstein

Odum School
of Ecology
The University of Georgia