Tulane

Ecological Design

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Tulane

The continued deterioration of our natural environment poses both immediate and long term challenges. The university has a responsibility to lead by example, not only through research and education in environmental fields, but also through its everyday management.

By modeling more resource efficient and less polluting practices and systems, Tulane University can benefit from cost savings, create learning opportunities that better prepare students for the jobs and issues of the future, and provide valuable models and demonstration projects for the larger society.

Many of the recommendations in this section will enhance the distinctive historical and regional character of the Uptown campus. They suggest that we look to designs developed in the particular climate and vegetation of New Orleans as we create sustainable buildings and systems for the future.

Sustainability, or greening, is essentially a matter of practicing a more thoughtful life-style--a core value of university life.

CAMPUS LANDSCAPING

Tulane has an opportunity to develop a strong visual identity by favoring Louisiana's rich tropical foliage in its landscaping. Favoring native, local species in planting across campus is one of the most cost-effective ways the university could develop its beautiful, distinctively regional physical environment and be as pleasing and memorable to students and visitors as the streets of the French Quarter and the live oaks of Audubon Park.

A campus landscape that emulates the biodiversity of its region would be an educational resource for students and faculty, serving as a "living library" and habitat for local species. Making the campus an arboretum of native Louisiana species, with specific plantings found nowhere else, would also attract visitors from throughout the state and beyond, becoming a destination similar to Zemurray Gardens.

Trees and plants native to the local environment require less pesticides, fertilizers and water. This saves money and has important benefits for local ecosystem and human health. As all water draining from paved surfaces on campus is ultimately pumped to Lake Pontchartrain, preserving greenspaces and selecting permeable landscaping materials will also help improve local water quality.

Many necessary components of a campus environmental design are already incorporated in the current Landscape Plan, such as the use of deciduous trees to shade buildings, the use of planting to block noise and air pollution, the use of native plant materials, and the use of high quality irrigation systems.

Goals

1. Create a campus landscape that accentuates the distinctive plants and environments of the region.
2. Reduce impacts on local water quality and ecosystems.
3. Use inputs such as water and fertilizer more efficiently.
4. Create a more pleasing and comfortable campus environment.

Benefits

Increases distinctive natural beauty of campus.

Creates educational and recreational resources.

Enhances biodiversity and benefits local ecosystems.

Reduces spending on inputs and maintenance.

Specific Recommendations

1. Use native Louisiana plant materials as much as possible.
2. Preserve campus greenspaces.
3. Use permeable paving and landscaping materials wherever possible.
4. Preserve local water quality by installing filtration and treatment system for runoff from parking lots and roadways. Consider the creation of natural or “living” runoff filtration and treatment systems.
5. Plant deciduous trees adjacent to buildings in order to reduce the university’s energy costs. These trees will shade in summer and allow light in the winter.
3. Use plantings to block air pollution and, in some cases, noise pollution.
4. Use chemical-free control of pests and cultural remedies as alternatives to pesticides. For example, select plants that will resist pests and diseases of the area, place plants in their appropriate habitats, and provide a habitat for beneficial wildlife.
5. Instruct employees about the environmental and health hazards caused by overuse of chemicals.
6. Implement a composting system to reduce waste and provide an inexpensive, nonpolluting source of fertilizer.
7. Install irrigation systems appropriate for particular plantings: sprinkler systems for turf areas, and more direct, efficient systems for trees, shrubs, garden flowers and ground covers.
8. Properly maintain irrigation systems to save water and money, and irrigate in early morning and late afternoon.

Driving has a major impact on the environment. In Tulane's immediate neighborhoods, automobile traffic is a source of parking problems, noise, and air pollution. More broadly, automobiles are a leading source of greenhouse gases and common and toxic water pollution. Both physical improvements and parking policies should encourage the choice of walking, biking, ridesharing, or using public transportation.

At Tulane, cars consume expensive campus land and detract from the campus, both visually and functionally. Built at the turn of the century, the buildings of Tulane's front quad open to a pedestrian green space, with minimum vehicular circulation at the side property lines. In the rear section of the campus, circulation is primarily vehicular. With only inconvenient pedestrian passage from Claiborne to Willow, it is no wonder that visitors are impressed with the quality of the front quad, and have difficulty visualizing the rear. Emphasizing walking and other "human scale" patterns creates a physical environment that is considerably more inviting and attractive.

The design and circulation patterns of a university campus should encourage a sense of community. While in a car, a person has few opportunities for social contact. Measures that reduce auto traffic and make walking and bicycling more safe and inviting could ultimately enhance the quality of the university's social and intellectual communities.

Goals

1. Reduce the presence of automobiles on campus.
2. Reduce traffic and parking problems on campus and in local neighborhoods.
3. Integrate and encourage alternative modes of transportation.
4. Provide safe pedestrian pathways.
5. Improve circulation system for bicycle and electric vehicles.

Specific Recommendations

1. Research and develop incentives for ridesharing, such as reduced rate or preferred parking for carpools, a central list of carpools and openings, several free daily parking passes each year for individuals who rideshare, and/or an emergency ride service riders who need to leave work for medical or family emergencies.
2. Verify that campus transit system is properly signed, with adequate notice of routes and schedules.
3. Improve quality and appearance of bus stops.
4. Include schedules and maps of public transportation at information desk at University Center, and in the campus telephone directory.
5. Improve pedestrian pathway to bus stops on Claiborne and Freret and to shopping areas, on and off campus.
6. Provide faculty, students and staff who give up parking permits with discounted or free RTA passes.
7. With consultation of bicyclists, develop a coordinated circulation system for bicycles and electric carts.
8. Ensure adequate bicycle parking racks throughout campus, including covered bicycle racks or easily accessible bike storage at dormitories and other student residences.

BUILDING CONSTRUCTION AND RENOVATION

Renovation and new construction offer opportunities to use more efficient, frequently cost-saving designs and technologies with a minimum added investment. As the construction, operation and demolition of buildings is the university's largest user of materials and energy, green building design is an essential step in the transition to a more sustainable campus. More efficient buildings will reap significant long-term utility savings.

Using principles of ecological design in building construction and renovation could make Tulane's indoor environment as comfortable and distinctive as its outdoor environment. Interiors designed to maximize natural lighting, cooling and ventilation--the high ceilings, operable windows, and ceiling fans used to cool New Orleans buildings before air conditioning--would enhance the campus's distinctive historical character. Use of natural ventilation and attention to indoor air quality create a more healthy and comfortable work environment, increasing productivity.

Green buildings and renovations could be used as working models and case studies by Tulane faculty and students, and could also attract substantial attention from architects, developers, alumni, the community and the media.

Building configuration should produce favorable microclimates and inhabitable outdoor spaces at the perimeter. Particular attention should be given to shaded and/or covered exterior spaces at courtyards and building edges. Prevailing breezes and solar orientation should be primary considerations in building design.

One of the best ways to reduce energy use (and the resulting pollution) would be to make departments responsible for what they consume and the associated cost.

Operation and organizations of functions within buildings can also yield efficiencies. Evening classes consolidated into fewer buildings should provide benefit. Consolidating similar functions, such as storing all rare books together, would also use building heating and cooling more efficiently.

Goals

1. Provide inspiring models of architectural design and sustainable technologies.
2. Optimize energy efficiency.
3. Provide a comfortable and healthy environment.
4. Reduce environmental impacts.

Benefits

Reduced cost of operation over life of building.
Major reduction of university's environmental impacts.
Educational resource for the campus and larger community.
Improved comfort, increasing learning and productivity.

Specific Recommendations

1. Maximize use of natural daylight.
2. Connect buildings to the outdoor environment.
   Use best of local New Orleans strategies for natural ventilation and cooling: operable windows, high ceilings, ceiling fans.
   Create shaded and/or covered exterior spaces.
   Place hallways and staircases on building exteriors.
3. Make clever investments in efficiency.
   Adopt resource efficient systems and appliances with a simple payback period of less than five years.
   Choose high efficiency motors, appliances, lighting and water fixtures.
   Make smart use of motion and daylight sensors.
   Downscale hvac systems to complement other investments in efficiency.
   Consolidate functions within buildings and off-peak building use times.
4. Anticipate better environmental practices.
   Provide space for expanded recycling in copyrooms, dining areas, loading docks and entryways.
   Design to accommodate future energy retrofits (e.g. roof slope and wiring for for solar power systems).
5. Protect environmental quality in and around buildings.
   Maximize indoor air quality through measures such as natural ventilation, use of low VOC materials, and isolation of chemical storage areas.
   Plan and conduct construction t have minimum environmental impact (protect trees, minimize soil and sediment runoff)
6. Be thoughtful of where building materials come from, where they will go.
   Develop a palette of building materials that are sustainably produced, reusable, and/or recyclable.
7. Participate and strive for high ratings in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certification program and the EPA/DOE Energy Star program.
8. Demand exemplary environmental performance from designers and contractors.
   Include ecological design in selection criteria.
   Require that contractors follow basic environmental practices: recycling, protecting trees, minimizing soil disturbance and runoff.
9. Create mechanisms for student involvement.
   Involve students as researchers and decision-makers.
   Include elected or appointed student representatives on all committees.
   Offer dedicated, regularly listed courses in ecological design.
   Create student positions in planning and building projects: internships, paid, and postgraduate positions.