

NORTH CAROLINA STATE UNIVERSITY

GREEN CLEANING INITIATIVE

UNIVERSITY HOUSEKEEPING APRIL 2008



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VISION

The Facilities Division of North Carolina State University is a team committed to excellence in creating and preserving a physical environment that advances the university. Through recent years it has become increasingly important to maintain the natural resources on our planet and energy conservation efforts are a high priority in the world today. By implementing a Green Cleaning Program on NC State Campus, it is our goal to start a Green Revolution that will lead other universities to exercise the same practices that were initiated within NC State's University Housekeeping Department.

MISSION

The diverse team of dedicated professionals within Facilities Operations will set the standard for quality service in creating and preserving the university physical environment. We will respond to the needs of the campus community with innovation, integrity, accountability and excellence. We will be the leading higher education facilities organization. The mission that is being undertaken at North Carolina State University is to change the way that everyday practices have a negative effect on the environment. The Housekeeping Department of North Carolina State University recognizes the amount of damage being done to the environment, both wild and populated, and has made a pledge to help make a change. N.C. State University Housekeeping is planning on being one of the leading groups in the environmental, or "green" field amongst colleges and universities in the United States. Currently, there are several efforts being made with many more planned for the future.

INTRODUCTION

Ever since the days of Rachel Carson, it has been widely accepted that many man-made chemicals can cause serious harm to the environment. Generally, those chemicals that are targeted by the public as being harmful, such as crude oil, mercury, and arsenic, are only a few of the toxic materials that are being used every day across the United States. One category that is often overlooked, due to its necessity in society, are cleaning products. Many cleaning products currently in use are considered very hazardous, containing such compounds as nonylphenol ethoxylates (NPEs), which are extremely hazardous to aquatic environments, affecting anything from streams to open water-fishing grounds¹. It is not only the wild environments that are a concern, but the indoor environments in which people live and work as well.

Pollution can do a great amount of damage to an outdoor habitat, affecting fish and wildlife for years, however people who spend any significant amount of time indoors are also at a very high risk. The U.S. Environmental Protection Agency states that, "indoor air is found to be up to 70 times more polluted than outdoor air."² With the constant use of chemicals within a building, along with the recirculation of air and all it contains for particulate, the accumulation of pollutants can be

¹Nonylphenol Ethoxylates: A Safer Alternative Exists to This Toxic Cleaning Agent
http://www.sierraclub.org/toxics/nonylphenol_ethoxylates3.pdf, 3/16/08

²Indoor Air Quality, www.epa.gov, 3/7/08

extraordinary. Much like its affect on natural wildlife, air pollution can be a very serious problem for people alike. According to the American College of Allergists, 50% of all illnesses are either directly caused or seriously aggravated by indoor air pollution.³

STANDARDS

There are many different organizations that are willing to label a product “green,” however, some of the most trusted organizations put a huge amount of research into determining whether a product or service is environmentally friendly. The organizations that are most commonly referenced are the United States Environmental Protection Agency, the Rug and Carpet Institute, and Green Seal. Green Seal is the leading organization used by NC State to find new products and determine their green credibility.

Green Seal™ is a non-profit organization that researches products to deem whether or not they should be considered environmentally friendly. The organization delves deep into the history of the product, starting with the source of the raw materials used for production, all the way through the process to the very end, in how the product will be disposed of. If satisfied, Green Seal will certify the product, providing information on the Green Seal website about the product for consumer use. All research is based on a mixture of industry, government, academic, and public resources. Green Seal is currently considered the standard in certification of environmentally friendly products and services.

EFFORTS BY NCSU HOUSEKEEPING

CHEMICALS

An attempt at creating an environmentally friendly cleaning system cannot be discussed without covering the chemicals that are used in the cleaning process. Though NC State University Housekeeping has not made a full transition to all green chemicals, there are a few key cleaning compounds that have been switched. The three products are all produced by Ecolab, falling under their list of Green Seal certified products (see page 3 for further explanation on Green Seal). QC 51E is a general purpose cleaner, covering most surfaces, followed by QC 52E, which is glass cleaner, and QC 91E, which is a general bathroom cleaner.

QC 51E is a state-of-the-art surfactant, which eliminates the use of NPEs, which are extremely dangerous to aquatic systems. Instead, the cleaner is made with alkyl polyglucocides from naturally renewable sources. Alkyl polyglucocides are made from a cornstarch glucose and a fatty alcohol, which creates good foaming/cleansing properties, while still being biodegradable.⁴ It is used for the routine cleaning of hard surfaces, such as floors, walls, countertops, fixtures, tiles, equipment, sinks, tubs, shower doors, etc. The cleanser is non-toxic, with less than 1% VOCs by weight, biodegradable

³Stephen L. Tvedten, *The Bug Stops Here*, 2002

⁴ 365 Plant-derived surfactants for personal care products, P. E. Bator, Hankel Corporation, <http://www.aaccnet.org/meetings/99mtg/abstracts/acabd68.htm>, Tue, feb 26, 2008

by EEC/OECD standards, mid-range pH (9.9-11), non-petrochemical, as well as being chlorine and phosphorous free.⁵

The QC 52E glass cleaner is a heavy-duty glass cleaner for windows, glass, mirrors, Plexiglas, countertops, marble, metal fixtures, plastic, and other hard surfaces. It is made of a super-surfactant blend for deep penetration and removal of soils such as smoke film and grease. It is also a quick drying, streak-free cleaner. The cleaner is free of NPEs, using anionic surfactants instead, which are biodegradable (EEC/OECD), non carcinogenic, containing no EDTA or NTA, and having a mid-range pH (11).⁶

The QC 91E Neutral bathroom cleaner is based on a blend of citrates and specialty surfactants. Sodium citrate, which is a sodium salt from citric acid that is commonly used in foods, is a proven remover of hard water scale, making it great for a bathroom cleaner. Overall, the QC 91E can be used to remove soap scum, light rust from toilet bowls, clean urinals and shower walls/floors, as well as counter tops, sinks, and various hard surface bathroom materials. This product contains no organic acids, NPEs, phosphorous, carcinogens, or aquatic toxins, as well as containing less than 1% VOCs, and having a mid range pH (7.7-8.2), allowing it to be a very earth-friendly product.

EQUIPMENT

To help keep the air clean, University Housekeeping has already implemented many greener practices. The use of new micro-fiber technology has been extremely effective in making a difference in air particulate pollution. The much smaller fibers are capable of picking up and holding a much larger amount of dust and dirt, keeping those particles from being kicked back into the air. The micro-fiber pads also conserve on water and cleaning solution, using 90% less water and 95% less cleaning solution than a traditional mop.⁷ This is of great importance, for it reduces the amount of chemicals being used, thus reducing the amount of chemicals that can make it into the air and into those students and staff within the building. Also, the vast reduction in water use is extremely important in the parts of the country that have been affected by severe drought, such as North Carolina. Along with the micro-fiber tools, the use of 2370 burnishers with dust control, which are LEED Certified, and Tennant model 3120 and 3260 vacuums with HEPA filtration, as well as the ProTeam Quartervac, which collect the dust instead of emitting it, and outdoor entry mats to capture dirt before entering the building, have helped in the reduction of air particulate. The T3 FAST system has also been helpful with water reduction, as well as with the reduction in chemical transportation, with the cleaning solution located on top of the unit. The Kaivac cleaning system, along with the Kai chemical family, are one of the first tools that NC State is using that are approved by Green Seal for their safe cleaning capabilities.

SUPPLIES

Paper is one of the most used products at N. C. State, as well as with almost any other institution, so it is important to note the use of some of Kimberly-Clark's LEED and EPA certified products. The current paper products being used are the JRT R07827-40 tissue, the JRT R07805-0-3148 tissue, as well as the 1040 hand towels, all of which meet the EPA standard for post-consumer recycled material.

⁵ QC51E TechData.pdf Material Safety Data Sheet, provided by Ecolab

⁶ QC52E TechData.pdf Material Safety Data Sheet, provided by Ecolab

⁷ Micro fiber Cleaning Solutions,

<http://www.rubbermaidmicrofiber.com/rcp/micro/microfiber/en/>, 3/4/08

RECYCLING

In order to reduce the amount of materials being consumed, N.C. State University Housekeeping assists with the removal of recyclable products from buildings, such as from beside desks in offices and classrooms, as well as cardboard removal to designated cardboard recycling dumpsters. The process of switching over to a paperless system is underway as well, with computer kiosks being installed in all managerial locations and documents being scanned and transferred online. Together with these conservation efforts, some environmentally friendly cleaning solutions have been replacing the older, more toxic, chemical cleaners.

PROCEDURES

Energy conservation is also of great concern to the housekeeping staff. In order to reduce the use of energy, a procedure has been implemented to make sure that lights are always turned off upon leaving a room, as well as doing sweeps of building during breaks to be sure that any unnecessary lights and equipment are turned off. The maintenance mechanics use electronic ballasts along with T8 light tubes to reduce energy use, as well as reducing the amount of toxic chemicals within the tubes. Matting is regularly checked outside of every building, to reduce the amount of dirt being brought into the building. With the main office being located off of central campus, regular carpool transportation is set up to reduce fuel use, along with the use of electric golf carts. Training is currently taking place to ensure that the entire Housekeeping staff implements these practices, as well as continuously updating the staff on new improvements to procedures.

The University's Pest Control group, which falls under University Housekeeping, has switched to a catch-and-release program, using have-a-heart traps as their primary form of pest control, which are non-lethal and harmless. This reduces the amount of chemical pest deterrents used, which are extremely poisonous to the environment and people alike. Chemical alternatives are only used in the direst of cases, and even then they are applied in a very pointed fashion, making sure to limit any spread of the product being used.

GREEN PROGRAMS AT OTHER UNIVERSITIES

U.S. COLLEGES

Though there are vast number of colleges and universities in the United States, very few American schools have made an effort to create and run a green cleaning system for their campus. This is one of the reasons why N. C. State's University Housekeeping department believes that it is so important to switch to a environmentally sustainable system, to help lead the rest of the country into a new era of responsible cleaning. There are some schools, however, which do deserve to be recognized for their efforts, if nothing else than to help NCSU create a better system.

UNIVERSITY OF COLORADO, DENVER

The University of Colorado, Denver, has created a "six-step" process that is in compliance with suggested regulations put in place by the U.S. Green Building Council, the EPA, Green Seal, and the Rug and Carpet Institute, as well as other agencies, both state and local. This process includes the use of closed dispensing systems to allow for a specific amount of pre-mixed cleaner to be dispensed,

cutting down on spills and excess waste. On the floors, they, much like NCSU, use micro-fiber mops to reduce water and chemical use, as well as use vacuums with HEPA filters instead of sweeping, so as to reduce the amount of dust particulate in the air. The use of 100% biodegradable trashcan liners are employed throughout, as well as the following list of paper products and chemicals⁸:

Housekeeping Paper Products

MEETS EPA GUIDELINES		
	Post Consumer Fiber	Minimum Total Recycled Content
Envision Multi-fold Towels	40%	95%
Cormatic Roll Towels	40%	40%
Compact Coreless Bath Tissue	20%	20%

• **House-Keeping Chemical List**

Currently Being Used	Green Reference
Restroom Products	
RTD - Virex 256 Hospital Grade Quat Disinfectant	EPP Product
RTD - Crew Restroom Floor and Surface Cleaner	EPP Product
RTD - Crew Bath and Scale Remover	Green Seal
RTD - Crew Bath and Scale Remover	Green Seal
General Cleaners	
RTD - Alpha HP Hydrogen Peroxide Cleaner	Green Seal Certified
RTD - Glance Non Ammon. Glass Cleaner	Green Seal
RTD- Alpha HP Hydrogen Peroxide Cleaner	Green Seal
Floor Products	
RTD - Stride Neutral Cleaner	Green Seal Certified
Vectra Floor Finish	EPP Product
Carpet Products	
RTD - Heavy Duty Prespray Plus	Green Seal Certified
RTD - Extraction Rinse	EPP Product
General Purpose Spotter	EPP Product

By using both Green Seal and EPP products, the University of Colorado, Denver, can ensure that they are using environmentally safe cleaners that are of little or no risk to those cleaning nor anyone else.

⁸ University of Colorado, Denver,
<http://www.ucdhsc.edu/admin/facilities/engineering/energy/housekeeping.htm#green>, 2/22/08

UNIVERSITY OF MINNESOTA

The Minnesota Technical Assistance Program at the University of Minnesota is a state-funded agency that provides pollution prevention and energy efficiency technical assistance to Minnesota businesses in order to help them maximize resource efficiency, increase energy efficiency, reduce costs, and prevent pollution. MnTAP's internship program provides students to businesses throughout Minnesota to investigate pollution prevention and energy efficiency projects. One project at Olmsted Medical Center <<http://mntap.umn.edu/health/129IS.OMC.2007.pdf>> focused on reducing the number and toxicity of housekeeping chemicals used and improving the efficiency of procedures. Results are as follows:

Particular	Reduction
Cleaning bottles disposed of annually	1509
Number of cleaners used	63%
Number of Chemicals	40/year
Cleaning time	7min/room
Labor Costs	\$7000
Redundant chemicals/processes	\$17000

By participating in the MnTAP intern program, Olmsted Medical Center was able to save a significant amount of money each year, while at the same time reducing the amount of toxic chemicals used, reducing redundancy thereby increasing efficiency.⁹

COLORADO STATE UNIVERSITY

Colorado State University has made one of the best efforts, switching their paper products to 100% recycled, containing 30% post consumer product and no chlorine. As well, the school uses rags made from ruined linen, low volatile organic compound (VOC) containing products, and cleaning chemicals such as H2Orange, which is a hydrogen peroxide/citrus oil based product that is completely biodegradable. To help reduce energy use, large rooms are split into zones with individual light sensors so that when an area is not in use, the lights in that part of the room will automatically shut off. Exit signs have also been switched to LED, which saves a significant amount of energy.¹⁰

UNIVERSITY OF CALIFORNIA, BERKELY

The University of California, Berkeley, has a great program that allows students to be involved, as well as kept aware. The program occurs twice per year, once per semester, and allows students to trade their incandescent light bulbs, which they may have for lamps, and trade them out for compact fluorescent lights (CFLs), free of charge.¹¹ This simple action allows for a great reduction in the amount of energy being used on a campus, as well as a reduction in the number of bulbs thrown out, since the life of a CFL bulb, compared to an incandescent, is 6 times longer.

⁹ University of Minnesota, www.umn.edu, 2/22/08

¹⁰ Colorado State University, www.colostate.edu, 2/22/08

¹¹ University of California, Berkeley, www.berkeley.edu, 2/22/08

REFERENCE:

	Micro-Fiber/ Green Tools	Green Chemicals	Water Reduction	Recycling System	Recycled Paper Products
NCSU	X	X	X	X	X
U. Col, Denver	X	X	X	X	X
U. Minnesota		X	X		
U. Cal. Berkely	X				
Colorado State	X	X		X	X

SUGGESTED IMPROVEMENTS FOR NC STATE UNIVERSITY

Green Seal, along with the EPA, Green Label, and the Carpet and Rug Institute, have tested and approved a vast number of products. The same companies that produce the cleaning solutions that NC State University Housekeeping already uses make many of these products, so below is a compiled list of approved products that are not currently in use at NCSU but could be easily exchanged.

CHEMICALS

	Past Use	Current Use	Future Use
Floor Care	Ecolab Gemstar Laser	Ecolab Gemstar Laser	Ecolab Zinc-Free Floor Finish*
	Ecolab Phazer Monostar	Ecolab Phazer Monostar	Ecolab Zinc-Free Finish Remover*
	Ecolab Phazer Resilient and Stone	Ecolab Phazer Resilient and Stone	ZEP Manufacturing Green Link Floor Finish*
	Ecolab QC 33	Ecolab QC 33	ZEP Manufacturing Green Link Floor Stripper*
	Ecolab QC 31	Ecolab QC 31	Ecolab Wash 'n Walk group (see list)*
	Pinnacle Intensive Tile Cleaner	Pinnacle Intensive Tile Cleaner	
	Chem-Care Rescue	Chem-Care Rescue	
	Ultra Strip	Ultra Strip	

	Chem-Care Strip Master	Chem-Care Strip Master	
	Ecolab Quick Fill Pourpak 310	Ecolab Quick Fill Pourpak 310	
	Ecolab Quick Fill Pourpak 330	Ecolab Quick Fill Pourpak 330	
Carpet Cleaner	Ecolab Revitalize 101	Ecolab Revitalize 101	Ecolab Revitalize 151*
	Ecolab Revitalize 201 Extraction Detergent	Ecolab Revitalize 201 Extraction Detergent	Ecolab Revitalize C & U Extraction Cleaner*
	SANI-TEX Carpet Extraction	SANI-TEX Carpet Extraction	Ecolab Revitalize C & U Prespray*
General Cleaners	See Clear Blue Wonder	Ecolab QC 51E*	Ecolab QC 51E*
	Glass Pac Lite	Ecolab QC 52E*	Ecolab QC 52E*
		Kaivac KaiDri	Kaivac KaiDri
		Kaivac Kablooey	Kaivac Kablooey
		Ecolab QC 91E*	Ecolab QC 91E*
	AIRKEM Easy Scrub	AIRKEM Easy Scrub	Ecolab Quick Fill E group (see list)*
			Ecolab Oasis G group (see list)*
			Xpedx Regency group (see list)*
			ZEP Multi-Clean Green*
			ZEP Verdiza*
			ZEP Green Link group (see list)*
Hand Cleaners/ Sanitizers	Episoft Foaming Antibacterial Soap	Episoft Foaming Antibacterial Soap	Ecolab Clean & Smooth Lotion Skin Cleanser*
			Ecolab Digiclean Mild Foam*
			Xpedx Reliable Green Choice group (see list)*
Paper Products		Kimberly-Clark JRT R07827-40*	Kimberly-Clark JRT R07827-40*
		Kimberly-Clark JRT R07805-03148*	Kimberly-Clark JRT R07805-03148*
		Kimberly-Clark 1040 Hand towels*	Kimberly-Clark 1040 Hand towels*
			Kimberly-Clark Coreless*
			Pro-Link Green group (see list)*
			Wausau Paper/Bay West Ecosoft Green group (see list)*

			Wausau Paper/Bay West Dubl-Nature group (see list)*
			GP Enmotion
			GP Compact

* Approved by The Green Seal Organization

Floor Care¹², based on “GS-40 Industrial and Institutional Floor Care Products”

- ECOLAB
 - Zinc-Free Floor Finish
 - Zinc-Free Finish Remover
- ZEP Manufacturing
 - Green Link Floor Finish
 - Green Link Floor Stripper

General Cleaners¹³, based on “GS-37 Industrial and Institutional Cleaners”

- ECOLAB
 - Quik Fill 310 Neutral Cleaner
 - Quik Fill 510E General Purpose Cleaner
 - Quik Fill 520E Glass Cleaner
 - Quik Fill Magnum 810 Neutral Cleaner
 - Quik Fill 910E Neutral Bathroom Cleaner
 - Oasis 139G All Purpose Cleaner
 - Oasis 258G Glass Cleaner
 - Oasis 305G Neutral Bathroom Cleaner
 - Oasis 110G Neutral Floor Cleaner
 - Oasis Pro 18G All Purpose Cleaner
 - Oasis Pro 34G Neutral Floor Cleaner
 - Oasis Pro 43G Glass Cleaner
 - Oasis Pro 67G Bathroom Cleaner
 - Revitalize 151 Prespray & Extraction Cleaner
 - Revitalize Carpet & Upholstery Extraction Cleaner
 - Revitalize Carpet & Upholstery PreSpray Cleaner
 - Wash 'n Walk No-Rinse Floor Cleaner
 - Eco-Clean Elite Wash 'n Walk Enzymatic Floor Cleaner
 - Keystone Wash 'n Walk Enzymatic Floor Cleaner
- Xpedx
 - Regency Professional Brand Green Choice Restroom Cleaner
 - Regency Professional Brand Green Choice Neutral Cleaner
 - Regency Professional Brand Green Choice Non-Ammoniated Glass Cleaner
 - Regency Professional Brand Green Choice Multi Purpose Cleaner
 - Regency Professional Brand Green Choice General Purpose Cleaner

¹² Green Seal, <http://www.greenseal.org/findaproduct/fcp.cfm>, 2/26/08

¹³ Green Seal, <http://www.greenseal.org/findaproduct/cleaners.cfm>, 2/26/08

- ZEP Manufacturing
 - Multi-Clean Green
 - Verdiza
 - Green Link Neutral Floor Cleaner
 - Green Link Glass Cleaner

Hand Cleaners/Sanitizers¹⁴, based on “GS-41 Hand Cleaners and Hand Soaps.”

- ECOLAB
 - Clean & Smooth Lotion Skin Cleanser
 - DigiClean Mild Foam Hand Soap
- Xpedx
 - Reliable TF Green Choice Luxury Foam Handwash
 - Reliable Green Choice Luxury Foam Handwash
 - Reliable CM Green Choice Luxury Foam Handwash

Supplies/Paper Products¹⁵

- Kimberly-Clark (current purchase agreement); meet LEED and EPA CPG requirements.
 - 1000
 - Also, switching to coreless, for the JRT's, would reduce the amount of packaging waste by 37%.
- Pro-Link (GS-1 and GS-9 rating)
 - PRO-LINK Green and Green Elite Bath Tissue
 - PRO-LINK Green Facial Tissue
 - PRO-LINK Green and Green Elite Roll Towels
 - PRO-LINK Green Folded Towels
 - PRO-LINK Green Center Pull Towels
- Wausau Paper/Bay West
 - EcoSoft Green Seal Folded Towels
 - EcoSoft Green Seal Roll Towels
 - EcoSoft Green Seal Kitchen Roll and CenterPull Towels
 - EcoSoft Green Seal OptiFold Towels
 - Dubl-Nature Folded Towels
 - Dubl-Nature Roll Towels
 - Dubl-Nature OptiFold Towels
 - EcoSoft Green Seal Tissue
- Georgia Pacific (non-green seal, but EPA certified)
 - EnMotion
 - Compact (huge reduction in packaging waste, with a decrease of 20-25% in both the Jumbo and Regular roll sizes).

Some other products that could be considered are cleaning tools made from recycled materials, as well as trash can liners made from either an organic, biodegradable product, such as soy or ethanol based, or liners made from recycled material. Though significantly more expensive, can liners made from 100% recycled material, 10-30% post consumer, can be purchased from such

¹⁴ Green Seal, http://www.greenseal.org/findaproduct/hand_cleaners.cfm, 2/26/08

¹⁵ Green Seal, http://www.greenseal.org/findaproduct/papers_newsprint.cfm, 2/26/08

sources as Webster Re-Claim, Stout® Total Recycled Can Liners, and Trashcandepot.com. Some of these options are more viable than others, however, with bio-based can-liners most useful for natural waste that will be composted, while also good for general landfill use.

CERTIFICATIONS

LEED Certification

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria. LEED is a third party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.¹⁶

GREEN SEAL

Green Seal's evaluations are based on state-of-the-art science and information using internationally recognized methods and procedures. To earn the coveted Green Seal a product must meet the Green Seal environmental standard for the category as demonstrated by rigorous evaluation, testing and a plant visit. The Seal provides a business advantage, for it identifies a product as environmentally preferable, provides third-party corroboration of environmental claims, and distinguishes a product from competitors that can't support their environmental assertions. The Green Seal may be used on packaging, in promotional material, in catalogs, and in advertising for products that have been certified to meet the applicable standard.¹⁷

CARPET AND RUG INSTITUTE (CRI)

The Carpet and Rug Institute (CRI) is the science-based source for the facts about carpet and rugs. Whether you are a homeowner, an architect, or a facility manager, making the right decisions starts with having the facts. CRI's job is to prove how your environment for living, working, learning and health is better thanks to carpets and rugs. To put it simply, CRI's job is to go well beneath the surface and prove how our environment for living, working, learning and healing is better — thanks to carpet and rugs. Through science-based research, customer advocacy, environmental stewardship and consensus building, we serve our members and their customers. Our initiatives help protect carpet's life and beauty and demonstrate its air quality benefit.¹⁸

¹⁶ U.S. Green Building Council, [USGBC: About USGBC](#)

¹⁷ Green Seal, <http://www.greenseal.org/findaproduct/index.cfm>

¹⁸ CRI, [Carpet and Rug Institute \(CRI\)](#)

ISSA, The Worldwide Cleaning Industry Association

ISSA is determined to remain the leading association for the cleaning industry by representing all the professions it encompasses and by allying with other trade organizations that share its members' common goals. In doing so, the association plans to create a common industry voice in the economic, political, and community arenas today and in the years ahead. Enrich your company and educate your employees by connecting with more than 4,800 distributor, wholesaler, manufacturer, manufacturer representative, building service contractor, in-house service provider, publisher, and associate members from around the world.¹⁹

CONCLUSION

Overall, it is easy to recognize that there are very few colleges and universities that are attempting to create and maintain a green housekeeping system, which leads to yet another reason why it is so important for a school such as North Carolina State University to make the switch. NCSU has the chance to lead what could be called a “green revolution” at the university level. Already in 2008, a year that has been labeled “the year of energy” by the university, Chancellor James Oblinger signed into affect an act that requires all new buildings on campus to be LEED Silver certified. Water conservation efforts are going on all over many campuses in North Carolina, especially on North Carolina State’s Raleigh campus, however there is still so much more to do to create an environmentally sustainable school. By creating a green housekeeping program, NC State takes the next big step towards becoming a sustainable campus, a first of its kind. Many efforts have already been made, however, there are many more to go to make the best difference.

¹⁹ ISSA, [ISSA - Vision, Values & Mission](#)