

**2010 SACUBO BEST PRACTICES ENTRY:**

**RED AND BLACK AND GREEN: HOW GREEN CLEANING HAS  
IMPROVED THE ENVIRONMENT, WORKER SAFETY AND THE  
BOTTOM LINE AT THE UNIVERSITY OF GEORGIA**

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## **Abstract**

*The University of Georgia's (UGA) Physical Plant Division - Services Department has broken new ground with its innovative process improvement focused on green cleaning, environmentally sound purchasing and workplace safety. In fall 2008, the Physical Plant (PPD) earned Certification with Honors in the International Sanitary Supply Association's Cleaning Industry Management Standard (CIMS), making the University of Georgia only the second university in the United States to earn this designation and the first to earn it under the recognized practices of green cleaning.*

*UGA's award-winning facility cleaning program gives "cleaning for health" in the campus environment an entirely new cost-saving and work place safety focus. The program encompasses efficient business processes, standardized employee training, customer training modules for facility building inhabitants, and a defined emphasis on indoor air quality and sustainability.*

*The green cleaning program began with a comprehensive analysis of the cleaning product inventory. In the process, UGA realized that its building service workers were predominantly using chemicals with dangerous health, flammable and/or reactive characteristics. Over the past year, more than 500 hazardous cleaning chemicals have been eliminated from inventory stock and replaced with just three environmentally-friendly ones through the green cleaning program. At the same time, PPD managers created the Building Service Worker (BSW) Academy training program. Both programs focus on safe work practices, customer service and effective employee management techniques.*

*The impact of this comprehensive process improvement has been substantial, resulting in:*

- *a marked decrease in the number of serious employee injuries and lost work hours from slips/falls;*
- *a decrease in the number of respiratory complaints associated with cleaning chemicals;*
- *the awarding of certificates to nearly 100 employees who have completed the standardized training offered through the Building Service Worker Academy;*
- *savings of \$216,000 related to cleaning chemical expenditures for FY09 (in large part, due to the ability to buy a much smaller selection of chemicals in bulk); and*
- *total savings for Fiscal Years 2008 and 2009 of \$850,000.*

*Like many public universities across the country, the University of Georgia is challenged to maintain the quality of its services in a time of deep budget reductions. The University's Physical Plant must do its part to help the institution realize savings in the Resident Instruction budget, while continuing its commitment to excellence. By creating efficiency improvements in its daily business operations and increasing the value-added opportunities of employee training, the Physical Plant not only is meeting this goal, but actually is enhancing customer service in the process.*

## **Introduction of the Organization**

The University of Georgia (UGA), established in 1785 as the nation's first state-chartered university, is the flagship institution among the 35 colleges and universities in the University System of Georgia. With nearly 35,000 students, approximately 9,000 faculty and staff, and an annual budget of \$1.3 billion, UGA is the largest and most comprehensive educational institution in Georgia and a driving force in the state's economic growth.

The University of Georgia's academic reputation is on the rise, and admission is increasingly competitive. Approximately 18,000 applicants applied for the fall 2009 class of just over 4,700 freshmen. The University of Georgia is ranked 21<sup>st</sup> among the nation's top public universities by *U.S. News & World Report*, and the institution is consistently recognized as one of the best values in American higher education.

Nearly 1,600 employees serve in the University's Office of Finance and Administration, striving to provide the essential support required by the University of Georgia to achieve its ambitious academic, research and service mission. Seven divisions are housed under the auspices of Finance and Administration, managing the University's fiscal, human and physical resources.

The Physical Plant (PPD) is the largest of those divisions, with nearly 800 employees who are responsible for construction and remodeling, energy services, engineering, grounds, operations and maintenance, and building services. More than 375 employees work in Building Services alone, with responsibility for facility custodial operations, fleet management, sanitation, recycling, warehouse management and material requisition operations. Of those, 326 full-time employees serve as custodians, maintaining more than 9.5 million square feet of Resident Instruction area; these employees work on two shifts (day and night), as well as weekend/special event assignments.

### **Statement (Restatement) of the Problem/Initiative**

In 2005, the University of Georgia faced a challenge as well as an opportunity. Indoor air quality in some of its oldest campus buildings was poor, and customers were complaining about headaches, moldy smells and stuffy buildings. Workplace accident numbers for the building service workers also were a source of concern, with 25 injuries resulting in nearly 4,500 lost work hours. Building service workers often complained of respiratory problems, headaches and allergies. The turnover rate was high, with 10 to 12 custodial positions constantly open and no standardized training on best practices. Concurrently, the University was poised to celebrate the bicentennial of its oldest building on historic North Campus—Old College. Senior administrators decided to give the building a dramatic facelift, and the Physical Plant decided to overhaul its maintenance practices, too.

The green cleaning program was initially implemented because of the University's strong desire to be Georgia's flagship institution in environmentally sound business practices. Implementing a cleaning program that protects the general public and students, faculty and staff is beneficial to everyone.

In August 2005, the Physical Plant introduced green cleaning as a pilot program in Old College. The pilot program was so successful and popular among building clients that the Physical Plant moved toward formalizing a campus-wide green cleaning program, which initially included each building in the 28-building North Campus corridor. The main focus of the new program was to improve indoor air quality in some of the oldest campus buildings, substitute hazardous chemicals with safer products, reduce employee workplace accidents and standardize employee work practices. The green cleaning program was complemented by the introduction of a required Building Service Worker Academy, a two-week training program to establish a

consistent method of training for each building service worker and to prepare eligible employees for future advancement. The combination of the two programs enabled the Physical Plant to “restart” its Building Services operation on a foundation of best business practices.

## **Design**

In 2005, the start-up of Old College as a green building was initiated by the Services Director, in partnership with a local janitorial supplier who has extensive knowledge of campus cleaning operations and is a member of the International Sanitary Supply Association. In November 2006, the green cleaning pilot program was formally evaluated as part of a Building Services chemical review for the Physical Plant’s new occupational safety program.

In the field of occupational safety and environmental health, using the safest chemical alternative to any business product is known as a good business practice and is commonly practiced in industrial settings. The production, distribution, use and disposal of all chemicals should be considered when selecting any chemical for business purposes. Building service workers handle these products regularly during eight-hour shifts and are at the greatest risk for inhalation and skin absorption when using chemical products. Building occupants may have limited exposure to these products as well.

After the chemical inventory and subsequent discussion among PPD leaders, the decision was made to proceed with the green cleaning program. Steps that had to be taken were as follows: identify and immediately remove hazardous cleaning products; suspend Procurement Card purchases at the field level to control the products used on campus; and ban the receipt of “product samples” from solicitors. These initial measures ended decades of unregulated purchasing and use of unproven, unsafe products.

In spring 2007, the PPD Services Director, Warehouse Manager, Safety Coordinator and Human Resources Director met with the newly appointed Assistant Director of Services to plan the future direction of the Building Services program. This series of planning sessions was critical to the true creation of the campus green cleaning program. The team quickly realized that switching to safer chemicals, in and of itself, would not be sufficient to improve air quality and worker safety. Instead, employees would need to be trained in proper work techniques. In order to build a stronger workforce, the planning team also focused on training in leadership and safety, the development of standard operating procedures (SOPs), and restructuring of the organization for better overall leadership and continuity throughout the Building Services organization.

Although the University is a trailblazer in this area, it was admittedly not the first to earn CIMS certification; therefore, planners consulted colleagues from the school that was: the University of Michigan. In addition to using the University of Michigan as a model, the Physical Plant planning team also consulted counterparts at Harvard University, the University of Virginia, Colorado State and North Carolina State to build a platform for the standardized training programs, which were dubbed the Building Service Worker (BSW) Academy. The safety program component was expanded from the workplace safety initiatives put in place by PPD's new Safety Coordinator, who also worked with a local consultant who specializes in OSHA outreach and has CIMS training certification. In addition, the planning team reviewed the Physical Plant's own business operations and procedural manuals for updating. Planning team members were actively engaged in the development of written materials for the BSW Academy training program, tests and practical exercises, and lesson plans for in-house training instructors.

In preparing for full-scale adoption of the green cleaning program, the planners realized that a great deal of front-end work had to be done. For example, hundreds of thousands of dollars had been invested in cleaning chemicals, so they could not simply be discarded. Usable chemicals (those not in a degraded state and/or unlabeled container), were transferred to other parts of campus to be used. Chemicals in quantities too large to be used by the University before the green cleaning transition was to be made, were temporarily stored by the Environmental Safety Division and offered for free to other University System institutions that desired them. Other chemicals that were degraded or were in unstable or unlabeled containers were properly disposed by Environmental Safety.

The team also had to develop a strategy for expansion of the program. The North Campus corridor, consisting of 28 buildings, was selected for roll-out because it was the most historic and recognizable part of the campus for students, alumni and the community. Also, the University's senior administrators are housed in this area, so including them in the green cleaning roll-out would provide a high-level endorsement for the program. It was hoped that successful implementation would motivate other units, such as Housing and Food Services, to follow the Physical Plant's lead and transition to green cleaning.

The program was designed over a series of meetings by the core group (consisting of the Assistant Director of Services, Safety Coordinator, Custodial Superintendent, custodial training instructors, and knowledgeable business professionals). This group reviewed previous training documents, outlined a comprehensive custodial training program, edited lesson plan drafts and PowerPoint presentations and critiqued the final training documents. It was determined that the optimal allocation of training time would be a two-week, four-hour per day Building Services Worker (BSW) Academy for all incumbents and new hires. This indoctrination would cover

workplace orientation and customer service expectations, diversity issues, safety performance, specialized equipment preventive maintenance and targeted area cleaning procedures. All participants would have to pass written and practical (hands-on) exercises to move into the subsequent block of instruction. Students who failed to pass either written tests or practical exercises would undergo retraining on those areas and retest prior to advancing. This methodology would prove particularly effective in evaluating the attendance and work habits of probationary employees prior to their assignment to permanent campus positions.

In recognition of the different learning levels and styles that would be represented among the participants, the courses were designed with flexibility in mind. All classes would incorporate adult learning techniques, such as limited reading assignments, more hands-on and verbal questioning rather than written or standardized tests, and presentations utilizing PowerPoint or actual demonstrations of the products and equipment. Employees who had difficulty with written materials could elect to have questions read to them by training specialists and answer verbally or by demonstration. Employees without a GED would be encouraged to enroll in the Physical Plant's GED program, which meets twice a week and is provided at no cost to participants.

As members put the final touches on the comprehensive plan, the following design questions lingered, which would be answered during implementation:

- Would the green cleaning training program be accepted by staff members?
- Would the Physical Plant be able to replicate the training after having supervisors participate in the initial class?
- Would a two-week training class be sufficient to instigate change in workplace behavior and/or heighten employees' safety awareness?

- Would standardizing employee training alter the workplace culture so that supervisors and employees focused on sound business practices like customer service, cost savings and efficiency?

### **Implementation**

The Services Department set out to establish a transition timetable for implementing green cleaning across campus. It was determined that a three-year transition time period would be set (we are now in the third year). Over that time period, numerous issues have been addressed. For example, a custodial management software program was utilized to better determine chemical product usage and track facility inventory; previously, this type of monitoring was either non-existent or conducted through a cumbersome manual process. An employee work task list was also developed, which allowed for analysis of daily cleaning schedules. The computer program also facilitated better accounting of expenses.

The first step for actual implementation of the program in a building required an “inhabitants meeting,” during which time the purpose of the program and the comprehensive cleaning plan for the building were explained to the facility staff members. Building Services senior staff responded to questions from building occupants, which usually centered on the use of personal items such as air fresheners, perfumes, hairsprays and office plants. During the meeting, presenters also educated building clients on the importance of sustainable work practices such as recycling and recovery/re-use of unwanted equipment and supplies.

The initial BSW Academy curriculum was introduced to 45 custodial supervisors during a week-long, four-hour per day training block in August 2008. Supervisors were not required to participate in the hands-on practical exercises, but they did complete the classroom instruction

and review the practical exercises, orientation, diversity and safety materials. This was done to ensure that supervisors would be able to model the expected work practices and skills being taught in the academy. Supervisors also were provided with inventory accountability expectations since they would be responsible for monthly inventory counts and the filing of work orders for maintenance issues. Their feedback on the classroom instruction was incorporated into the curriculum, which was formally introduced to a first class of 18 supervisors and building service workers in March 2009.

Response from the first class was overwhelmingly positive. “We have needed this for a long time,” wrote one participant in her course evaluation. “Now I can concentrate on getting work done and not on training people how to get work done.” Another commented: “This will help us to keep our crews working together.”

The objective of the BSW Academy was to establish a consistent training program to retrain existing employees (who may have adopted bad habits) and to prepare entry-level workers for a full-time position with the Physical Plant. Upon completion of all seven components of the program, participants would earn a *qualification document*, affirming that they were eligible for promotion to higher positions within the Building Service operations. At present, 93 employees have been certified.

The curriculum which was introduced—and which remains in place with only minor updating required—addressed the fundamentals of building service and housekeeping techniques, as well as green cleaning components. Each course is taught by a senior leader in the Physical Plant or product/equipment vendor; thus, no additional cost for training is incurred. The class begins with an introduction and welcome by the Director of Services. Course descriptions are provided below.

- **Workplace Survival & Success (Assistant Director of Services)**

Class provides applicants with skills necessary to obtain and keep a job. Topics include building self-esteem, developing good work habits, employee accountability, communication skills, appropriate dress for work, personal hygiene, getting along with colleagues and dealing with difficult people. A review of University guidelines for progressive discipline is included in this section.

- **Introduction to Building Services (Maintenance Worker and Training Specialists)**

This course covers machine and electrical safety, detergents, chemical handling and mixing. Guidelines for selecting the proper equipment for each task, waste disposal, surface cleaning, vacuuming and dusting in a variety of building settings are presented. Students are provided with a foundation to work in a variety of facilities. Along with classroom presentations, the participants are trained under real work situations.

- **Workplace Safety for the Building Service Worker (Safety Coordinator)**

Class addresses safe work practices in all aspects of custodial employment. Topics include identifying and using personal protective equipment, proper use and storage of ladders, safe operation of various cleaning tools and equipment, fire safety, electrical safety, hazard identification, safe handling and storage of cleaning chemicals, MSDS/Right to Know, blood-borne pathogens, confined space awareness, CPR and standard first aid.

- **General Cleaning Practices (BSW Training Specialists and Recycling Coordinator)**

A practical examination of the methods, skills, chemicals, equipment and tools used in the maintenance and care of various floor types, walls, painted surfaces, furniture, counters, tables, restrooms, light fixtures and other building areas. This course requires

participants to demonstrate learned skills in each specific area. A live practicum allows the participant to demonstrate proficiencies and good general cleaning procedures. In addition, participants get a general overview of the campus-wide solid waste plan and learn how their actions can reduce the University's waste footprint by recycling and using proper waste management techniques.

- **Hard Floor Care (BSW Training Specialists)**

Participants learn the basics in the care of a variety of flooring surfaces. Training in the various types of equipment necessary to provide proper care and treatment of floor surfaces includes using floor machines, vacuum cleaners, scrubbers, pressure washers and floor sanders. All aspects of restroom care and cleaning are addressed, and safe use of cleaning chemicals is emphasized.

- **Carpet and Upholstery Care (BSW Training Specialists)**

This course involves participants in material and fiber identification for various types of carpets and upholstered fabrics, along with routine and restorative procedures to be used with each type. They gain experience with various methods of carpet and upholstery care, including shampooing, extraction, bonnet cleaning, dry powder cleaning, spot/stain cleaning and wet/dry foam cleaning. Proper use, care and maintenance of carpet cleaning equipment also is emphasized.

- **Green Cleaning Program (OSHA Outreach Trainer)**

The initial green cleaning program was specifically created for the immediate transition of traditional cleaning products and procedures to the use of green products and practices. The program requirements were developed based on techniques recognized by the U.S. Green Building Council and by the Leadership in Energy and Environmental Design

(LEED) green building certification program. Green cleaning is much more than switching to chemicals that are safer for people and the environment. It also emphasizes the proper handling of products and standard operating procedures (SOPs) to prevent cross-contamination of biologicals. For example, to minimize chemicals in the ambient air, custodians no longer spray products directly onto surfaces; instead, the chemical is sprayed directly onto the cleaning cloth and then wiped on the surface. This single practice reduces the amount of product needed to clean and reduces the potential for occupants and workers to inhale the products, also known as environmental exposure.

### **Benefits**

The benefits gained from the Physical Plant's process improvements have been substantial and immediate. The green cleaning program has generated a tremendous positive response from employees, clients and industry professionals. To date, 93 incumbent and newly hired building service workers and supervisors have completed training in seven classes of the Building Service Worker Academy. Of the graduates, 11 have been promoted to positions of higher responsibility, establishing a more committed and stable workforce.

Praise for the Physical Plant's green cleaning program and Building Service Worker Academy has come from many diverse constituents and includes accolades for more efficient business operations, better customer relationships, standardized employee training and techniques, reduced worker injuries and complaints, and an increase in the "bench strength" of promotable in-house staff members. In fall 2008, the Physical Plant earned Certification with Honors in the International Sanitary Supply Association's Cleaning Industry Management Standard (CIMS), making the University of Georgia only the second university in the United

States to earn this designation and the first to earn it under the recognized practices of green cleaning.

The comprehensive program has provided custodial staff with safer working environments and has improved air quality for faculty, staff and students as well. The campus' reliance on hazardous chemicals for cleaning has come to an end, with nearly 500 chemicals pulled from the previous inventory. Employees currently use only three daily green cleaners to maintain 1.2 million square feet of resident instruction space. They also use lighter, more ergonomically friendly tools. Using HEPA vacuums and micro-fiber cloths has essentially eliminated exposure to airborne particulate. The discontinuance of corrosive products in the cleaning stock has diminished the need for personal protective equipment (PPE) such as respirators, rubber boots and masks for routine cleaning tasks. The Physical Plant also has transitioned its maintenance chemicals, paints and carpets to zero or low volatile organic compound (VOC) products in other PPD operations.

The warehouse has capitalized on additional storage space created when large quantities of hazardous chemicals were removed and has saved money by purchasing a few chemicals in bulk rather than a wide variety of chemicals in small quantities. The decision also was made to eliminate all but one purchase card within Building Services operations to better contain spending. All purchases except for equipment and equipment repair parts are routed through the warehouse, which maximizes volume discounts in its purchasing. To date, the Physical Plant has realized documented cost savings of more than \$850,000 in custodial cleaning supply purchases. Recycling efforts across campus also have been enhanced and made profitable.

The process improvements have brought about positive changes to the workforce as well. Absenteeism has been decreased, and there has been a marked decrease in time lost from on-the-

job injuries among the Building Services staff (from 4,474 work hours in calendar year 2007 to 386 in 2009). An added benefit is the institutionalization of SOPs: no matter where employees are stationed, they now know exactly what cleaning techniques and chemicals should be used. The end result has been improved perception of the Physical Plant by internal and external audiences, as it is now viewed as an innovator in cleaning practices and customer relations. The success of the Physical Plant's experience has inspired other unaffiliated units on campus—such as University Housing, Food Services and Athletics—to adopt green cleaning practices as well.

### **Retrospect**

As you might imagine, roll-out of a new concept is never perfect; change, by its very nature, is difficult. Although the premise of green cleaning was readily endorsed by building occupants and workers, many people questioned whether the facilities were really as clean because “they didn't smell clean.” In retrospect, the planning team should have been more progressive in reassuring the campus that the smell of ammonia or chlorine does not necessarily equate with the overall level of cleaning; while colorants and fragrances have been removed from green cleaning products, they are just as effective in reducing and/or eliminating bacteria and viral loads.

Of course, we would have liked to have rolled out the program more quickly, but we simply did not have the people or financial resources to do so. However, in a time of budget crisis, we are most proud of the fact that we have significantly impacted the bottom line, while enhancing the safe work habits of our employees and improving the health of buildings for faculty, staff and students alike.

Our comprehensive green cleaning and employee training program is a best practice that can easily be emulated by other institutions seeking to improve working conditions, maximize efficiencies and help the bottom line. We welcome the opportunity to share our story of safe, sustainable business practices with others who can benefit.