

## Sustainability Operational & Maintenance Policy

The University of Texas at Austin

Policy: Sustainability in Facilities Operations and Maintenance

January 21, 2010, Updated February 10<sup>th</sup>, 2014

The University of Texas at Austin's Facilities Services division strives to operate and maintain its buildings in ways that protect the health of building occupants and the environment. By adopting and following a sustainable operations and maintenance framework, UT-Austin conserves energy and water, minimizes impacts on the surrounding site, reduces waste and water consumption, promotes indoor environmental quality, and supports markets for environmentally preferable materials while providing healthy and productive work, learning, and living spaces.

One of the five Core Values of Facilities Services is **stewardship**. As stewards of the university's facility-related services, we strive to conduct our business in an environmentally, socially, and economically responsible manner. Facilities Services actively reduces consumption, recycles, protects the environment, and restores resources in our day-to-day operations. Facilities Services acts in partnership with Utilities and Energy Management, The Division of Housing and Food Service (for residence halls and university dining facilities), and Environmental Health & Safety to unify the campus approach to sustainable building maintenance.

UT Austin's commitment to sustainability in operations is found in several guiding policy documents, some of which are listed below and further reference throughout the text. The University of Texas System's "commitment to energy savings goals, reductions in carbon emissions, and sustainable design is evident in existing practices, and the institutions will continue to implement well thought out initiatives that increase efficiencies, reduce emissions, and promote sustainability practices that contribute meaningfully to the environment, while still achieving excellence in higher education."

- The Natural Resources Management & Conservation Plan (2011) commits the University to reducing energy consumption at the building level by an average of 20% per square foot per degree day by August 31, 2020 using 2009 as the base year. This plan was created by the Operations Subcommittee of the President's Sustainability Steering Committee.
- The Campus Master Plan (2013) minimizes resource use through sustainable design & land use policies on campus, proposes targeted EUI metrics, and a percent change in demand reduction metric.
- The Campus Sustainability Policy (2008) maximizes the efficiencies of the university's operations and services while minimizing its waste and footprint. The policy outlines a need to evaluate the impact of construction projects, and incorporate green building and design methods. Further details are found in University of Texas building and design standards. Any new capital or major renovation project will apply ASHRAE standards and analyze life cycle costs. Energy consumption audits every three years post-construction will document 20% variances to the baseline levels. Institutions will require rainwater and gray water harvesting systems for non-potable use for new buildings where practical and within program budgets. As designated by the UT Board of

Regents, alternative energy practices, climate protection practices, sustainable transportation practices, waste and recycling management, environmentally preferable purchasing practices, high performance buildings, sustainability awareness and training, curricula integration, endowment transparency, student involvement, community outreach, and reporting are essential elements of campus operations.

The strategic imperative to operate and maintain facilities according to sustainable building principles comes from the Commission of 125, Operational Recommendation 6:

*The University must consistently make the best use of its facilities, especially its classroom and laboratory space and off-campus properties, while maintaining a superior campus environment. New facilities should be **designed and built more efficiently**, with better coordination among academic, facilities planning, operations, and fundraising divisions. [The Commission suggests that the University] Develop techniques to cut the cost of construction, operation, and maintenance without compromising quality. **Adopt energy and environmental policies that conserve resources**; and Use landscape architects on all capital projects to **create environments that are beautiful, efficiently maintained, and ecologically sustainable**.*

The Sustainable Operations and Maintenance Guidelines adopted in early 2010, and revised in early 2014 take the following into consideration:

#### **Impacts on the surrounding site**

Facilities Services, Project Management and Construction Services, Utilities and Energy Management, and Environmental Health and Safety, and Division of Housing and Food Service work in close collaboration to ensure that the operations of the power plant, the necessary maintenance and upkeep of all buildings, and minor and major renovations do not have an adverse impact on the surroundings of the buildings. Special care is taken to prevent the loss of trees and ornamental vegetation, and to protect the water and wildlife habitat at Waller Creek.

The University of Texas Campus Tree Care Plan outlines operations and management of the valuable resource on campus. These standards below provide general guidance concerning specific university preferences for all facets of tree design, maintenance and preservation. The university recognizes that project conditions and requirements vary, thus precluding the absence of items herein in all cases. Unless there is absolute justification, it is expected that these guidelines will govern the design and specifications for campus projects for the following purposes:

- To insure preservation compliance for trees on university property
- To improve the likelihood of tree survivability as a result of construction events by providing protection standards and best management practices
- To provide standards of maintenance required for university owned trees
- To increase the survival for planted trees and shrubs
- To reduce or eliminate breakage of sidewalks, curbs and street pavement
- To reduce tree/infrastructure conflicts
- To provide a standardized process for tree-related issues
- To reduce university liability associated with trees

These tree preservation and management specifications are the university's primary regulatory tool to provide for protection of its tree resource. Although compliance and enforcement is the responsibility of all university agencies, standards and specifications are administered by office of the Urban Forester, Landscape Services, Facilities Services, Office of Employee and Campus Services.

### **Energy consumption**

The university's Facilities Services and Project Management and Construction Services (PMCS) departments are taking charge of reducing energy and water consumption. PMCS assists by implement higher efficiency standards for renovation projects that are guided by their [sustainability mission](#). Facilities Maintenance [Energy and Water Conservation Program](#) works on demand-side conservation efforts by ensuring the systems and the people are running as efficiently as possible. They work to reduce energy consumption by implementing standards around HVAC setback program and behavior based strategies in collaboration with campus occupants. Their goal is to conserve 20% energy and water consumption by the year 2020, with a baseline year of 2009, which is outlined in the President's Natural Resource Conservation Plan.

### **Usage of environmentally preferable materials**

One of PMCS's primary strategic goals includes supporting "a renovation program which enhances the sustainability of campus facilities in support of the educational, research, and public goals of the university." PMCS is currently working towards this strategic goal by:

- Incorporating life cycle cost management into the selection of materials and equipment.
- Developing a culture of sustainable renovation practices that promotes greater environmental sensitivity in the design and construction of renovation projects for the 15.4 million gross square feet of building space we serve on the university campus.

PMCS aims to design and build enduring and resource efficient projects that perform throughout a building's entire life cycle – from initial design and construction, to operation and maintenance, through multiple renovations, and ultimately deconstruction.

### **Indoor environmental quality**

Facilities Services Custodial Services uses the OS1 ManageMen organizational and a green cleaning system to take care of the custodial needs of the buildings they maintain. (OS1) Green Certified Programs can demonstrate the following:

- Cleaning for Health first and then for appearance
- Disposing of cleaning wastes in a environmentally responsible manner
- Increased worker safety and awareness
- Increased level of sanitation of building surfaces
- Responsible and proper removal of pollutants from the facility
- Reduction of chemical, particle and moisture residue
- Minimization of human exposure to pollutants

The office of Environmental Health and Safety (EHS) has primary responsibility for indoor air quality issues throughout the institution- main campus and satellite locations. EHS has had a written [Indoor Air Quality Program](#) since 2001 and the program is overseen by a Certified Industrial Hygienist (CIH) with support from certified and licensed asbestos, lead paint and mold experts. Instruments are routinely used to measure volatile organic compounds, carbon monoxide, carbon dioxide, relative humidity, temperature, flammable vapors, airborne mold and particulates.

### **Preventive Maintenance**

Maintenance staff monitors pressure drops and change HVAC air filters quarterly, as necessary. Facilities staff inspects and service motors and fans every 4 months. Coils are cleaned annually. All buildings have at least MERV-8 efficiency filters. Many buildings have direct digital control automation systems and these AC systems can be monitored and controlled. Direct digital controls are standard on all new buildings and included in major renovations.

### **Water consumption**

Tied to the President's Sustainability Steering Committee's 2020 Goals, the UT Demand-Side Energy Management (Facilities Services) projects initiated in 2007 replaced or repaired over 6000 water fixtures throughout campus. Utilities and Energy Management has had an active water recovery program since the 1980s. Water is recovered that has been used for cooling laboratory equipment, swimming pool drain water, groundwater, and air conditioning condensate, and is used to offset evaporation in our cooling towers. No recycled water is used for drinking, flushing or any other "domestic" purpose. In the history of the program, the university has recycled more than 1.3 billion gallons. This is enough water to fill about 50,000 residential swimming pools.

By spring 2013 the university began using highly treated wastewater to make up evaporative losses in campus cooling towers. This will allow the university to replace consumption of about 400 million gallons of drinking water per year with non-potable water, helping to lessen the burden on city's infrastructure and delaying the costly construction of a new drinking water treatment plant. While this water is not dangerous to incidental contact, it is non-potable.

We continue to reduce water use in the University's large ornamental fountains. Almost all the fountains on campus are the recirculating type that uses the minimum amount of water. We monitor the water usage of all the outdoor fountains and look for leaks or incorrect adjustments if water use goes up.

The University of Texas at Austin's facilities management initiated a comprehensive program in fall 2007 to develop and implement demand-side water conservation measures. During this project it was determined that the campus irrigation system lacked the qualities needed to meet the new sustainability requirements. As a result, the campus irrigation system was upgraded to use a central irrigation system to monitor water usage and flow, and the irrigation nozzles were replaced with more efficient ones.

By upgrading the system, the automated irrigation meters saw a reduction of 66% in usage from the base year of 2009, based on water meter data from the city. In addition, high flow alerts saved over 9.7 million gallons of water in 2012, compared to the old irrigation system.

In May 2012, the university formed a partnership with the City of Austin, which is piloting an [alternative irrigation compliance program](#) that gives a monthly water use allowance (“budget”) based on square footage.

In addition to Utilities & Energy Management’s and Landscape Services practices, Facilities Maintenance is developing a report the leak program for occupant throughout campus and plan on implementation in late 2014.

### **Recycling and Sustainability- Waste Management**

Facilities Services reduces waste stream by reusing, recycling and renewing materials on campus. It is standard practice for us to collect furniture and equipment that is then managed by our Surplus Property and reallocated to other areas on campus. Recycling is standard practice on campus and we house more than 615 steel indoor recycling and solid waste bins on the Main and J. J. Pickle Research campus. Further, we have more than 65 outdoor recycling bins on both campuses for recycling collection. Additionally, we have expanded our recycling initiatives through the composting of animal bedding waste at four locations and organic food waste at our charter school. Our landscape department re-uses as mulch up to 64% of their yard waste collected thorough the year. Facilities Services has five other smaller programs to reuse ink, electronics, and student’s end of school year junk, office supplies and to re-furbish and donate wooden toys around the holiday season. The AT&T center, DFHS and Athletics also started composting within the last two years. On 2013 at least 8400 gallons of cooking oil from Athletics, DFHS and SAC where collected and recycles for biodiesel or other oils. With a newly hired Zero Waste Coordinator, we aim to reach the goal of diverting 90% of the total waste stream from the landfill by August 31, 2020 which is directed by the Natural Resource Conservation Plan.

### **Division of Housing and Food Service**

The Division of Housing and Food Service coordinates and/or performs all maintenance and renovations in the campus residence halls, University apartments, and dining centers. To meet the sustainable operations and maintenance goals, Capital projects are coordinated with Project Management and Construction Services and HVAC system performance is coordinated with Facilities Services. In conjunction with the office of Environmental Health and Safety, hazardous material remediation is coordinated by Housing and Food Service staff licensed for the design, supervision, and inspection of asbestos-containing and lead-based materials. All custodial operations within the department are self-performed. The most environmentally sensitive and effective cleaning products are specified and used. All maintenance and renovation efforts require the use of environmentally preferable products and require the installation of energy and water conserving equipment and appliances when replacements are made. Food Service management coordinates sustainable efforts in the dining centers, including food waste reduction and composting. A comprehensive recycling program for paper products, plastic, and aluminum is in place for all divisional staff and all residents. Residential programming regularly features topics relating to sustainability, recycling, and environmental stewardship. Information Technology staff continually develop systems that reduce and/or eliminate the requirement for paper products and retention of paper records.