



AUBURN UNIVERSITY

FACILITIES MANAGEMENT SUSTAINABLE OPERATIONS GUIDELINES

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Facilities Management Sustainable Operations Policy

Facilities Management will utilize sustainable practices in executing its campus maintenance and operations mission, where practicable and economically feasible.

Purpose

The intent of this document is to provide guidance to Facilities Management personnel regarding sustainable practices to be incorporated into the facility operations which support the Auburn University campus. It provides specific commitments on behalf of Facilities Management regarding how these operations will be conducted.

Expectations

All personnel are expected to understand the requirements of this document and to incorporate this guidance into the execution of their duties and responsibilities.

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1.0 Maintenance Operations

Auburn University is committed to maintaining and operating its buildings in a sustainable manner

1.1 Overall Guidance: In executing its mission, Facilities Management will:

1.1.1 Maintain building systems and equipment to ensure operational reliability, effectiveness and efficiency.

1.1.2 Reduce energy consumption

1.1.3 Utilize energy efficient equipment

1.1.4 Minimize air pollution emissions

1.2 Operational Guidelines: Maintenance operations will be conducted in the following manner:

1.2.1 Preventive Maintenance

1.2.1.1 Maintain and expand the Preventive Maintenance Plan for campus building systems and equipment to ensure they not only to remain operational, but to improve long term performance and efficiency.

1.2.1.1.1 Over time, expand the depth of the preventive maintenance program to include maintenance actions which will bring the building closer to optimal operating levels.

1.2.1.2 AiM, a computerized maintenance management system, will be used to schedule weekly, monthly, quarterly, biannual, and annual activities performed on equipment and building systems.

1.2.1.3 Track and monitor execution rates for required preventive maintenance actions with a goal of completing 100% of critical and 95% of routine preventive maintenance actions.

1.2.2. Equipment Repairs/Replacements

1.2.2.1 Equipment repairs will be conducted to ensure that campus equipment and facilities are maintained in such a manner as to promote a quality work environment, energy efficiency, and reduced emissions.

1.2.2.2 When replacing or repairing equipment, utilize equipment, components, or parts which are more energy efficient or have reduced emissions, whenever possible, with all things being equal in terms of reliability, durability, equipment life, and cost.

1.2.3 HVAC and Refrigeration Systems

- 1.2.3.1. Do not use CFC based refrigerants in new HVAC equipment.
- 1.2.3.2. Ensure that CFC based refrigerant materials are to be stored and maintained in accordance with procedures stated in the Clean Air Act, Title VI, Rule 608.
- 1.2.3.3 All personnel maintaining HVAC or refrigeration equipment will be trained and certified in the proper use of CFC based refrigerant materials.
- 1.2.3.4 See section 1.2.2.2 regarding the replacement of equipment components or parts. As a standard, use Energy Star certified equipment.
- 1.2.3.5 Replace single speed drives and motors with variable speed drives.
- 1.2.3.6 Ensure that filters are changed with a frequency that avoids an increased air pressure drop across the filter and periodically review filter types to ensure that the correct filter is being used to reduce airborne particulates based on the use of the building.
- 1.2.3.7 Develop a program to monitor and audit the efficiency of the major HVAC equipment in buildings on a periodic schedule.
- 1.2.3.8 Over time, replace pneumatic control systems with direct digital control (DDC) systems.
- 1.2.3.9 Develop a preventive maintenance schedule for pneumatic control systems in buildings.
- 1.2.3.10 Train maintenance personnel in the use of the Metasys building automation system.
- 1.2.3.11 Increase the use of Metasys data to monitor building operations and identify potential maintenance requirements.
- 1.2.3.12 Increase the use of high and low temperature alarms to prevent systems failures and provide early warning of system performance and maintenance problems.

1.2.4 Lighting

- 1.2.4.1 Routinely replace light fixtures and light bulbs with more energy efficient fixtures and bulbs.
 - 1.2.4.1.1 Replace traditional incandescent bulbs and compact fluorescent light bulbs (CFLs) with light emitting diode (LED) fixtures.
 - 1.2.4.1.2 Use LED technology wherever practicable from a cost standpoint and when the technology is appropriate for the function being performed.

1.2.5 Water/Sewage/Drainage

- 1.2.5.1 Utilize efficient and water conserving flush systems where feasible and appropriate.

1.2.5.2 Proactively maintain sediment control structures using Facilities Management Preventive Maintenance system

1.2.6 Waste Disposal

1.2.6.1 Dispose of all material in an environmentally responsible manner.

1.2.6.2 Recycle maintenance debris, when feasible.

2.0 Utilities and Energy Operations

2.0 Utilities and Energy Operations Commitment: Auburn University is committed to maintaining and operating its utility systems in a sustainable manner.

2.1 Overall Guidance: In executing its Utilities mission, Facilities Management will

- Maintain utility plan and distribution systems and equipment to ensure operational reliability, effectiveness and efficiency.
- Reduce energy and water consumption
- Utilize energy efficient equipment
- Minimize air pollution emissions

2.2 Operational Guidelines: Where practicable and financially feasible, utility operations will be conducted in the following manner:

2.2.1 Preventive Maintenance

2.2.1.1 Maintain and expand the Preventive Maintenance Plan for utility plant and distribution systems and equipment to ensure they not only to remain operational, but to improve long term performance and efficiency, and to bring the utility systems closer to optimal operating levels.

2.2.1.2 AiM, a computerized maintenance management system, will be used to schedule weekly, monthly, quarterly, biannual, and annual activities performed on utility plant equipment and distribution systems.

2.2.1.3 Track and monitor execution rates for required preventive maintenance actions with a goal of completing 100% of critical and 95% of routine preventive maintenance actions.

2.2.2. Equipment Repairs/Replacements

2.2.2.1 Equipment repairs will be conducted to ensure that utility plant equipment and distribution systems are maintained in such a manner as to promote energy efficiency, water conservation, and reduced emissions.

2.2.2.2 When replacing or repairing utility systems, utilize equipment, components, or parts which are more energy efficient or have reduced emissions, whenever possible, with all things being equal in terms of reliability, durability, equipment life, and cost.

2.2.3 Chiller Systems and Utility Plant Equipment

2.2.3.1. Do not use CFC based refrigerants in new utility plant equipment.

2.2.3.2. Ensure that CFC based refrigerant materials are to be stored and maintained in accordance with procedures stated in the Clean Air Act, Title VI, Rule 608.

2.2.3.3 All utilities personnel maintaining HVAC or refrigeration equipment will be trained and certified in the proper use of CFC based refrigerant materials.

2.2.3.4 See section 2.2.2.2 regarding the replacement of equipment components or parts. As a standard, use Energy Star certified equipment.

2.2.3.5 Replace single speed drives and motors in utility plants with variable speed drives.

2.2.3.6 Increase the use of high and low temperature alarms to prevent systems failures and provide early warning of system performance and maintenance problems.

2.2.4 Use of Metasys In Utility Operations

2.2.4.1 Increase the daily use of the Metasys energy management system in monitoring utility system operations to enable a quicker response to system problems which may result in excessive utility commodity consumption.

2.2.4.2 Train Utilities and Energy personnel in the use of the Metasys building automation systems.

2.2.4.3 Increase the use of Metasys data to monitor buildings and utility system operations and identify potential maintenance requirements.

2.2.4.4 In conjunction with the Maintenance Directorate, develop a program to regularly monitor the performance and maintenance condition of the major HVAC equipment in buildings.

2.2.4.5 Increase the use of high and low temperature alarms to prevent utility systems failures and provide early warning of system performance and maintenance problems.

2.2.4.6 Using the Aclara system, monitor reports that identify abnormally high utility consumption resulting in more timely repair and reduction in energy consumption.

2.2.4.7 Utilize and monitor monthly chilled and hot water data via the Metasys system to identify abnormally high consumption resulting in consumption reduction and timely repair.

2.2.4.8 Maintain effective communication with all university maintenance operations departments to cooperatively address unnecessary energy consumption in buildings.

2.2.5 Efficiency Of Utility Production And Distribution Systems

2.2.5.1 Develop a 3-5 year plan to Increase the efficiency of utility production and distribution systems.

2.2.5.2 Monitor and repair distribution leaks to conserve resources.

2.3 Energy and Water Reduction

2.3.1 Energy Reduction Plan

2.3.1.1 Update and expand the Energy Reduction Plan every 3 – 5 years, to incorporate lessons learned, best practices, industry innovations, and new technologies.

2.3.1.2 Continually develop energy efficiency best management practices to include future campus growth.

2.3.1.3 Establish standard occupancy schedules lighting and heating/cooling by room type for classrooms, offices, laboratories, and common areas.

2.3.2 Existing Building Commissioning

2.3.2.1 Conduct a proactive and aggressive “existing building commissioning” program to recalibrate building operation systems to ensure original performance parameters are maintained. Increase the number of buildings reviewed annually in the program.

2.3.4 Energy Reduction Projects:

2.3.4.1 Develop and maintain an ongoing list of energy reduction projects based on the existing building commissioning process.

2.3.4.2 Develop and present energy reduction reinvestment analyses and proposals to obtain saved energy costs for use in funding energy reduction projects.

2.3.5 Energy Information and Data

2.3.5.1 Building Energy Consumption Data:

2.3.5.1.1 Record and evaluate monthly utility consumption and cost metrics for electricity, chilled and hot water, water, and natural gas.

2.3.5.1.2 Develop and publish via a web based dashboard building utility consumption data on a building by building, and unit by unit basis.

2.3.5.1.3 Maintain an Auburn University building ranking sheet based on energy consumption intensity to identify locations for future energy reduction initiatives.

2.3.5.2 Energy Benchmarking

2.3.5.2.1 Benchmark and track energy consumption metrics to create baseline usage and to identify potential reduction areas.

2.3.5.2.2 Benchmark campus and building utility system use against peer institutions.

2.3.5.2.3 Maintain EnergyStar building data to benchmark with other facilities.

2.3.5.3 Utility Metering

2.3.5.3.1 Develop and implement a process to monitor the performance of building systems to ensure they have been designed, installed, and are operating to meet the maximum efficiencies intended.

2.3.5.3.2 Implement remote metering system to provide hourly utility consumption data for electric, natural gas, and water in all new campus buildings and, when possible, to existing buildings which do not have this capability.

2.3.6 Reduction of Water Consumption

2.4.1 Develop a Water Consumption Reduction Plan.

2.4.2 Develop strategies, practices, and systems improvement to reduce water consumption in utility plants.

2.4.2 Develop a proactive monitoring program of water distribution systems to quickly identify and repair water leaks.

3.0 Custodial Service Operations

3.1 Custodial Operations Sustainability Commitment: Where practicable and financially feasible, Facilities Management will utilize “green cleaning” practices in its custodial service operations for in-house and contracted custodial services.

3.2 Green Cleaning Practices: Where practicable and financially feasible, Facilities Management will utilize “green cleaning” practices in its custodial service operations for in-house and contracted custodial services. Green cleaning practices will be used in the following areas:

- Traditional and modified cleaning procedures
- Cleaning specifications based on space type and floor type
- Approved supplies, proper usage and storage of cleaning supplies and materials
- Proper equipment handling, storage, and maintenance
- Proper disposal and recycling of custodial related waste
- Proper handling of hazardous materials including bodily fluids

3.3 Green Cleaning Practices Guidelines: For industry guidance, standards, and best practices regarding green cleaning operations and materials, Facilities Management will utilize the following sources:

- The ISSA Cleaning Industry Management Standards (CIMS) at (See www.issa.com)
- The Green Seal program (See www.greenseal.org)

4.0 Recycling Operations

4.1 Recycling Commitment: Facilities Management is committed to provide proactive recycling services to the Auburn University campus.

4.2 Regional Partnership: Partner with the City of Auburn and other regional partners in providing integrated recycling services in the City of Auburn and Lee County areas.

4.3 Building Recycling Operations: Facilities Management will conduct its recycling operations in accordance with the following:

4.3.1. Based on the regional market for recyclable materials, provide single stream or mixed stream recycling. When financially feasible and practicable, provide mixed stream recycling.

4.3.2 Provide building recycling services for the following materials:

- Paper
- Aluminum cans
- Plastic bottles
- Cardboard
- Metals

4.3.3 Integrate recycling and waste management services to reduce labor costs in the removal of recyclable materials from buildings, while ensuring that the waste and recycling streams of material are kept separate.

4.3.4 Ensure recycling operations are conducted in a safe and “environmentally friendly” manner.

4.3.5 Ensure, using periodic inspections and reviews, that outsourced custodial operations comply with the University Recycling program practices and procedures.

4.4 Recycling Maintenance Materials: Facilities Management will recycle material used and disposed of in the course of its day to day operations, as applicable.

4.5 Recycling Communications: Conduct a proactive communications and marketing campaign to provide information to the Auburn University community regarding the recycling program.

4.5.1 Provide information on how the recycling program works to all University personnel via brochures, displays in buildings, and web site information.

4.5.2 Provide building occupants and visitors with resources that encourage ‘Reduce, Recycle, Reuse’ behaviors.

4.5.3 Work with the Office of Sustainability to support student and campus competitions and programs that promote recycling.

4.5.4 Promote the recycling program through social media to the campus community.

4.5.5 Provide recycling program success information on the Facilities Management web site and social media. Recycling success information might include, as an example, but not limited to the following:

- Amount of recycled materials collected by category
- Amount of waste diverted from landfills
- Savings achieved or costs avoided as a result of the recycling program.
- Other comparative information to highlight the positive impact of recycling.
- To reduce the environmental harm from material used and disposed of in the maintenance and operations of buildings.

4.6 Gameday Recycling Operations: Facilities Management will conduct an aggressive recycling operation during Auburn University football game days.

4.6.1 Promote recycling to game day tailgating participants.

4.6.2 Provide recycling bins throughout campus on game day weekends.

4.6.3 Partner with Athletics to provide ample recycling bins inside the stadium.

4.6.4 Pull and process recycled materials throughout the game day weekend.

4.7 Construction Recycling:

4.7.1 Ensure that construction contract specifications require that construction debris and other construction waste (e.g. scrap lumber, card board packaging, ect) be recycled, as applicable and feasible.

4.7.2 As part of the construction project inspection process, ensure that construction debris and other construction waste is being recycling in accordance with the contract specifications.

5.0 Landscaping Operations

5.1 Landscaping Commitment: Facilities Management is committed to conducting its landscaping operations in an environmentally sensitive and sustainable manner

5.2 Landscape Master Plan: Implement the Landscape Master Plan and conduct landscaping operations in accordance with the guidance, principles, and best practices of the Landscape Master Plan.

5.3 Landscape Policies

5.3.1 Tree Management Policy: In conjunction with Campus Planning and the Landscape Master Plan, develop a policy for the management of trees on campus.

5.3.1.1 As part of the Tree Management policy, develop practices and procedures for the maintenance and care of “Legacy Trees”

5.3.1.2 As part of the Tree Management policy, develop practices and procedures for the mitigation practices to be followed when Legacy trees, or other campus trees, must be removed.

5.4 Sustainable Landscape Best Practices: Consistent with the Landscape Master Plan, incorporate the following best practices into campus landscape operations, where practical.

5.4.1 Utilize low water demand plants.

5.4.2 Consider using native or adapted plants that are climate tolerant, low maintenance, water efficient, and ornamental.

5.4.3 Eliminate invasive species.

5.4.4 Utilize smart water irrigation systems .

5.4.6 Establish an erosion control plan.

5.4.7 Minimize the use of fertilizers.

5.4.8 Dispose of “green waste” in an environmentally and ecologically responsible manner.

5.4.8.1 Utilize tree removal waste to create mulch and wood chips for landscaping reuse.

5.4.8.2 Utilize green waste to create composted soil for plant bed areas.

5.5 Tree Management and Maintenance

5.5.1 Manage and maintain the campus trees as a vital part of the campus environment.

5.5.2 Manage and maintain campus trees in such a manner as to support the Auburn University’s designation as a “Tree Campus USA”.

5.5.3 Conduct tree management and maintenance operations in accordance with the Board of Trustees “Tree Preservation Policy”.

5.5.4 Develop a preventive maintenance plan for campus trees, consistent with the Landscape Master Plan.

5.5.5 Support the annual tree inventory process.

5.6 Landscaping Preventive Maintenance:

5.6.1 Incorporate standard recurring landscaping operational tasks into the AIM Preventive Maintenance program.

5.6.2 Develop a Preventive Maintenance Plan for campus hardscapes, such as sidewalks, walkways, brick paver areas, patios, concourses, courtyards. Enter into the AIM Preventive Maintenance program.

6.0 Pest Control Operations

6.0 Pest Control Operations: Facilities Management is committed to conducting its pest control operations in an environmental safe and sustainable manner.

6.1 Integrated Pest Management Operations: Utilize an Integrated Pest Management (IPM) approach to pest control that focuses on pest prevention by eliminating the root causes of pest problems. When infestations are present and require immediate intervention, the safest, most effective methods available for the situation are chosen. IPM follows a stepwise approach:

6.1.1 Identification: The first step in solving any pest problem effectively and safely is the correct identification of the pest. It is critical to find out what kind of pests you have and where they are coming from. Since each pest has different habits, biology and life cycles, its positive identification will lead to more effective control.

6.1.2 Prevention and Exclusion: Prevention of the conditions that pests need is critical to successful control. In the case of rodents, ants and cockroaches, it can be accomplished by eliminating pests' food, water and shelter. This means cleaning up food and beverages and their packaging or wrappers, fixing leaky plumbing, and eliminating clutter. Entry to a building or home by pests is prevented by caulking cracks and crevices, repairing screens, repairing drains and installing door sweeps.

6.1.3 Monitoring: New infestations can be controlled best if spotted early. With IPM, pest populations are regularly monitored using traps. Pest sightings are recorded to document where and when the problems occur.

6.1.4 Multiple Tactics: IPM typically uses several non-chemical tactics to deal with the pest. Pesticides are used only as a last resort and only by a licensed and experienced professional.

6.2 Pesticide Use Plan: Ensure that the University Pest Control contract has a IPM based pesticide use plan that addresses:

- Pesticides used
- Frequency of application
- Size dosage or application

6.3 Removal of Feral Cats: Feral cats on campus will be trapped and removed from campus, using a humane, "no-kill" approach.

6.4 Removal of Wild Animals: In dealing with wild animals on campus, the safety of students, faculty, and staff will be the priority. Wild animals on campus will be removed from campus.

7.0 Construction Operations

7.0 Sustainable Construction Operations: Facilities Management is committed to conducting its construction operations in an environmental safe and sustainable manner.

7.1 Stormwater Management: On all construction sites, ensure compliance with the University's Stormwater Management policy to minimize stormwater runoff, protect the quality of site runoff water, and to eliminate negative impact on receiving bodies of water, such as Parkerson Mill Creek.

7.2 Construction Site Management: Where possible, minimize building site and construction laydown areas to reduce negative impact on the natural landscape. See Section 8.0.

7.3 Construction Recycling: See section 4.7 for construction recycling guidelines.

7.4 Building Commissioning: Develop, implement, and utilize a building commissioning standard for use during the construction of capital projects.

8.0 Stormwater Management:

8.0 Stormwater Management Commitment: Facilities Management will manage the campus's stormwater in an environmentally and ecologically sensitive manner.

8.1 Stormwater Management Plan Compliance: Facilities Management will comply with the requirements of the University's Stormwater Management Plan and the University policy on Stormwater Management Plan Compliance.

8.1.1 Stormwater Systems: Facilities Management will inventory and map stormwater control systems on campus in order to support proper inspection, maintenance, and regulatory standards. These systems and structures include, but are not limited to: streets, street scuppers, drainage structures, catch basins, retention basins, storm sewers and headwalls, drywells, culverts, subsurface storage structures, and open channels and creeks.

8.1.2 Stormwater Systems Management: Facilities Management will implement the operational aspects of stormwater management by taking the followings actions:

8.1.2.1 Stormwater System Inspections: Perform inspection of all stormwater structures per the requirements in the Stormwater Operations Manual, to assess their operational effectiveness and identify problems which need correction.

8.1.2.2 Stormwater System Maintenance: Take the necessary maintenance actions required to keep stormwater structures in a good, operable condition. Such actions include, but are not limited to:

- Removal of silt and sedimentation
- Mowing and cutting grass and vegetation
- Removal of trash and debris
- Removal of obstacles, items, or equipment
- Repair or replace damaged stormwater structures as needed

8.1.2.3 Stormwater System Preventive Maintenance: Utilize the AiM Preventive Maintenance system to create recurring work order schedules and maintenance tasks needed to properly maintain stormwater structures in good operable condition.

8.1.2.4 Stormwater System Contamination: When water testing determines cross contamination of sanitary sewers into the stormwater system, Facilities Management will work to locate the source and point of the contamination and execute the necessary repairs to eliminate the source of sanitary sewer-stormwater system contamination.

8.2 Facilities Management Operations Stormwater Compliance: On sites where maintenance or utility repairs are being conducted, or major landscaping changes, Facilities

Management will perform a pre-construction review and utilize the appropriate best management practices such as installing silt and sedimentation control, on these sites to policy to minimize stormwater runoff, protect the quality of site runoff water, and to eliminate negative impact on receiving bodies of water, such as Parkerson Mill Creek.

8.3 Construction Stormwater Management: On all construction sites, ensure compliance with the University's Stormwater Management policy to minimize stormwater runoff, protect the quality of site runoff water, and to eliminate negative impact on receiving bodies of water, such as Parkerson Mill Creek.

9.0 Purchasing

9.0 Commitment to the Use of Environmentally Preferable Materials: Facilities Management is committed to the use of environmentally sound materials, chemicals, and equipment utilized in the maintenance and operations of university buildings.

9.1 Purchasing Considerations: When purchasing materials, supplies or equipment, Facilities Management shall use environmentally sound items subject to the conditions below:

- Ensure product purchases balance product performance, cost, and availability.
- Review supplier agreements to determine potential to switch to products with higher recycled content levels and services providers with strong environmental focus.

9.2. Environmentally Sound Material and Equipment: Consider highest energy and water efficiency standards when purchasing new products, materials, and appliances while considering cost effectiveness.

- Utilize environmentally preferable materials when they meet mission requirements and provide equal or better performance, reliability, and cost effectiveness.
- Environmentally harmful substances should not be used in the products.

9.3 Environmentally Certified Materials and Equipment: When practicable, utilize material, supplies or equipment that are certified by the following programs:

- Energy Star: Appliances and equipment
- Green Seal: Cleaning supplies.