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Provost and Executive Vice Chancellor

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Sustainability Standard Operating Procedure

First Issued: June 16, 2014

Purpose: The Sustainability Standard Operating Procedure (SOP) supplements the NC State University Sustainability Policy by providing guidance for its implementation.

Contact Info: The Campus Environmental Sustainability Team and the University Sustainability Office (919-513-0211)

Related Policies:

UNC Policy 600.6.1 - The University of North Carolina Policy on Sustainability
POL 04.00.09 Sustainability Policy
NC State Policy 70.60.01, Parking and Transportation Ordinances for Policy and Enforcement Guidance
Facilities Operations Policy #832, Chemical and Chemical Waste Management and Disposal

Additional References:

Pathway to the Future: NC State's 2011-2020 Strategic Plan
Foundation for Advancing Sustainability: A Strategic Plan for NC State University
Climate Action Plan
Strategic Energy Management Plan
Physical Master Plan
Campus Mobility Plan
Bicycle and Pedestrian Master Plan
University Design and Construction Guidelines
University of North Carolina General Administration space standards
NC State Standards for Research and Design Studio Space
Management of Non-Hazardous Construction and Demolition Reuse, Recycling and Waste Materials Plan Guidelines
The University of North Carolina Combined Purchasing Initiative
American College and University Presidents' Climate Commitment
Session Law 2007-546 (SB 668)
Session Law 2010-196 (HB 1292)
NC Administrative Code Title 15A, Ch. 2D.1010

Sustainability Standard Operating Procedure

1 Introduction

The Sustainability Standard Operating Procedures (SOP) supplements NC State University Sustainability Policy by providing guidance for the policy implementation. The Sustainability Policy establishes sustainability as a core value of NC State and integrates sustainability into institutional processes, administration, teaching, research and innovation, outreach and engagement, and campus operations.

The SOP document outlines the scope and plans for implementation and enforcement. The SOP provides ongoing operational procedures for campus development, climate impact, community and culture, energy and water, purchasing, transportation, and waste reduction and recycling. The document establishes parameters for existing and ongoing projects, sites, and buildings. New projects and buildings should take SOP guidance into consideration during design and construction phases. It is intended that the document evolve over time.

The SOP applies to all NC State staff members, faculty members and students, including all campus departments and units. The Provost and Vice Chancellor for Finance and Business have responsibility for oversight, implementation and enforcement of the accountability referenced in section 3. The SOP is regularly reviewed and appropriately modified by the Campus Environmental Sustainability Team.

2 SCOPE

The scope of this document includes operational procedures for campus development, climate impact, community and culture, energy and water, purchasing, transportation, and waste reduction and recycling. The SOP complements and does not overlap or duplicate the policies and references listed above. The document is not intended to be a comprehensive list of all campus activities that should have an SOP. Instead, the document focuses on areas with the largest known impact for sustainability goals.

2.1 Campus Development

In campus planning NC State will minimize the environmental footprint of campus, consider the needs of present and future generations, and be aware of connections with the greater Raleigh area. New development requires efficient use of existing space through the implementation of space and utilization standards, effective management strategies, and strategic reinvestment.

For development, NC State incorporates sustainability into comprehensive master plans and design and construction guidelines. All buildings are constructed in accordance with comprehensive master plans, design and construction guidelines and high performance building standards. Capital investment decisions utilize life cycle costing.

- The Physical Master Plan guides the future, physical development of campus, holistically connecting natural systems, utilities, structures and roads.

- Updates to the Physical Master Plan occur on a cycle of five to seven years and modifications to Sustainability Guiding Principles and standards will be incorporated with the update. Campus expertise assists with the master plan update.

- Space needs are assessed every three to four years. This includes space projections by space type (classroom, class lab, office, research, studio, library and other) based on enrollment projections and academic plans. Space utilization is evaluated using the University of North Carolina General Administration space standards for teaching spaces and office space. The University Space Committee determines space reallocation or reassignment for under-utilized space.

- Leadership in Energy and Environmental Design (LEED) silver certification must be met or exceeded in all major campus construction projects. State statutes for high performance buildings includes new construction and renovations of buildings when the cost is greater than 50% of the insurance value and the project is larger than 20,000 gross square feet of occupied or conditioned space, as defined in the North Carolina State Building Code.

- All projects not subject to the LEED mandate must adopt a sustainability statement in the scope of project. This applies to new construction projects and renovation projects in publicly owned or privately owned buildings as well as leased and partnership properties.

- Priority is given to holistic building and property modifications that maximize efficient and effective resource use.

- The Bicycle and Pedestrian Master Plan establishes projects to create a pedestrian-friendly campus that encourages walking and biking.
- The Heritage Tree Plan is revisited every five years.
- Design and Construction Guidelines and other design and construction contract agreements must advance sustainability.

2.2 Climate Impact

The members of the NC State University community must take personal responsibility for their actions and activities that contribute to climate change and take prudent measures to mitigate climate impacts. Such considerations include reducing use of energy and other resources, reducing greenhouse gas emissions and educating others about the impacts of activities on climate change.

NC State shall implement a plan to become climate neutral by 2050.

- Activities across campus will consider climate impact, such as transportation, energy use, water use, waste reduction and other resources, in their planning and implementation.
- Progress is monitored bi-annually through performing a campus greenhouse gas inventory.
- Cost effective strategies that support business decisions and reduce greenhouse gas emissions are implemented.
- Campus and community engagement are among the strategies implemented for achieving climate neutrality.

2.3 Community and Culture

NC State faculty members, staff members, and students will be responsible environmental partners and social citizens of the surrounding community. Members of the NC State community will promote sustainability awareness, understanding, and behavior change on campus with the goal of promoting a global culture of sustainability. The University will recognize sustainability programs, celebrate accomplishments and take an active role in fostering collaboration among campus departments and community organizations.

- Sustainability information will be reported on a national scale toward becoming a national leader in sustainability.
- A comprehensive sustainability education and awareness program will be an ongoing activity.
- The Campus Environmental Sustainability Team serves as the cross-campus team of faculty, staff, student and community members advising and advancing campus sustainability.
- Campus events will imbed sustainability as a part of the campus culture.
- Recognitions and rewards will encourage sustainability and raise the visibility of activities that advance sustainability.

2.4 Energy and Water Efficiency

The operation and maintenance of buildings and grounds promotes and improves energy and water efficiency. Proper use of material resources provides occupant health and well-being through healthy and safe workspaces and residences.

2.4.1 Building occupant behavior
- Turn off office and laboratory equipment, lights, window air conditioners and/or any other energy consuming equipment when not in use.
- Shut fume hood sashes to appropriate safety levels when not in use.
- Turn off lights and equipment in common areas at the end of the workday and over the weekend.
- Turn off personal computers and equipment at the end of the workday and over the weekend; utilize devices that power down automatically when not in use.
- Close windows and doors of conditioned spaces when the building is heating or cooling.
- Use task lighting and day lighting for office work rather than overhead lighting whenever possible.
- The use of personal electric heaters in buildings or offices is prohibited unless authorized by Facilities Operations.

2.4.2 New construction and major remodels
- The decision process for construction and remodels includes energy life cycle costing analyses.
- New construction and remodels use high-efficiency lighting and lighting controls, including emerging technologies, where the life cycle cost is favorable.
- Decrease energy consumption through alternative energy sources, such as solar water heating, day lighting, and other strategies.
- Give primary consideration to connecting and/or extending central utility systems for heating, cooling and other mechanical systems.
- Meet year-round cooling needs by utilizing the most energy efficient systems (e.g. free cooling or economizer cycles based on life cycle cost analysis).
- Promote energy management through the strategic use of metering.

2.4.3 Lighting
- Keep interior decorative lighting to a minimum and minimize exterior decorative lighting.
- Utilize in-board and out-board switching for lighting fixtures.

- Increased use of day lighting and day lighting controls as an integral part of project design.
- Disconnect all beverage vending machine lamps and specify use of energy saving vending miser devices.

2.4.4 Heating and cooling set points

- Set heating and cooling set points to minimize energy use while maintaining occupant comfort.
- Set temperatures for occupied space to temperatures that range from 68°F to 71°F for heating and 72°F to 75°F for cooling.
- Set unoccupied building setback features through the building automation system to range from 55°F to 60°F for heating and 80°F to 85°F for cooling.
- Set Heating, Ventilation and Air Conditioning (HVAC) occupancy schedules through discussions with Facilities Operations and Facilities Liaisons. In general, the setback schedule takes effect when the majority of the building is unoccupied. During setback periods, utilize override push button applications where available.
- Exceptions to HVAC occupancy schedules include special areas such as libraries, animal care units or research facilities that require constant or specific temperatures.
- Facilities Operations evaluates requests for temperature set point and occupancy schedule exemptions on an individual basis.
- Facilities Operations utilizes the most energy efficient means of supplying heating or cooling for approved off-hour/holiday requests.
- Use window air conditioners only in areas that lack central cooling or proper air balance, and operate the units consistent with energy conservation.
- Report areas that are too cold or too hot to the Facilities Customer Service Center.

2.4.5 Water efficiency

- Utilize water capturing and/or reuse systems, such as storm water collection and HVAC condensate recovery, for non-potable uses.
- Use low water use flush valves and flow restrictors on faucets and showers in shower facilities, labs, and restrooms.
- Do not use single-pass cooling water for mechanical equipment in new construction or remodels.
- Eliminate existing equipment that use single-pass cooling water systems.
- Report water leaks, dripping faucets and fixtures that do not shut off to the Facilities Customer Service Center.

2.4.6 Renewable energy

- NC State will support the development and installation of renewable energy sources on campus.

2.4.7 Housekeeping practices

Chemicals
- Use products that meet or exceed standards set forth by the United States Green Building Council (USGBC), Green Seal and the U.S. Environmental Protection Agency Environmental Choice.
- Use products that contain no carcinogens, reproductive toxins, heavy metals or phosphates; have low VOC content; are readily biodegradable and nontoxic to human and aquatic life.
- The University Housekeeping Chemical Committee reviews all chemicals, researches available alternatives and prevents unauthorized chemicals from being introduced into the Green Cleaning Program.
- Use chemical dispensing stations that pre-measure chemicals and mix with water intended for equipment to protect worker safety and reduce water use.

Equipment
- Use cleaning equipment that reduces noise levels, improves overall indoor air quality, and improves worker safety. .

Supplies
- Supplies will be selected to minimize waste at the source, promote use of recycled material, and to allow the materials to be recycled following use.
- Supplies will be selected to reduce the use of potable water.

Training
- Provide on-the-job training for housekeeping staff to ensure continuous delivery of a clean and healthy environment for building occupants.

Contracts
- Write the above housekeeping practices into contracted housekeeping services.

2.5 Purchasing

NC State purchasing decisions are guided by total cost of ownership and total life cycle cost. Any purchase by NC State will improve the environmental performance of its supply chain with consideration given to toxicity, recycled content, energy and water efficiency, rapidly renewable resources, and local production and manufacturing. Purchase decisions will improve the social responsibility of the supply chain, production working conditions and the use of historically underutilized businesses.

2.5.1 Environmentally and socially responsible attributes
- Include environmentally and socially responsible attributes whenever this does not infringe on the statute-driven purchasing processes defined by the State of North Carolina.

- Consider all phases of a product or service to determine its environmental impacts including: raw materials acquisition, production, manufacturing, packaging, distribution, operation, maintenance, disposal, potential for reuse and ability to be recycled.

- Include environmentally and socially responsible attributes in specifications, statements of work, and procurement of goods and services.

2.5.2 Expansion of environmentally and socially responsible purchasing
- Seek environmentally and socially responsible purchasing for products and services by selecting those that comply with the following current and credible environmental and social standards:
    - Green Seal certified for cleaning supplies, paints (no VOC), windows, doors, flooring and adhesives
    - Forest Stewardship Council certified for office paper, toilet paper, every type/use of paper
    - Green Guard standards for indoor environments such as paints, furniture and bedding
    - Cradle to Cradle production standards
    - Purchasing from sources that feature adequate safeguards for endangered forests and indigenous people

2.5.3 Procurement of paper products and initiatives that minimize paper use
- Purchase paper and tissue products made from 50% post-consumer recycled content. In the absence of 50% post-consumer, purchase the highest post-consumer recycled content or highest pre-consumer recycled material content.

- Use photocopy practices that minimize paper use and reduce costs including:
  - Duplex (double-sided) printing and photocopying
  - Use of digital file management and imaging software
  - Enhance capabilities for electronic document creation and storage
  - Eliminating unnecessary printing
  - Using the maximum margins allowable by University branding guidelines to fit more content on each sheet of paper
- By January 1, 2015, 50% of paper products will comply with this regulation and will increase by 25% each year until 100% of all paper and tissue products comply.

2.5.4 Energy Star® equipment and electronics
- Purchase Energy Star, or better, electronic office equipment, including but not limited to computers, monitors, printers, scanners, photocopy machines, facsimile machines and other such equipment.
- Purchase Energy Star or better appliances and other energy consuming equipment when available.
- Budget for Energy Star or better for equipment listed for requests for proposals, specifications, and contracts for products or services.

2.5.5 EPEAT computers
- Purchase new computers that meet the Electronic Product Environmental Assessment Tool (EPEAT) Silver or Gold Energy Efficiency standards.

2.5.6 Adherence to the NC State Design and Construction Guidelines
- Require all members of the NC State community adhere to the Design and Construction Guidelines regarding material choices.

2.5.7 The procurement of the following is discouraged to the maximum extent feasible and within limitation of existing laws and regulations:
- Asbestos-containing materials
- Mercury-containing materials
- Chlorofluorocarbons (CFCs)
- Hazardous substances requiring special handling and disposal
- Polystyrene products and packaging
- Bleached, virgin paper with 0% post-consumer recycled content

2.5.8 The director of Materials Management structures procurement procedures to:
- Include a review of compliance with this SOP as a part of regularly scheduled review of delegated procurement. Include comments regarding

the extent of compliance and suggestions for improvements in reports furnished to Deans, Directors, Department Heads and Vice Chancellors (as applicable).

- Review requisitions received from departments and units of the University. Suggest environmentally and socially responsible alternatives for consideration by the requestor.

- Actively seek sources for environmentally and socially responsible products. Materials Management identifies and posts links to appropriate search tools that may be of use to the campus community in selecting environmentally preferable product alternatives, such as the U.S. Environmental Protection Agency (EPA) database of environmentally preferable products.

- Establish and actively promote the use of term contracts and University specific convenience contracts for environmentally and socially responsible goods and services commonly used by campus. Upon expiration of existing contracts, evaluate opportunities for replacement with more environmentally and socially responsible options. Post all contract bid opportunities on the NC Department of Administration's Division of Purchase and Contract Interactive Purchasing System website.

- Appoint one or more environmentally and socially responsible procurement coordinators with responsibility for researching opportunities for environmentally preferable goods and services, issuing solicitations to establish contracts, and promoting the goods and services to the campus community. Establish an outreach and education program designed to inform campus about the availability of and benefits associated with such products.

- Encourage all vendors to offer environmentally and socially responsible product promotions. Actively market these opportunities to campus via the Materials Management website, e-mail and other venues likely to reach the campus community at-large.

- Actively promote the reuse of surplus property available at the Surplus Property Office as an alternative to procurement of new products.

- Aggressively seek multiple sources and promote competitive bidding for the environmentally and socially preferable products specified by requesting departments and units.

- Develop and implement the use of standard contract provisions promoting the policies established herein.

2.6 Transportation

2.6.1 Multimodal transportation system

NC State encourages the development and maintenance of a multimodal campus transportation system providing a variety of mobility choices that support more sustainable commuting. Sustainability measures include ensuring safety and accessibility for all pedestrians, bicyclists, transit riders, parking customers and visitors who use the system. For students and employees, the University promotes transit and other transportation alternatives to reduce single occupancy vehicle trips to, from and around campus.

- Incorporate alternative fuel and technology evaluations when procuring new Wolfline vendor contracts and substantial service hour or fleet changes.
- Maintain a network of productive Wolfline transit routes and services within the fiscal limits imposed by available dedicated, grant-related and parking revenue subsidy resources.
- Monitor service demand, enhance reliability and increase Wolfline patronage to streamline operations and increase ridership without compromising customer service.
- Fund transportation demand management programs to offer convenient mobility alternatives to driving single occupancy vehicles to campus, such as public transit GoPass, bicycling, walking, carpools, etc.
- Integrate transportation sustainability considerations into campus master planning and the design and implementation of major new capital construction and mobility infrastructure projects.

2.6.2 Vehicle fleet

NC State will procure, maintain and operate a cost-effective vehicle fleet that reduces dependence on petroleum fuels through the use of alternative fuels, conservation, electrified transportation and new technologies.

- Reduce the consumption of petroleum products in the University and Wolfline fleets by increasing the use of alternative fuel and low-emitting vehicles.
- All NC State gasoline, alternative fuel and diesel powered vehicles and equipment, regardless of size, shall be idled only as necessary to perform the essential functions of the equipment. Drivers of any University vehicle, or off- road piece of equipment, must turn off the engine upon stopping at a destination, and must not cause or allow an engine to idle at any location for more than five consecutive minutes in any 60-minute period.

Exceptions to this procedure will only be approved when extended engine operation is required due to functional requirements, manufacturer recommendation, safety inspections, diagnostics or service, emergencies or weather-related safety.

2.7 Waste Reduction and Recycling

NC State will develop and implement regulations and programs that work toward achieving zero waste on campus. Waste reduction efforts will focus first on source reduction followed by reuse, recycling and composting.

2.7.1 Education and outreach
- Offer education, outreach and special programs to all University departments in an effort to reduce waste by diverting materials from landfill disposal through reducing unnecessary purchases, reusing materials where appropriate, and recycling and composting.

2.7.2 Common material streams for on campus recycling include, but are not limited to the following commodities:
- Paper recycling
- Cardboard recycling
- Cans and bottles recycling
- Fluorescent lighting
- Scrap metal recycling
- Untreated wood recycling
- Construction and demolition recycling
- Yard waste recycling
- Compost (food and greenhouse waste)
- Metal filters (HVAC)
- White Goods
- Tires (off rim)
- Wooden pallet reuse and recycling
- Electronic devices and computer peripheral recycling
- Battery recycling
- Rigid plastic recycling
- Oil and oil filters
- Rigid plastics

2.7.3 Campus buildings

Collection sites
- Reduce the number of waste bins available and pair them with recycling bins.

- Locate indoor recycling sites in common areas such as hallways and break rooms.
- Locate outdoor recycling sites near each building.
- Include bins for indoor and outdoor recycling sites to collect paper, bottles and cans.
- Locate yellow bins to recycle small electronic devices and batteries at outdoor recycling sites.
- Supply deskside recycling bins to feed indoor recycling sites by the desk occupant, Housekeeping staff or both.
- Locate green dumpsters for card board at outdoor recycling sites.

Office and departmental clean out
- Use cleanout bins are available from the Waste Reduction and Recycling Office for recycling office paper and for donating reusable office supplies.

2.7.4 Residential buildings

Collection sites
- Locate outdoor recycling sites near each building. This site includes bins for cans, bottles and paper as well as electronic devices and batteries.
- Provide a recycling bin in residence hall rooms so students in can empty into outdoor recycling sites.

Move-in and cardboard
- Locate green dumpsters for cardboard at outdoor recycling sites.

Move-out

- Take unwanted, reusable items such as clothing, furniture, small appliances, bedding, books and non-perishable food to donation stations located throughout campus.

2.7.5 Athletic and special events

- Use compostable or recyclable products for food services.
- Place recycling, waste and compost bins together in high traffic areas.
- Use waste minimization practices and procedures found within the Sustainable Event Toolkit for planning events.
- The individual or organization reserving composting bins and stations are responsible for proper education and staffing to eliminate contamination.
- Post-event clean up contractors/staff/volunteers gather and separate remaining recyclable and compostable material from waste.

2.7.6 Dining facilities

- Create and implement new products and programs that can decrease the waste stream are implemented.
- Minimize food waste from food preparation and consumption.
- Provide composting and recycling bins in kitchen and seating areas.
- Reusable items such as shopping bags, take-out containers, cups and utensils.
- Design and implement programs to divert food waste in both food preparation and among dining patrons.

2.7.7 General campus

- Use recycling bins placed on highly traveled paths.
- Reusable items such as batteries, bags, cups and containers.
- Take bulk debris such as yard waste, electronics, wood, metal, pallets, white goods, and construction and demolition debris to NC State's bulk debris site for proper recycling.
- Find information and a full list of accepted material at the Waste Reduction and Recycling's website.
- Place small electronics and computer peripherals that cannot be sent to the NC State's Surplus Property office in yellow electronic recycling bins located at each campus building's outdoor recycling sites.
- Coordinate removal, repurposing and resale of unwanted but usable department materials through the NC State Surplus Property office.
- Use Waste Reduction and Recycling's campus roll-off site for proper recycling for recycling connected to small renovations, and include the General Conditions of the project using NC State's Management of Non-Hazardous Construction and Demolition, Reuse and Waste Materials Plan.

2.7.8 Construction, Space Planning and Design

- Adhere to the Non-Hazardous Construction and Demolition Reuse, Recycling and Waste Materials guidelines for construction and demolition projects.
- Incorporate the Design and Construction Guidelines for Planning and Design- Space Planning for waste management and recycling.

3 Accountability

The SOP is issued by the Provost and the Vice Chancellor for Finance and Business to provide specific guidance for implementing the Sustainability Policy. The Campus Environmental Sustainability Team serves as the lead coordinating body for both the Sustainability Policy and the SOP. The SOP applies to all NC State staff members, faculty members and students, including all campus

departments and units. The following officials and units have leadership responsibility for complying and implementing the SOP.

Scope	Responsible unit
2.1 Campus Development	Office of the University Architect Capital Projects Management Design and Construction Services Facilities Operations University Sustainability Office University Housing University Recreation Campus Enterprises University Athletics
2.2 Climate Impact	Campus Environmental Sustainability Team University Sustainability Office
2.3 Community and Culture	Campus Environmental Sustainability Team University Sustainability Office
2.4 Energy and Water Efficiency	Energy Management University Housekeeping Facilities Operations
2.5 Purchasing	Purchasing Department
2.6 Transportation	Transportation Department Fleet Services Departmental Fleets
2.7 Waste Reduction and Recycling	Waste Reduction and Recycling Office