

Greener Cleaning

PLAYBOOK

Version 2

A guide to help sports venue operators
develop a greener cleaning program

**Clean Like
the Pros!**

TABLE OF CONTENTS

- 3** Acknowledgments
- 4** Introduction
- 5** How To Use This Playbook
- 5** How To Succeed
- 9** Implementation
- 11** Selecting A Greener Cleaning Service Provider
- 12** Selecting Greener Products
 - 12** Cleaning Chemicals
 - 14** Paper Products & Hand Dryer Implementation
 - 16** Powered Cleaning Equipment
 - 17** Plastic Trash Can & Recycling Container Liners
 - 18** Entryway Mats
 - 19** Tools, Materials & Miscellaneous Cleaning Supplies
- 20** Green Cleaning for Concessionaires
- 23** Toolkit for Greener Cleaning
- 28** Innovative Green Technologies
- 31** Case Studies
- 39** Appendix
 - 40** Green Sports Alliance's Greening Advisor Sample Purchasing Policy
 - 41** High Performance "Green" Cleaning Program
 - 45** Case Studies from Greener Cleaning Playbook, Version 1

PLAYBOOK

Gold Sponsors



Premier Sponsors



Supporting Sponsors

ABCO Products, Aramark, GenEon Technologies, Green Schools Alliance, Pro Team/Emerson, Project Green Schools

ACKNOWLEDGMENTS

Author

Stephen Ashkin, Executive Director of the Green Cleaning Network & President of the Ashkin Group, Board of Directors, Green Sports Alliance

The Author and the Green Sports Alliance thank the following people for their contributions to this Playbook.

Joe Abernathy, George Abiaad, Al Ahlm, Christine Alamed, Kelly Anchrum, Kelley Andersen Martin, Leif Anderson, Brian Artz, Adrienne Ashkin, Alex Ashkin, Katie Bailey, Bill Balek, John Barrett, James Barry, Darryl Bengé, Mark Bishop, Dolana Blount, Ed Bosse, Sissy Burkhart, Keri Burton, Paul Byrne, Alex Carlson, Todd Carlson, Scot Case, Karen Cooper, Adriana Cornea, Brandon Cox, Jessica Crawford, Becky Dale, Clive Davies, Rochelle Davis, George Denise, Eileen Dervisevic, Jose Diaz, Anselm Doering, David Edford, Megan Eisenhard, Vince Elliott, Jim Epstein, Lauren Esposito, Steve Ethier, Edgar Farrera, Alan France, Leslie Friedlander, Howard Frumpkin, John Garfinkel, Doug Gatlin, Jeff Gayer, Jack Geibig, Nancy Geisler, Chuck Gerba, Morlon Greenwood, Matt Grimwood, Jim Harris Sr., Michelle Harrison, Chris Hartsfield, Kathleen Hatch, Kim Heck, Matt Helmrud, Steve Hengesperger, Alice Henly, Allen Hershkowitz, David Hewett, Joseph Hickson, Jr., Jacalyn High, Candace Higgins, David Holly, Darby Hoover, Jim Ibister, Bina Indelicato, Brant Insero, Scott Jenkins, Charlotte Jensen, Brian Johnson, Matt Jones, Matt Keiswetter, Shane Keough, Denise Kennedy, Linden King, Dana Kowalski, Robert Kravitz, Billy Langenstein, Sean Langer, Bryan Leslie, Steve Levine, Brad Lucas, John Marler, Paul Marquez, Alexander Mays, Roger McClendon, Chris Meaney, John McEvoy, Roger McFadden, Mike McFaul, Brad Molotsky, Tom Morrison, Mike Motherwell, Rob Mouw, Mary Ann Moyer, Mike Murphy, Joe Myhra, Richard Mylin, Richard Navarro, Dave Newport, Jeff Palmer, Kelly Perso, Mark Petruzzi, Robert Powitz, Ken Ramella, Allen Rathey, Molly Ray, Matt Reimers, Rick Ritacco, David Rives, Bob Robinson, Art Rodriguez, Graham Rossini, Gina Rotolo, Chris Rowe, Jon Rowe, Katrina Saucier, Mike Sawchuk, Keith Schneringer, Dan Schupsky, Katy Severinsen, Keith Shattenkirk, Jennifer Shramo, Yalmaz Siddiqui, Cindy Sisson, Larry Smith, Adam Straight, Daniel Sullivan, Gary Thomas, Lauren Kittelstad Tracey, Tim Vanover, Jackie Ventura, Daniel Wagner, Lucas Wendt, Tony Wirkus, Gene Woodard and Garrett Wong.

PLAYBOOK



The commercial and institutional cleaning industry (non-residential) uses each year^{1,2}:

- **6 billion pounds of chemicals**, most of which are made from non-renewable natural resources, can cause eye and skin burns, respiratory irritation, asthma, reproductive and developmental problems, and cancer.
- **4.5 billion pounds of sanitary paper products** (toilet tissue and paper hand towels), the production of which requires cutting approximately 30 million trees each year, contributes to biodiversity and habitat loss, consumes energy and water, and produces global warming pollution.
- **1 billion pounds of plastic liners for waste receptacles**, made predominately from plastic derived from non-renewable fossil fuels, can contribute to marine plastic pollution.
- **1 billion pounds of equipment** (e.g. vacuums, entry mats and carts), tools and other supplies are disposed of every year (enough to fill 40,000 dump trucks) and replaced with new materials that further affect the environment through raw material extraction and manufacturing impacts.

INTRODUCTION

This Playbook is designed to help sports facilities reduce the health and environmental threats associated with cleaning sports venues. Beyond protecting health, the cleaning industry uses significant quantities of chemicals, paper products, cleaning equipment, plastic liners for waste receptacles, and other supplies. While these supplies are important to protect health, sport facilities can further reduce health and environmental impacts by selecting high-performing environmentally preferable products, which are often cost-competitive. Furthermore, the cleaning industry employs about 4.5 million workers in the U.S. and has one of the highest rates of injury compared with other industries. Many of these injuries or other impacts on worker health are avoidable. Greener cleaning can help reduce those injuries. And converting to a greener cleaning program can offer sponsorship opportunities while providing an opportunity to educate fans about environmentally preferable cleaning products.

The Green Sports Alliance Greener Cleaning Playbook makes it easier for Alliance members to reduce operating expenses and reduce health risks to cleaning staff, athletes and fans by “greening” their cleaning program. “Greening” is the process of reviewing operations and procurement with an eye towards reducing health and environmental impacts. This playbook is part of a range of ongoing Green Sports Alliance resources that support the good practices in greener cleaning across the sports industry.

Use this Playbook to help your team, venue, or league save money, generate new revenue, build a greener brand, provide valuable marketing opportunities, and improve health and environmental performance.



¹ Stephen Ashkin and David Holly, *Green Cleaning for Dummies*; ISSA Edition, Wiley Publication, Inc (2007)

² Stephen Ashkin and David Holly, *The Business of Green Cleaning*; IFMA Foundation 2009

“ Our green cleaning program quickly became a strategy for operational efficiency and cost reduction. The best part about this strategy is that it led to easy execution. When the process and expectations are so clearly laid out, it is very hard to fail.”

—Jim Ibister

Vice President Facility
Administration, Minnesota Wild

HOW TO USE THE PLAYBOOK

This Playbook is designed to make it easy to identify cost effective cleaning programs that reduce impacts on human health and the environment. The Playbook provides recommendations based on “Bronze, Silver, and Gold” to help you select the products that are most appropriate for your facility while recognizing that there are regional differences that affect product availability and cost. This Playbook also provides recommendations to help identify qualified cleaning service providers and case studies from sport facility operators.

HOW TO SUCCEED

Use Your Purchasing Power

There are numerous simple yet effective questions you can ask vendors to promote greener cleaning at your venue. For example, ask vendors to conduct a green audit of your inventory of supplies. Ask how they keep up with the latest greener cleaning products, and if they are looking at ways to be “greener.”

Other simple questions include asking if vendors have a sustainability plan and if they track their own water, energy, waste, and other sustainability indicators. The mere fact that you ask demonstrates your interest and sends an important signal to the marketplace. Engaging vendors in conversation and encouraging them to use greener products will make them a better partner over the long term. Reward vendors who are trying to make a difference.

Focus On Protecting Health & Safety

Things we cannot see can harm us. Bacteria, viruses, mold spores, common dust contaminated with pesticides and other potentially toxic chemicals invisible to the eye should be the focus of cleaning. Typically, if we clean to protect health, we also enhance venue appearance at the same time.



Green Sports Alliance Greening Advisor Sample Purchasing Policy

The goal of this policy is to ensure that products and services purchased or contracted for will conform with the goals of our company's Environmental Policy. We will strive, where feasible, to purchase environmentally preferable products and services that meet the company's needs. Where possible, purchasing decisions shall favor:

- Products that reduce greenhouse gas emissions or are made with renewable energy
- Products that reduce the use of chemicals and other materials that are hazardous to the environment and employee and public health
- Products that contain the highest possible percentage of postconsumer recycled content
- Products that reduce air and water pollution
- Products that reduce waste
- Suppliers who strive to improve their environmental performance and provide environmentally preferable products, and who can document the supply-chain impacts of their efforts
- Reusable, repairable and durable products
- Products that serve several functions (e.g., multipurpose cleaners, cleaner degreasers, cleaner disinfectants) and reduce the overall number of products purchased
- Products that are recyclable or compostable
- Cleaning processes and training programs that protect worker health and dignity, and reduce negative impacts on the environment.

While protecting athletes and fans is a priority, don't lose sight of how important it is to safeguard the health and safety of cleaning personnel. Make sure that workers are protected with eye and hearing protection, suitable footwear, gloves, appropriate cold weather gear, back support, dust masks, etc.

Save Resources With More Efficient Operations

Pursue cleaning processes that reduce energy and water use. For example, to reduce energy consumption specify that cooler water be used for cleaning and laundry operations, ensure that laundry dryers are operating to manufacturers specifications, fill washing machines to full capacity before running, and require efficient vacuums and safer vacuuming techniques (such as backpacks). Additionally, encourage cleaning personnel to turn off lights in empty offices, close windows and window shades to reduce heat gain from the sun, and provide careful instructions to turn off electrical devices such as coffee pots, fans and space heaters when the facility will be unoccupied.

Conserve water by selecting laundry and serviceware washing operations that clean with less water, use high quality microfiber cloths and mops, use devices that turn reclaimed water into an effective cleaning solution (engineered water), and power equipment that recycle water to scrub floors, clean carpets and parking areas.

These are just a sample of the variety of opportunities to save energy and water with more efficient and greener cleaning practices. More examples are included in case studies throughout this guide.

Make It A Policy

If your facility doesn't already have a greener cleaning policy, create one (a sample policy is included in the appendix). A written policy establishes that your organization is committed to greener cleaning and makes it clear to purchasers and vendors that caring for the environment is important. If your organization already has such a policy, review it and make sure it is up to date as greener innovations are frequently being introduced in the cleaning industry. Also, if your organization has an overall green procurement program, make sure it adequately addresses training all cleaning staff.

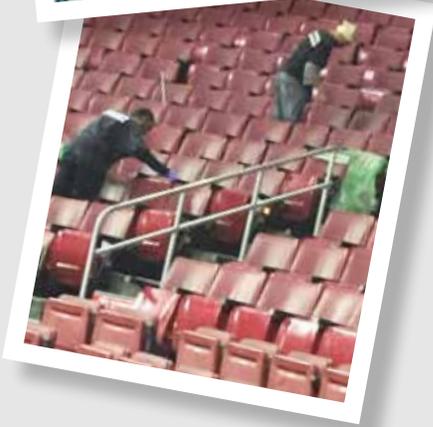
The policy does not need to be lengthy, typically no more than a few pages. One approach is to follow the draft policy found in the Green Sports Alliance Greening Advisor, requirements of the U.S. Green Building Council's *Leadership in Energy & Environmental Design for Existing Buildings: Operations & Maintenance Rating System's (LEED-EBOM)*³, ISSA's *Cleaning Industry Management Standard—Green Building (CIMS-GB)*⁴, or Green Seal's *Standard for Commercial and Institutional Cleaning Services (GS-42)*⁵. *LEED-EBOM*, *CIMS-GB* and *GS-42* have specific requirements for a greener cleaning policy and lay out standards and certification systems that can help you specify ecologically preferable chemicals, paper, plastic liners, cleaning equipment, and training. *LEED-EBOM*, *CIMS-GB* and *GS-42* are updated every few years and today cleaning product vendors and service providers are familiar with their requirements. These programs can

³ LEED-EBOM <http://www.usgbc.org/leed>

⁴ CIMS-GB <http://www.issa.com/certification-standards/cleaning-industry-management-standard-cims/cims-green-building.html#.VVUuhPIViko>

⁵ Green Seal's GS-42 http://www.greenseal.org/Portals/0/Documents/Standards/GS-42/GS-42_Ed2-1_Commercial_and_Institutional_Cleaning_Services.pdf





Green Sports Alliance Greening Advisor Sample Purchasing Policy (Continued)

Environmentally preferable products and services comparable to their standard counterparts in quality and price should receive purchasing preference. In situations where environmentally preferable products are unavailable or impractical, secondary considerations should include the environmental management practices of suppliers and producers.

The purchase of environmentally preferable products is part of our long-term commitment to the environment. By sending a clear signal to producers and suppliers about this commitment, we hope to support wider adoption of environmentally preferable products and practices.

make it easier to purchase state-of-the-art greener cleaning products and services at a competitive price.

Engage Stakeholders

Cleaning is a team effort. For best success, engage key individuals within the facility. If the organization already has a Green Team, or a Health & Safety Team, it is important to partner with them. Their existing structure could help move this initiative forward faster and more easily.

If such a group does not exist, create one. Include colleagues representing facility management, sponsor relations, purchasing, community engagement, team representatives such as trainers or others involved with player's health, and consider other individuals who have expressed a personal interest in green issues and sustainability. In addition, include representatives of the cleaning service provider (if using an outside service), cleaning product vendors, concessionaires, union representatives (if applicable) and any other relevant parties right from the beginning.

Make sure to include cleaning service providers and vendors as they can be a terrific resource when conducting an audit. They can make product and process recommendations, help determine cost implications, provide training of cleaning personnel, and provide signage. In fact, this effort could result in new sponsorships as vendors search for opportunities to differentiate themselves.

Training Staff

Even some greener cleaning products can harm health and the environment (and waste money) if used incorrectly. Whether the cleaning personnel are employees of the sport facility, outside service providers, volunteers, fans or a combination of these groups, training is critical to a greener cleaning program.

Better cleaning programs provide 20 to 30 hours per year of training for workers. Write into your request for proposal (RFP) that training be conducted in the language best understood by the workers, given that many cleaning workers speak English as a second language.

Consider requesting that your vendor:

- Provide hands-on training in addition to classroom training,
- Provide training on the proper use and disposal of the specific products and equipment used in the facility,
- Addresses ergonomics, health and safety issues,
- Addresses how cleaning personnel can help reduce the facility's energy and water consumption,
- Conduct pre- and post-training tests to make sure the training is effective,
- Provide feedback opportunities from the workers, and
- Provide training areas with multi-media (e.g. TV, monitors, projectors, etc.) to help improve the training atmosphere and to better engage employees.

It is important to provide adequate orientation and supervision when engaging fans and volunteers in cleaning-related activities such as snow removal and recycling collection. Good intentions and enthusiasm don't



prevent injuries. Require all workers to use the appropriate personal protective equipment such as gloves, proper shoes or boots, eye and ear protection, dust masks, winter gear, and other forms of protection as appropriate. Also, if workers are bringing their own tools (e.g. shovels) ensure they are in good working condition and appropriate for the task.

Goal Setting, Measuring and Reporting

Set clear goals that can be measured and reported. Goals should be informed by members of your venue's Green Team, or Health & Safety Team so that everyone is on the same page. It might be useful to evaluate goals and update them annually as the greener cleaning program matures. Initially goals can be simple, such as conducting audits of products, tools and equipment; reducing the number of cleaning chemicals; purchasing greener products as a higher percentage of total products purchased; consolidating vendors; establishing training requirements; and tracking who gets trained and on which topics. More developed programs can focus on testing product innovations and sponsorship activities.

Measuring cleanliness can be done with quality control software, which is widely available from cleaning service providers and product distributors, as well as independent software companies. These tools should track what is being cleaned, how often it is being cleaned, how much product and staff time is being used, and appropriate quality requirements. While these programs typically rely on subjective visual inspections, new tools borrowed from the food processing industry can now more objectively measure the cleanliness of surfaces, allowing cleaning personnel to focus on the areas that truly need cleaning. The International Sanitary Supply Association (ISSA) has recently developed a "clean standard" for schools,⁶ and this standard can be applied to sport facilities.

Continual Improvement

The best programs include on-going evaluation and continual improvement. This also helps eliminate backsliding and complacency. Be intentional about evaluating new technologies. Not only can they help reduce environmental impacts, but many can also help save money and be opportunities for new sponsorships.



⁶ "The ISSA Clean Standards" <http://www.issa.com/certification-standards/issa-clean-standards#>.
VXb00GRViko



IMPLEMENTATION

See Toolkit for Greener Cleaning Chapter For Advice on Implementation

The “Toolkit for Greener Cleaning” on page 19 of this playbook provides a range of practice recommendations for implementing a greener cleaning program. For example, the Green Cleaning Network provides a series of contract attachments designed around the requirements of the US Green Building Council’s LEED for Existing Buildings: Operations & Maintenance Rating System to make it easy to “green” a new or existing cleaning contract.

Create A Green Team

Include staff from various venue operations in developing the greener cleaning program. If your organization has an existing Green Team, Sustainability Team or Health & Safety Team, adding cleaning to the agenda is an excellent way to go. If no such team exists, create one. The best teams include facility management, a sponsorship representative, a team representative, and vendors including service providers and product suppliers. Including marketing and community engagement representatives can be extremely helpful when it comes time to promote the success.

Identify Program Goals & Objectives

Make sure there is agreement on the goals of your greener cleaning program and on what is expected from everyone involved. Break down objectives by the various areas of the facility and by events. For example, medical facilities and food preparation areas require a different level of cleaning and frequency compared with staff offices and back-of-house areas. Cleaning before and after a sporting event may be different compared to the requirements for a concert or other event. Setting the right goals and objectives are critical for success.

Agreeing on performance expectations will result in the most efficient use of products and cleaning personnel, produce the best health outcomes, and be most cost effective.

Identify Barriers & Obstacles

Change can be hard no matter how well intended the program. Identify the barriers and obstacles to change. For example, evaluate current contracts and sponsorships for cleaning products and cleaning services to identify existing commitments or contract language that may need to be addressed before change can be implemented. Meet with vendors to determine if they are willing to introduce greener products and practices into an existing contract.

Challenges provide an opportunity for thinking out of the box, such as composting bathroom paper towels to reduce the cost of waste disposal. It is also important to be sensitive to owners, managers, sponsors and other venue stakeholders to make the conversion to a greener cleaning program as easy as possible.



Conduct An Audit

Conduct a visual inspection of the facility each new season to identify shortcomings, which should be logged as opportunities for improvement. Look for signs of soils and debris, dirty carpets and floors, overflowing waste receptacles, clutter and disorganization. Audit cleaning product and equipment storage areas, along with janitorial carts. Audits can provide insights into the level of organization and cleaning personnel's attention to detail. A lack of order can waste staff time, cost the facility money, and be a hazard to health, safety (i.e. fire) and the environment.

Create A Plan

Work with vendors to identify and prioritize improvement opportunities. Vendors should provide cost estimates for the greener cleaning plan. Focus the plan on opportunities to reduce health and environmental impacts, as well as reducing costs. When opportunities are found to use greener products or services, a new sponsorship opportunity might arise.

GREENER CLEANING TIPS:



Use Fewer Cleaning Product Types

It is not uncommon to find 50 or more different cleaning chemicals in storage areas, mechanical rooms, restrooms and pantries. Sports venues can typically be cleaned with only a dozen or so cleaning chemicals, which makes purchasing and managing inventories easier. Aggregating purchases can result in better pricing which might save money.



SELECTING A GREENER CLEANING SERVICE PROVIDER

It is increasingly common for sports facilities to outsource cleaning. To hire a service provider with the appropriate culture and experience with greener cleaning use the following three-step process:

1
Issue a Request for Information (RFI)
Use the RFI to pre-qualify bidders to identify which are capable of delivering a greener and more effective cleaning service. Prequalifying the pool of potential bidders will reduce the time spent answering questions and evaluating bids from services providers who are not a good fit for a sport facility (e.g. too small, no experience in sport facilities, inadequate greener cleaning program, etc.).

To do this, request information about their experience with cleaning sports facilities, management systems, training programs, greener cleaning, sustainability, waste collection and recycling (including picking the bowl). Also request information on their length of time in the cleaning business, evidence of corporate compliance with all state and federal regulations, copies of insurance, and list of references.

Another method of prequalifying bidders is to inquire if they have

been certified by an independent third-party standard setter. Two examples of certification are Green Seal's *Standard on Cleaning Service Providers*⁷ and ISSA's *Cleaning Industry Management Standard for Green Buildings*⁸. Both the Green Seal and ISSA service standards have detailed requirements that the service provider must meet to receive their certification. Just keep in mind that these standards are for general cleaning services (e.g. office buildings and schools), so it is important to determine the service provider's capabilities relative to sport facilities.

2
Issue a Request for Proposal (RFP)
Evaluate responses to the RFI that provide the best indication of a vendor's capability to meet the facility's needs. Invite the best cleaning service providers to a pre-bid meeting. At this meeting conduct a facility tour, discuss expectations and provide detailed information about your facility such as square footage, hours of cleaning operations, number

and types of events held, and other specifications. This should provide the necessary information for these service providers to submit a complete proposal (RFP).

An easy way to add a greening specification for cleaning products is to simply include an addendum using the product requirements found in Appendix 1-4.

3
Conduct a Face-to-Face Evaluation of the Service Providers

Finally, direct conversation with service providers can facilitate selecting the best cleaning service provider. These conversations will help identify the best choice. Look for effective greener cleaning systems, an experienced site manager, training programs provided in the language of the cleaning personnel, and a corporate commitment to ongoing innovation.

⁷ Green Seal's GS-42 Standard can be found at <http://www.greenseal.org/GreenBusiness/Standards.aspx?sid=30&cid=3&vid=ViewStandardDetail>

⁸ ISSA's CIMS-GB can be found at <http://www.issa.com/certification-standards/cleaning-industry-management-standard-cims/cims-green-building.html>



Choosing Hand Soaps

Avoid hand soaps that contain antibacterial ingredients except where required by health code or regulations (such as in medical facilities or food preparations). There is little evidence that these added antibacterial ingredients further protect health, while there are concerns about their impacts once they enter the environment after being rinsed down the drain. Using plain soap and water can also reduce cost. Sealed soap refills are better than refillable dispensers and significantly reduce the chance for bacterial growth inside soap dispensers, while the use of foaming soap can reduce consumption and save money. Finally, hand sanitizing programs should also be considered in appropriate areas. When selecting hand dryers give preference to those that are touch-free (using automated sensors instead of push-buttons) and energy efficient while quickly and thoroughly drying hands.



SELECTING GREENER PRODUCTS

The following basic information may help make it easier to purchase greener cleaning products and equipment. These recommendations are based on the cleaning requirements found in LEED-EBOM Version 4⁹, which should be followed whether or not the facility seeks LEED certification because the cleaning industry is very familiar with these requirements and can meet them easily and cost effectively.

Cleaning Chemicals

Reduce Consumption (and Save Money)

Reducing chemical use is ecologically and economically valuable. Replace ready-to-use consumer household-type products and aerosols with concentrated products dispensed from dilution control equipment or using premeasured packaging to ensure accurate dilution rates. This will reduce the amount of plastic bottles and cardboard shipping containers. Plus, concentrates can often reduce costs by a factor of ten and more.

Buy High Performing Products

10 years ago, many greener cleaning products did not work well. However, the professional cleaning industry has made enormous strides and this is no longer the case. There are greener cleaning products that meet and even exceed the performance of their traditional counterparts. Test products to make sure they meet the facility's cleaning requirements, especially for floor care products. Poor performing products, green or otherwise, waste resources and money.

Product Selection Standards; "Bronze, Silver, and Gold"

Select products that meet one or more of the following requirements:

- **GOLD:** Buy Certified Products: Unless you're a chemist or toxicologist, it is challenging to compare all of the health, safety, environmental and performance issues associated with cleaning products. Indeed, these issues vary from product category to category. For example, what's

⁹ LEED-EBOM V4 requirements for cleaning products can be found at <https://www.google.com/url?sa=t&rot=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.usgbc.org%2Fcredits%2Fexisting-buildings%2Fv2009&ei=PLFXV12iNoqF8QX6voHYDQ&usq=AFQjCNEsAH0eF2iUoZdcnWYPMqmTseKpw>





How and When to Use Disinfectants

Disinfectants are an important tool for protecting athletes and fan's health. Use them for high risk, high touch areas such as medical areas, training rooms, food preparation and things that people touch frequently like sink faucets and door handles in restrooms. There is little evidence of benefits from disinfecting floors and walls, as a general purpose cleaner will work just as well and eliminate overuse of disinfectants. When purchasing disinfectants or sanitizers, ensure that the product is registered with the U.S. Environmental Protection Agency (EPA) and addresses the application for which it is intended for use and the target organism (i.e. *Staphylococcus aureus*). (There are differing requirements for disinfecting medical areas as compared to sanitizing food preparation areas) Other considerations include purchasing products that are part of EPA's Green Disinfectant Pilot Program¹⁴, or that are concentrated, neutral in pH and have minimal or no fragrances to reduce the risk of respiratory issues such as asthma among athletes and workers.

important in a glass cleaner is different from a floor stripper. Relying on independent third-party certifiers makes it easier because the certifier has done the work for you by reviewing manufacturer's data and even visited their manufacturing site to make sure they are doing what they say. Thus, in general you can buy certified products with confidence. It is recommended that you select products certified by one of the following organizations:

- Green Seal¹⁰
- EcoLogo/UL¹¹
- US EPA's Safer Choice Program¹²
- For sports facilities outside of North America, use a local certifying body and member of the Global Ecolabeling Network¹³

Today there are hundreds of manufacturers and thousands of products that have been tested and verified to meet the health, safety and environmental attributes set forth in these standards. Plus, all of these programs include performance requirements to insure that the products actually work.

- **SILVER:** Manufacturer's Self-Certification. Some manufacturers choose not to have their products certified by independent third parties due to cost or competitive reasons. Ask the manufacturers for their test data and reward those who provide complete disclosure of all ingredients.
- **BRONZE:** Develop Your Own Chemical Specification. Develop procurement language that specifies what should be in each product category and what should be avoided. This can include attributes such as moderate or neutral pH, low or no-VOCs, eliminating chlorine, ammonia, nonylphenol ethoxylate surfactants, 2-Butoxyethanol and other ingredients that have been identified as hazardous to health or the environment.

Explore New Technologies

Consider using one of the new devices that turns tap water into an effective cleaning solution on-site. There are a number of emerging technologies that electrolyze, ionize and ozonate water. These technologies are increasingly cost effective and significantly reduce the environmental impacts associated with raw material extraction for basic ingredients, manufacturing and compounding ingredients into cleaning products, impacts from the manufacture and disposal of plastic bottles and cardboard shipping cartons, and more.

Properly Dispose of Hazardous Products

More than likely, the cleaning products you currently use pose a higher risk of harm to human health and the environment than newer greener products being introduced. Don't dispose of them down the drain or keep them in storage where they can get misused, spill or have other negative impacts. Rather ask the product distributor to take unused products back for safe disposal and exchange them for the new greener products. While they may be unwilling to do so, it is simple enough to ask. Other options include contacting your local municipality and find out when there is a hazardous waste collection day. Do NOT donate them to a local charity or school because you will be passing on the dangerous chemicals liability to them. If

¹⁰ Green Seal's standards can be found at: <http://www.greenseal.org>

¹¹ EcoLogo/UL standards can be found at <http://industries.ul.com/environment/certificationvalidation-marks/ecologo-product-certification#cleaning>

¹² US EPA's Safer Choice Program can be found at <http://www2.epa.gov/saferchoice>

¹³ Global Ecolabeling Network and be found at <http://www.globalecolabelling.net>

¹⁴ EPA's Green Disinfectant Pilot Program can be found at <http://www.epa.gov/pesticides/regulating/labels/design-dfe-pilot.html>



a local hazardous waste collection program does not exist in your area, work with your local waste district set one up and also ask the cleaning product distributor or service provider to sponsor a collection event to collect old cleaning products that fans may want to dispose.

Paper Products & Hand Dryer Implementation

Reduce Consumption (and Save Money)

Reducing paper consumption is ecologically and economically valuable. Consider using paper hand towels or toilet tissue on large rolls. Using large rolls and dispensers that hold multiple rolls can reduce overall paper consumption by 30 percent and minimize restrooms left without sanitary paper during busy events. Coreless options also reduce waste and increase the linear feet of product to ensure that paper towels and toilet tissue doesn't run out.

Quality Matters

Ecologically preferable paper, with high post consumer recycled content and/or certified by the Forest Stewardship Council, should be used in all areas of your venue, suites as well as concourse restrooms and in offices.

Product Selection Standards; “Bronze, Silver, and Gold”

Select products that meet one or more of the following requirements:

- **GOLD:** 100 percent post-consumer recycled content and processed chlorine-free (PCF) bleaching. This may include products certified by Green Seal¹⁵ or EcoLogo/UL¹⁶.
- **SILVER:** Products that meet EPA's Comprehensive Procurement Guidelines¹⁷ for tissue products made with 100 percent total recycled content and a minimum amount of post-consumer recycled content including 40 percent for paper hand towels, 20 percent for toilet tissue, 30 percent for napkins, and 40 percent for wipes. Or from paper made from agricultural waste or rapidly renewable fiber sources.
- **BRONZE:** FSC certification for fiber procurement. FSC certification is important for ensuring virgin fiber content comes from well-managed forests (and for verifying sources of recycled fiber); however, you should prioritize purchasing janitorial paper products made from 100 percent recycled content, not from fiber sourced from forests.

Dispensing Options

Prefer paper hand towel dispensers that are “hands-free”, as compared to those that use mechanical levers or cranks because the latter can transfer harmful microorganisms from one user to the next. Dispensers where the towel is simply pulled by hand are preferable to electric or battery powered paper towel dispensers as they work equally as well and eliminate the electrical components and sensors reducing the environmental impacts associated with the manufacturing and disposal of these components. A possible caveat to this is when addressing ADA issues.

¹⁵ Green Seal Standards, Sanitary Paper Products, <http://www.greenseal.org/GreenBusiness/Standards.aspx?vid=ViewStandardDetail&cid=11&sid=25>

¹⁶ EcoLogo, Sanitary Paper Products, <http://industries.ul.com/environment/certificationvalidation-marks/ecologo-product-certification#cleaning>

¹⁷ EPA's Comprehensive Procurement Guidelines for Paper Products, <http://www.epa.gov/osw/conserve/tools/cpg/products/paperproducts.htm>





Hand Dryers

- **DETERMINE THE RIGHT NUMBER:** from a cleaning perspective, hand washing is the single most important thing people can do to protect their health. Thus facilities should avoid unintended obstacles to hand washing such as making fans wait in line to dry their hands. Assess the number of fans using the restroom during peak periods (i.e. half time of a game) to determine the proper number of hand dryers to be installed to minimize or eliminate people waiting to dry their hands. Some suggest that there should be 1 hand dryer for every 2 sinks, but this number can vary up or down based on the actual usage of the restroom.
- **SPEED MATTERS (HAND DRYING TIME):** preference should be given to higher speed hand dryers which can dry hands in only 10 to 15 seconds. Slower drying times discourages people from drying their hands and/or can adversely affect the effectiveness of hand drying as users will walk away with hands that are still wet. Additionally, faster hand dryers can result in the need for fewer dryers which can save money on initial installation.
- **ENERGY EFFICIENCY:** preference should be given to those dryers that quickly dry hands and do so using the least wattage possible. Minimizing energy consumption saves money and reduces environmental impacts.
- **ADA COMPLIANCE AND HANDS-FREE CONTROLS:** dryers should meet ADA requirements and select those that use automatic sensor controls to minimize cross contamination that can otherwise result from touching buttons, knobs and other types of on/off switches.
- **SOUND:** preference should be given to those hand dryers that are quieter when compared to other options especially if it is anticipated that they will be frequently used by children.
- **DURABILITY MATTERS:** preference should be given to those dryers that meet the performance, speed, efficiency and other requirements; but can outlast other options as replacing dryers will add cost, and will significantly increase the environmental impacts related to the manufacturing of the dryer. One of the simplest ways to determine durability is based on the manufacturer's warranty where the longer the warranty the better

Powered Cleaning Equipment

Sports facilities can reduce health and environmental impacts by choosing high efficiency janitorial equipment such as vacuums, power blowers, vacuums, and pressure washers.

It is preferable to use powered cleaning equipment that has the following features:

Protect Workers

Use equipment that is ergonomically designed to minimize vibration, noise, and user fatigue, as reported in the user manual in accordance with ISO 5349-1 for arm vibrations, and ISO 11201 for sound pressure at operator's ear. Powered floor maintenance equipment, such as vacuums or other devices for capturing fine particulates, should operate with a maximum sound level of 70 dBA, in accordance with ISO 11201.

Protect The Environment

- Use environmentally preferable batteries (e.g., gel, absorbent glass mat, lithium-ion) for battery powered equipment except in applications requiring deep discharge and heavy loads where performance or battery life is reduced by the use of sealed batteries.
- Prefer blowers and pressure washers that are battery powered as compared to those that use gasoline or other fossil fuels.
- Prefer equipment that is durable to reduce disposal impacts. This may save money over the long term.
- Prefer equipment that reduce energy and water use compared with similar equipment with comparable performance. This can be as simple as giving suppliers the square footage of your sport facility and asking them to calculate how much energy or water their equipment would require. They can get the information to help you make a more informed decision. Your request for ecologically preferable products demonstrates to the manufacturers that you care about ecological issues in addition to performance and cost.

In addition:

Vacuum Cleaners

The most efficient vacuums save energy. Specify those certified by the Carpet and Rug Institute Seal of Approval Green Label Vacuum Program¹⁸ and operate with a maximum sound level of 70 dBA or less in accordance with ISO 11201. Select vacuums that provide the most suction with the least amount of amperage and if filter bags are required, insure that high efficiency bags are being use and are being replaced or emptied as recommended by the manufacturer (for best results this may be when they are only half full).

Carpet Extraction Equipment

Specify those certified by the Carpet and Rug Institute's Seal of Approval Deep Cleaning Extractors and Seal of Approval Deep Cleaning Systems program¹⁹. Prefer those that recycle or minimize water consumption, as well as those that are energy efficient (e.g. clean with cold water).

¹⁸ CRI Seal of Approval <http://www.carpet-rug.org/CRI-Testing-Programs/CRI-Seal-of-Approval-Program.aspx>

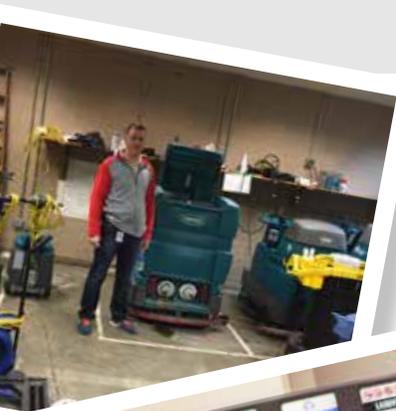
¹⁹ CRI Seal of Approval <http://www.carpet-rug.org/CRI-Testing-Programs/CRI-Seal-of-Approval-Program.aspx>





Ensure that Equipment Is in Proper Working Condition

For example, vacuum cleaners should use high-filtration bags to capture harmful particulates and should be emptied and replaced according to manufacturers' directions. Ensure that all electric power cords are in proper working order and are replaced (not taped) when they are damaged or frayed to protect workers from electrical shock. When using powered blowers, make sure workers use eye protection to avoid injury from flying objects, ear protection to protect against noise and dust masks to minimize risks from inhalation of the dust.



Propane-Powered Floor Equipment

Specify those with high-efficiency, low-emissions engines with catalytic converters and mufflers that meet the California Air Resources Board or EPA standards for the specific engine size¹⁹ and operate with a sound level of 90 dBA or less, in accordance with ISO 11201.

Automated Scrubbing Machines

Specify those with variable-speed feed pumps and either (1) on-board chemical metering to optimize the use of cleaning fluids or (2) dilution control systems for chemical refilling. Alternatively, scrubbing machines may use tap water only, with no added cleaning products.

Oscillating Floor Scrubbing and Stripping Machines

These machines can top scrub and even effectively remove floor finish with far less risk to worker health and reduce water use. Plus, these systems can reduce costs as well when compared to traditional floor finish removal methods.

Pressure Washers

Pressure washers can clean without the use of chemicals, which is important for outdoor use as the water is often disposed of in the storm water system. Although they minimize chemical use their high pressure may damage to concrete and other hard surfaces if they are used too frequently. Ensure that pressure-washing equipment is well maintained and operating according to manufacturer's specifications. Specify those with high efficiency engines and which meet all air quality requirements²⁰.

Parking Lot Sweepers And Cleaners

Require sweepers to be in good working condition and meet all emission requirements. For those that clean with water, prefer those that recycle and filter water to reduce water consumption²¹. To learn more about parking lot cleaning and maintenance review the Green Parking Council resources.

Plastic Trash Can & Recycling Container Liners Reduce Consumption (And Save Money)

Not all containers need plastic bags, such as desk side recycling containers in offices and others that hold only dry materials headed for recycling such as in a copier or mail room.

Select The Right Size And Thickness

Plastic bags that are too large or thick are a waste of resources and money. Begin by standardizing trash and recycling containers, and then match the bags to the containers. Reducing the thickness saves resources and money. Use care that the bags are thick enough to hold the weight of the materials, otherwise time and money will be wasted cleaning up the mess that is made from a torn bag and when this happens it is not uncommon for cleaning personnel to begin double-bagging the containers, which doubles your cost and environmental impacts.

²⁰ CARB Compliance References, http://www.carbcompliance.info/carb_resources.php

²¹ Green Parking Council, <http://www.greenparkingcouncil.org/>



Guide to Composting at Sports Venues

Composting reduces the environmental impacts associated with waste disposal. It can also save your organization money through reduced hauling, disposal, and fertilizer costs, although this depends on location. Selecting the right compostable packaging, serviceware and bags for compost containers is essential for a comprehensive composting program.

Use the “Guide to Composting at Sports Venues” to develop or expand your venue’s composting work. This guide will help you select the right products for your facility and train your staff to implement a successful program. It includes a valuable 10-step quick start guide.

Download the full guide at greensportsalliance.org

Purchasing Standards

“Bronze, Silver, and Gold”: After deciding which containers need bags and after you’ve properly sized the liners to match the size of the containers and the weight of the contents, choose plastic trash and recycling can liners made with the maximum amount of post-consumer recycled content. If you are using bags for organic waste that will be composted, ensure that the bags meet the specifications of your composter (e.g. rated compostable in compliance with ASTM D6400 standards). If plastic bags are used to collect discards for landfilling, compostability/biodegradability is not a benefit. Instead, minimize the environmental footprint of the bags by maximizing recycled content. The cost of these bags can vary significantly among manufacturers, so this is one product category where it pays to shop around.

- **GOLD:** Several manufacturers of plastic bags have recently introduced products that contain 70 percent or more post-consumer recycled content that meet performance requirements and are cost competitive.
- **SILVER:** Use EPA’s Comprehensive Procurement Guidelines for plastic trash can liners (10 percent PCR)²³
- **BRONZE:** Use California Integrated Waste Management Board requirements for plastic trash can liners (California Code of Regulations Title 14, Chapter 4, Article 5, or SABRC 42290-42297 Recycled Content Plastic Trash Bag Program) with a minimum of 30 percent post-consumer recycled content.

Entryway Mats

Entryway mats capture soil before it enters the facility and makes cleaning more efficient. Mats are especially valuable in entrances for players, offices and meeting rooms and should be considered for use during inclement weather in fan entrances to reduce the potential for slips and falls due to wet surfaces.

Performance Matters

Match the type of entrance mat to location and conditions. For example, drying mats that resemble carpeting should be used to capture dust and dry wet shoes. There are other mats designed specifically for rain and snow, which have deep channels to capture the extra water; along with other mats designed to scrap mud from shoes. Selecting the right mat for the facility is important and vendors can assess specific needs.

Safety Matters

Mats need to be sturdy enough to remain in place as fans and visitors walk on it and edges must remain flat so as not to cause people to trip and fall. While it may be convenient to use a service that periodically exchanges mats, make sure that the mats are high quality and heavy enough that edges and corners remain secure to the floor. When edges and corners lift, twist or curl, the mats should be replaced.

²² SABRC, <http://www.calrecycle.ca.gov/BuyRecycled/StateAgency/Reporting.htm>

²³ EPA’s Comprehensive Procurement Guidelines can be found at <http://www.epa.gov/solidwaste/conserve/tools/cpg/products/nonpaperoffice.htm#trashbag>





Use Waste Receptacles Made from Recycled Materials

It seems ironic to use recycling containers made from virgin materials, even when sponsors supply them. Select or request that the containers, whether metal or plastic are made from recycled materials. Even supplies such as floor buffing pads can be purchased that are made from 100 percent recycled plastics. There are numerous other examples of greener materials available to sport facilities.



Reduce Environmental Impacts:

- Prefer mats made with recycled content as compared to those made from virgin materials.
- Prefer mats that avoid the use of PVC (polyvinyl chloride).
- Prefer mats from manufacturers that have “take back” programs. These manufacturers take back their old mats and recycle the materials into new products rather than sending them to the landfill.

Tools, Materials And Miscellaneous Cleaning Supplies

There is a long list of products used to clean a sport venue including trash and recycling containers, carts, buckets, wringers, mops, sponges, caddies, brushes, wiping clothes, floor pads, safety equipment, vacuum cleaner bags, fans and more. Currently, green standards do not exist for many of these product categories, so ask vendors if they can recommend options among the many products and processes available to them that reduce health and environmental impacts. This could include the materials from which the product is made, recycled content, durability, repairability, energy efficiency, ergonomics, product take-back and other factors. The simple act of asking about these issues is a clear sign to vendors that these issues are valued and a simple question can help transform entire product sectors.

Mop Buckets

Traditional mop buckets can use five or more gallons of water for every cleaner, every night. The use of flat mops, with the innovative “buckets” can reduce water consumption by as much as 80 percent. This can amount to hundreds of thousands of gallons of water each year for each sport facility. And, in areas of water shortages, this is an image-positive, community relations strategy as well.

Miscellaneous

Laundry

Equipment Managers need to rely on their Laundry Chemical Vendor to provide a comprehensive – safe and effective – laundry program that provides sanitary linen each day to the team personnel. Managers should require custom formulas for each soil type will help ensure that the least amount of water, energy, and chemical to be used to accomplish the task of laundering the gear. Routine service and staff training should also be provided by the laundry vendor.

GREEN CLEANING FOR CONCESSIONAIRES

Food concessions at a sport facility is an important part of the fan experience with services varying greatly from just hot dogs to full-service 5-star restaurants. Regardless of the extent of the menu or the number of meals served; maintaining clean, sanitary and safe conditions for food concessions is of paramount importance as a failure can literally place thousands of fans at risk.

The intent of this information is designed to “green” a well-designed food safety, cleaning and sanitizing program to further improve the protection of food service workers, fans and athletes; and to take advantage of green technologies and strategies to further reduce impacts on the environment.

For some, greening the cleaning of food concessions may simply include replacing conventional cleaning chemicals with certified green alternatives (see section V. **Product Selection Overview** and the **Toolkit** for more specific recommendations). For others, a comprehensive review of the entire cleaning and sanitation program might be beneficial. This audit can often be performed free of cost by a local distributor of cleaning products with expertise in food service operations and many issues can be addressed by the sport facility manager.

Sport facilities should also consider including green requirements when bidding for concession services. In addition to the information provided in section IV. **Selecting A Greener Cleaning Service Provider**, request information about the concessionaire’s approach to green cleaning and their overall expertise with food safety and sanitation. Additions to the RFI/RFP could include a requirement for green cleaning products and that a portion of the workers be certified through the National Restaurant Association’s ServSafe program²⁴, which specifically trains workers on safe food handling practices.

²⁴ LEED-EBOM V4 requirements for cleaning products can be found at <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.usgbc.org%2Fcredits%2Fexisting-buildings%2Fv2009&ei=PLFXV12iNoqF8QX6voHYDQ&usg=AFQjCNEsAH0eF2iUoZdcnWYPMqmTseKpw>



The following are considerations to help sport facilities to green the cleaning of their concession areas:

Follow all health codes and related regulations.

Health codes are local. For example, some local health offices and officers may require the use of bleach (sodium hypochlorite) in the final rinse of dishes and service ware. While there are a number of environmentally preferable alternatives to bleach, if the health department requires bleach it is important to follow their requirements. In this case, sport facilities should adjust their focus to green all the other products and processes which still present significant opportunities for improvement.

Perform proper preventative maintenance on all kitchen equipment.

From dishwashers to refrigerators to ovens and more, make sure all equipment is properly operating. While this is not a cleaning issue per se, but it is important from the perspective of protecting food safety and fans, as well as the efficient use of energy, water, chemicals and other resources.

Consider opportunities to purchase environmentally preferable products.

This includes napkins and other paper products containing post-consumer recycled fiber content, microfiber cloths and mops to reduce water consumption, buckets and carts that are durable and made with recycled content, third-party certified cleaning chemicals and hand soaps/sanitizers, anti-slip and anti-fatigue mats, etc. In general, the product guidelines presented in this Playbook are applicable for food concessionaires.

Utilize an overall approach based on Hazard Analysis and Critical Control Point (HACCP).

HACCP is an effective and rational means of assuring food safety from harvest to consumption. Preventing problems from occurring is the paramount goal underlying any HACCP system. Seven basic principles are employed in the development of HACCP plans that meet the stated goal.

These principles include

- Hazard analysis
- Critical control point (CCP) identification
- Establishing critical limits
- Monitoring procedures
- Corrective actions
- Verification procedures, and
- Record-keeping and documentation.

Under such systems, if a deviation occurs indicating that control has been lost, the deviation is detected and appropriate steps are taken to reestablish control in a timely manner to assure that potentially hazardous products do not reach the consumer. Additional information can be found at http://sop.nfsmi.org/sop_list.php





Encourage good hand hygiene.

A significant portion of food related issues is tied to poor hand hygiene (e.g., food service workers not washing their hands after using the restroom). Remind workers that they are never too busy to wash their hands and make handwashing convenient by offering both soap and water, as well as alcohol-based hand sanitizers. Hands should be washed for at least 20 seconds. Check local health codes to determine if soap used in the food preparation area must contain antimicrobial ingredients.

Use technology to measure cleaning efficacy.

Employ technology to reduce potential problems and to validate that appropriate cleaning and sanitation has taken place.

- **Test strips** (which are very inexpensive) can measure the amount of active materials used in disinfectants and sanitizers to ensure that they are working correctly. This is important because many sanitizers become ineffective over time and when contaminated with soils. These disinfectants and sanitizers should be checked throughout the day.
- **ATP meters** can measure surface contamination to ensure that they are clean and sanitary. These meters can be particularly valuable for use on food preparation surfaces, refrigerator and freezer door handles, tables and tools that can either come in contact with food or can contaminate food through hand contact.
- **Thermometers** to ensure that refrigerators, freezers, food storage and other equipment are operating at the correct temperature to minimize spoilage and potential contamination.
- **Food should be properly rotated and food rotation labels should be used** to track products and make it easier for food service workers to identify products that may have exceeded the “use by” date. In addition, it is recommended that the food rotation labels themselves be made to readily dissolve when washed so the adhesives do not inadvertently lead to food contamination.

Address wet floors to prevent slips, falls and other related issues.

Because floors can often be wet and slippery, concessionaires should have a written floor safety monitoring programs to prevent slips and falls. Concessionaire personnel should periodically inspect all floor areas checking off inspected zones, making notes of incidents, logging date/time and follow up, and making sure a cleaning person “owns” the spill and stays with it until the floor is again clean and dry. In addition, the concessionaire should have spill stations containing or having quick access to:

- Personal protective equipment such as gloves and goggles.
- Wet floor warning signage.
- A synthetic broom or handled brush and a plastic pan for removing gross debris, and small plastic liners to hold soils.
- Absorbent compound to soak up liquids.
- Liquid removal tools such as mops, or better, compact dispense-and-vacuum units that suction liquid from floors, rinse and dry them in one operation.



TOOLKIT FOR GREENER CLEANING

Green Cleaning Chemicals Specifications

All Purpose, Glass & Washroom Cleaners (non-disinfecting)

Should meet one of the following requirements:

- Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes;
- Underwriters Labs UL 2759 or EcoLogo CCD-146, for hard-surface cleaners;
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*²⁵; and/or
- Cleaning device that produces ionized, ozonated, electrolyzed or similar water-based solutions²⁶

Disinfectants & Sanitizers

Should meet one of the following requirements:

- U.S. EPA's Green disinfectant pilot program;
- California Code of Regulations maximum allowable VOC levels for the specific product category²⁷
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*ⁱ; and/or
- Cleaning device that is registered with U.S. EPA as a disinfectant that produces ionized, ozonated, electrolyzed or similar water-based solutions²⁸

Heavy Duty Degreasers

Should meet one of the following requirements:

- Green Seal GS-34, for cleaning and degreasing compounds;
- Underwriters Labs UL 2759 or EcoLogo CCD-110, for cleaning and degreasing compounds; and/or
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*ⁱ.

Hand Soaps & Hand Sanitizers

Should meet one of the following requirements with preference given for foaming dispensers:

- Green Seal GS-41, for industrial and institutional hand cleaners;
- Underwriters Labs UL 2784 or EcoLogo CCD-104, for hand cleaners and hand soaps;
- Underwriters Labs UL 2783 or EcoLogo CCD-170, for hand sanitizers;
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*ⁱ; and/or
- No antimicrobial agents (other than as a preservative) except where required by health codes and other regulations (e.g., food service and health care requirements);

Biological & Enzymatic Products Used for Odor Control and Drain Maintenance

Should meet the following requirements:

- Underwriters Labs UL 2798 or EcoLogo CCD-112, for digestion additives for cleaning and odor control;
- Underwriters Labs UL 2791 or EcoLogo CCD-113, for drain or grease trap additives;
- Underwriters Labs UL 2796 or EcoLogo CCD-115, for odor control additives;
- Green Seal GS 52/53, for specialty cleaning products; and/or
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*ⁱ.

Floor Finishes and Sealers

Should be durable and slip resistant. In addition, the finish shall be free of zinc (metal-free) OR shall meet

²⁵ Product manufacturers must be in good standing and products must have been audited with all ingredients listed on the product label.

²⁶ Must have third-party-verified performance data equivalent to the other standards mentioned above.

²⁷ <http://www.arb.ca.gov/consprod/regs/ii0iii/ifro%ii0consumer%ii0products%ii0regulationiii0ii.pdf>

²⁸ In addition to third-party-verified performance data equivalent to the other standards mentioned above, performance data must demonstrate antimicrobial performance comparable to EPA Office of Pesticide Products requirements, as appropriate for use patterns and marketing claims.

one of the following requirements:

- Green Seal GS-40, for industrial and institutional floor care products;
- Underwriters Labs UL 2777 or EcoLogo CCD-147, for hard-floor care; and/or
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*ⁱ.

Floor Finish Removers (Strippers)

Should meet one of the following requirements:

- Green Seal GS-40, for industrial and institutional floor care products;
- Underwriters Labs UL2777 or EcoLogo CCD-147, for hard-floor care; and/or
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*ⁱ.

Carpet Shampoo and Extraction Products

Should meet one of the following requirements:

- Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes;
- Underwriters Labs UL2795 or EcoLogo CCD-148, for carpet and upholstery care;
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*; and/or
- Cleaning device that produces ionized, ozonated, electrolyzed or similar water-based solutionsiii.

Other Products NOT Otherwise Addressed (i.e. furniture polish, metal polish, graffiti removers)

Should meet one of the following requirements:

- California Code of Regulations maximum allowable VOC levels for the specific product category
- Green Seal GS-52/53, for specialty cleaning products; and/or
- U.S. EPA Safer Choice Program's *Standard for Safer Cleaning Products*; and/or
- Cleaning device that produces ionized, ozonated, electrolyzed or similar water-based solutionsiii.

Reporting on Chemical Purchases

Documentation should be provided on individual product certifications or other technical data to demonstrate compliance with these requirements. A calculation of the fraction of covered materials purchased that meet one or more of the specified criteria (on a cost basis) shall be provided each month.

Green Cleaning Paper & Hand Dryer Specifications

Paper Hand Towels

Should meet one of the following requirements:

- EPA *Comprehensive Procurement Guidelines* for janitorial paper (minimum of 40% post-consumer recycled content for paper hand towels)
- Green Seal GS-01, for tissue paper, paper towels and napkins;
- Underwriters Labs UL175 or EcoLogo CCD-086, for hand towels;
- Janitorial paper products derived from rapidly renewable resources or made from tree-free fibers; and/or
- FSC certification for fiber procurement

Toilet Tissue

Should meet one of the following requirements:

- EPA *Comprehensive Procurement Guidelines* for janitorial paper (minimum of 20% post-consumer recycled content for toilet tissue)
- Green Seal GS-01, for tissue paper, paper towels and napkins;
- Underwriters Labs UL175 or EcoLogo CCD-082, for toilet tissue;
- Janitorial paper products derived from rapidly renewable resources or made from tree-free fibers; and/or
- FSC certification for fiber procurement

Electric Hand Dryers

Should meet one of the following requirements:

- Environmental Product Declaration (EPD) Certification for a comprehensive understanding of a hand dryer's impact.
- NSF International Protocol P335—Hygienic Commercial Hand Dryers; and/or
- Provide documentation on the following attributes per the test methodology in the UL Product Declaration Rules for Hand Dryers:²⁹
 - Drying Time—time estimate to thoroughly dry hands
 - Wattage—the amount of energy in Watts to thoroughly dry hands
 - Sound—report the sound level in dBA measured at 18 inches from the dryer
 - Warranty—what is covered in the warranty (i.e., parts only, installation, etc.) and the warranty's length of time



²⁹ https://legacy-uploads.ul.com/wp-content/uploads/sites/2/2014/09/ULE_HandDryer_PCR_7-13-16.pdf

Reporting on Paper

Documentation should be provided on individual product certifications or other technical data to demonstrate compliance with these requirements. A calculation of the fraction of covered materials purchased that meet one or more of the specified criteria (on a cost basis) should be provided each month.

Green Cleaning Powered Equipment Specifications

Vacuum Cleaners

Vacuum cleaners should meet all of the following requirements:

- Certified by the Carpet and Rug Institute Seal of Approval/Green Label Vacuum Program;
- Operate with a maximum sound level of 70 dBA or less in accordance with ISO 11201;
- Ergonomic design to minimize vibration, noise, and user fatigue, as reported in the user manual in accordance with ISO 5349-1 for arm vibrations, ISO 2631-1 for vibration to the whole body, and ISO 11201 for sound pressure at operator's ear; and
- Equipped with safeguards, such as cloth covers, rollers or rubber bumpers, to avoid damage to building surfaces.

Carpet Extraction Equipment

Equipment used for restorative deep cleaning, should meet all of the following requirements:

- Certified by the Carpet and Rug Institute's Seal of Approval Deep Cleaning Extractors and Seal of Approval Deep Cleaning Systems program;
- Hot water extraction equipment should be capable of removing sufficient moisture such that carpets can dry in less than 24 hours;
- Battery powered equipment should use environmentally preferable batteries (e.g., gel, absorbent glass mat, lithium-ion) except in applications requiring deep discharge and heavy loads where performance or battery life is reduced by the use of sealed batteries.

Automatic Floor Scrubbing Machines

Automated scrubbing machines should meet the following requirements:

- Equipped with variable-speed feed pumps or on-board chemical metering to optimize the use of cleaning fluids; OR

- Produces ionized, ozonated, electrolyzed or similar water-based cleaning solutions without requiring additional cleaning chemicals;
- Battery powered equipment shall use environmentally preferable batteries (e.g., gel, absorbent glass mat, lithium-ion) except in applications requiring deep discharge and heavy loads where performance or battery life is reduced by the use of sealed batteries.

Floor Burnishers (Electric & Propane Powered)

Equipment used for burnishing, polishing or buffing floors should meet the following requirements:

- Equipped with vacuums, guards, or other devices for capturing fine particulates;
- Operate with a maximum sound level of 70 dBA, in accordance with ISO 11201.
- Battery powered equipment should use environmentally preferable batteries (e.g., gel, absorbent glass mat, lithium-ion) except in applications requiring deep discharge and heavy loads where performance or battery life is reduced by the use of sealed batteries.
- Propane-powered floor equipment must have high-efficiency, low-emissions engines with catalytic converters and mufflers that meet the California Air Resources Board or EPA standards for the specific engine size and operate with a sound level of 90 dBA or less, in accordance with ISO 11201.

Reporting on Janitorial Powered Equipment

Documentation should be provided to demonstrate compliance with these requirements each month.

A log should be kept for all powered janitorial equipment to document the date of equipment purchase and all repair and maintenance activities and include manufacturer's technical materials for each type of equipment in use in the logbook.

Green Plastic Liner Specifications

Plastic Can Liners (non-compostable)

- Underwriters Labs UL126;
- EPA *Comprehensive Procurement Guidelines* for plastic trash can liners (minimum of 10% post-consumer recycled content); Green Sports Alliance would like to suggest 40% post-consumer recycled content is advisable;
- California integrated waste management requirements, for plastic trash can liners (California

Code of Regulations Title 14, Chapter 4, Article 5³⁰, and/or

- SABRC 42290-42297 Recycled Content Plastic Trash Bag Program

Compostable Liners

- Biodegradable Products Institute (BPI) certified;
- ASTM D6400;
- ASTM D6868; and/or
- European Standard EN 13432

Reporting on Plastic Trash Can Liners

Documentation must be provided to demonstrate compliance with these requirements. A calculation of the fraction of covered materials purchased that meet one or more of the specified criteria (on a cost basis) should be provided each month.

Sustainability Performance: Distributors of Cleaning Products

Calculate each Key Performance and Trend Indicator for warehouse locations responsible for delivering janitorial products to the specific building covered by this RFP. Performance and trend data is for the entire operation at this location and not limited to deliveries to this specific location. Warehouse location includes offices, as well as warehouse. Performance data is the total for the most recent calendar year. Trend data uses 2010 as the baseline for comparisons.

Transportation (impacts from delivery vehicles)

Performance:

- Total fuel in \$ per total \$ delivered
- Total fuel in \$ per square feet of warehouse

Trends:

- Percent change in total fuel in \$ per total \$ delivered compared to the baseline year
- Percent change in total fuel in \$ per square feet of warehouse compared to the baseline year

Energy (impacts from electricity, natural gas, fuel oil, etc. used for lighting, heating and cooling the warehouse and office)

Performance:

- Total energy in \$ per total \$ delivered
- Total energy in \$ per square feet of warehouse

Trends:

- Percent change in total energy in \$ per total \$ delivered compared to the baseline year

- Percent change in total energy in \$ per square feet of warehouse compared to the baseline year

Waste/Recycling

Performance:

- Total of waste & recycling in lbs
- Total of waste & recycling in lbs per square feet of warehouse
- Recycling as a percentage of total waste & recycling

Trends:

- Percent change in total of waste & recycling in lbs compared to baseline year
- Percent change in total of waste & recycling in lbs per square feet of warehouse compared to baseline year
- Percent change in recycling as a percentage of total waste & recycling compared to baseline year

Water (total of all sources/uses)

Performance:

- Total water in gallons per \$ delivered
- Total water in gallons or cubic feet per square feet of warehouse

Trends:

- Percent change in total water per \$ delivered compared to baseline year
- Percent change in total water per square feet of warehouse compared to baseline year

% Green Sales (Green products meet the requirements as defined in the USGBC's LEED-EBOM Rating System and is for all products to all customers from this location)

Performance:

- Total green sales as a % of total sales
- Total green sales in \$ per square feet of warehouse

Trends:

- Percent change in total green sales compared to baseline year
- Percent change in total green sales per square feet of warehouse compared to baseline year



³⁰ <http://www.calrecycle.ca.gov/BuyRecycled/TrashBags/>

¹ Product manufacturers must be in good standing and products must have been audited with all ingredients listed on the product label.

Sustainable Cleaning Industry Purchasing Tool

Provide the following key performance indicators including your commitment to selling green cleaning products, experience training custodians, and performance of the warehouse and delivery vehicles.

	Unit of Measure	Previous complete year	Year prior	% Difference ¹	Improvement Goals ²
		Year	Year		
Commitment to Selling Green Products	% of Total Sales \$ ³				
Experience Training Custodians	FTEs Trained / Sales \$				
Fuel Efficiency	Miles / Gallon ⁴				
ENERGY STAR Score	ENERGY STAR Score ⁵				
Water Efficiency	Gallons / Occupant ⁶				
Waste (total waste, recycling & pallets)	Pounds / Sales \$ ⁷				
Recycling (excluding Pallets)	% Diverted from Landfill ⁸				
Pallet Recycling	% Diverted from Landfill ⁹				
List Green Building, Transportation, Sustainability, CSR or Other Certifications. ¹⁰					

¹ Calculate the percent difference by subtracting the previous complete year from the year prior and then dividing by the year prior. Then multiply this value by 100%.

² State improvement goals. This is typically a percentage. If no goals have been established, leave this blank.

³ This is a measure of the distributor's commitment to selling Green products. Calculate the total dollar value of Green products sold (define Green products by using the US Green Building Council's LEED for Existing Buildings: Operations & Maintenance Rating System Version 4 guidelines for cleaning products) and divide by total sales dollars. Then multiply this value by 100%.

⁴ This is a measure of fuel efficiency. Calculate the total number of miles driven by delivery and service vehicles and divide by the gallons of fuel consumed for all fuel types including diesel, gasoline, E10 and others used in delivery and service vehicles only (exclude sales vehicles). If third-party delivery companies are used, calculate the weighted miles per gallon of the delivery services based on the percentage of total dollars spent with each service.

⁵ This is a measure of energy efficiency. Use ENERGY STAR Portfolio Manager for Buildings & Plants to calculate warehouse energy performance. <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>

⁶ This is a measure of water efficiency. Calculate the total gallons of water consumed including that used for drinking, landscaping, vehicle washing and others purposes (gallons) and divide by the number of FTEs working in the office and warehouse.

⁷ This is a measure of waste minimization. Calculate the total waste in pounds per total sales dollars. If the waste hauler does not weigh the bin, calculate the weight for uncompacted waste at 73 pounds per cubic yard and compacted waste at 138 pounds per cubic yard. https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memo_randum_04192016_508fnl.pdf

⁸ This is a measure of waste diversion from landfills of internal consumables. Calculate the total amount of recycling including materials that are composted, donated, reused or otherwise diverted from the landfill and divide by the total amount of materials being disposed, excluding pallets. Then multiply this value by 100%.

⁹ This is a measure of waste diversion from landfills of durable goods. Calculate the total weight of pallets recycled, sold for third-party reprocessing or otherwise diverted from the landfill and divide by the total amount of pallets being disposed. Then multiply this value by 100%.

¹⁰ Include third party certifications such as LEED, WELL, ENERGY STAR, BOMA TOBY Award, SmartWay Transport, other.

INNOVATIVE GREEN TECHNOLOGIES

Players in the cleaning industry are constantly innovating to improve products, resources, and practices.

Three Areas of Sustainability Innovation with Tork

Today, people are spending more of their lives away from home—in workplaces, hotels, schools, restaurants, entertainment venues and sports stadiums. Because we know that people increasingly want to be as sustainable and healthy as possible in these places as in their homes, we are committed to creating a more sustainable life away from home. For Tork, as the global leader in professional hygiene, this is our mission. Tork has always had high ambitions for sustainability, but now we have refined our position and integrated it at the core of our business strategy and innovations. This strategy is built on three areas: Well-being, More from Less, and Circularity.

Well-being

Research³¹ shows that 71% of guests at high-traffic venues have had a bad restroom experience. This can have such an impact on consumers that one in three guests limit how much they eat and drink at venues to avoid going to the restroom! That is why Tork has developed the Tork PeakServe™ Continuous™ Hand Towel System, an innovation designed for high-traffic restrooms. This revolutionary system holds up to 2,100 towels—25% more than any other towel system in the market today, servicing up to 600 guests between refills.

More from Less

With 50% compressed refill bundles, Tork PeakServe makes refilling easy by allowing cleaners to tackle the task when it suits them and saves time by not having to frequently check refill levels. The compressed towels are designed to fit twice as many in less space, when compared to similar systems. This allows for convenient transport, storage, and disposal.

Tork also has many other innovative solutions designed to reduce consumption and waste.

Circularity

At Tork we are continually building products and services that contribute towards a more circular society. With responsible global sourcing policies all the way to end of life disposal such as composting, we partner and collaborate

³¹ Based on an IPSOS survey of 3000 people in USA, UK, Germany, France, Poland and Sweden who have visited a high-traffic venue in the past 9 months.



with our customers to help meet their own sustainability goals. Many certified Tork products qualify for Green Sports Alliance product certification or can help earn credits for LEED and other WELL building standards.

Tork is an Essity brand. Essity is a global hygiene and health company recognized as one of the world's most sustainable companies. Learn more about Essity's ambitious sustainability goals and work with the United Nations here: www.essity.com/sustainability/

To learn more about Tork PeakServe, other sustainable hygiene solutions and to request a free trial: www.torkusa.com/peakserve



UNLV Student Recreation & Wellness Center and Kaivac Cleaning Systems

The University of Nevada Las Vegas (UNLV) is the largest college campus in the state, with more than 30,000 students and more than 7,000 professors, teachers, and administrators.

One of the most important buildings on the UNLV campus, and one of the busiest, used by students, educators, and open to the public, is the school's 184,000-square-foot Recreation and Wellness Center.

Clean & Pristine

The Center is loved and appreciated by many. Check out these student reviews:

"This has got to be the best gym in town. There are four floors, racquetball courts, indoor basketball and volleyball courts, soccer courts, swimming pool, Jacuzzi, cardio machines, a track, and plenty of weights. Plus, they offer classes like daily yoga, judo, kickboxing, and even dance. There are plenty of showers [and] you can also rent out equipment like balls to play the sports you desire."

"...What a gym! Even through the years, it has remained pristine and increasingly equipped with state-of-the-art machines. The custodians are always cleaning..."

According to reviews, not only is this possibly "the best gym in the city," it is apparently "pristine" and one of the cleanest as well. And that's where Willie Mattos, Custodial Supervisor of the facility and Kaivac comes in. With a staff of 15, Mattos and his crew oversee the cleaning of the entire Center, which, along with its many amenities, includes 26 showers and several restrooms.

An Innovative Solution for a Cleaning Challenge

Cleaning such a large, busy, and "sweaty" location can be a challenge, especially when it comes to the showers and locker rooms. However, Mattos has found a fast and effective way to address this challenge: "We use Kaivac No-Touch Cleaning® systems."



With these innovative systems, the Center’s custodial workers apply automatically metered green-certified cleaning solution to all surfaces and fixtures to be cleaned. The areas are then pressure rinsed, essentially blasting away soils and contaminants, which are then vacuumed up by the machine.

According to ISSA, this cleaning method takes about half the time of traditional cleaning methods – mops, buckets, sprayers, and rags – and independent, scientific tests report it is as much as 60 times more effective.

Greener, More Efficient Technology

It should also be noted that Mattos is no fan of mopping floors and, he adds, “It just does not work in Nevada. We have hard water, so mopping leaves mineral deposits [on floors]. Kaivac machines remove soil, water, and suspended minerals, so along with better cleaning, there is no mineral buildup.”

“Cleaning is hard, monotonous work, and at times can be overwhelming. But Kaivac empowers us to get our work done fast and professionally, with less worker fatigue, and what is very important to me, fewer health hazards for my staff.”



To learn more about Kaivac Cleaning Systems, the inventors of smarter cleaning equipment, visit: kaivac.com





1.0

Gillette Stadium

Flag on the Play for Paper Towels

Program Launch

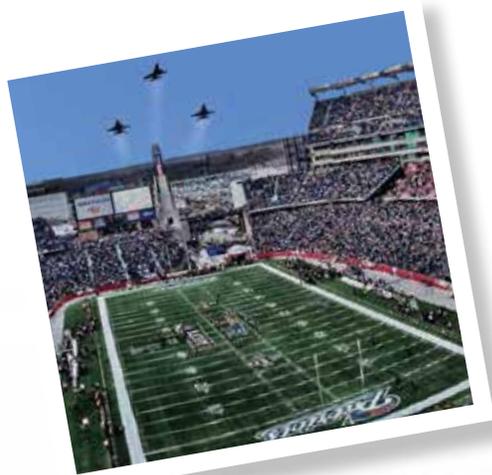
Located just southwest of downtown Boston, Gillette Stadium is home to one of the world's most revered sports teams, the New England Patriots. With the capacity to hold nearly 70,000 people for any event, it should come as no surprise that their restrooms are high-traffic areas.

Program Highlights

Originally outfitted with paper towel dispensers, Gillette Stadium used an average of 6.3 million paper towels per year, at a cost of more than \$50,000 for paper, maintenance and waste removal. In September 2009, all that changed when the decision was made to install 125 XLERATOR Hand Dryers, and most recently, integrated sink systems from D113 Group featuring the new XLERATORsync dryer that is sink deck mounted. Since the switch, the Patriots have saved 95%, and as an added bonus, they've reduced their carbon footprint by 70%!

Expert Advice

"The XLERATOR is a win-win-win-win for us. First, it's better for the environment. Second, our staff is spending less time cleaning paper off the floor and refilling dispensers. Third, staff is freed up to respond more quickly to fan issues. Fourth, and most important, fans prefer it to paper, giving them a better experience." – Jim Nolan, Chief Operating Officer, Kraft Sports + Entertainment (Gillette Stadium)





2.0

Fenway Park

The XLERATOR Hit a Grand Slam for the Boston Red Sox

Expert Advice

The restrooms are less congested now because we used to have a problem with clogged toilets and urinals due to improper disposal of paper towels. Now that paper towels have been eliminated from the restrooms, plumbing problems are almost non-existent.”

– Roy Contreras, Senior Custodial Manager for Aramark, facilities management company of Fenway Park

Program Launch

Over 37,000 fans and 2,000 staff members are on hand for sold out home games at Fenway Park, home of the Boston Red Sox. Before installing XLERATOR Hand Dryers, Fenway was spending nearly \$57,000 each year refilling paper towel dispensers, plus the cost of maintenance and waste removal.

Before the XLERATOR Hand Dryers were installed, Fenway’s restrooms required an average of six to eight trash receptacles. Today, each of the park’s restrooms has a single trash receptacle. That means facility staff can focus on more important things than keeping up with the maintenance needs created by paper towels. One area that has seen a vast improvement is staff response to spills—a common occurrence at a packed ballpark that can lead to slips and falls. In years past, it took an average of three to five minutes for a facility employee to arrive at the scene of a spill. Now it’s down to 30–90 seconds.

Program Highlights

Since the installation, the park has saved over \$83,000 annually—a 97% savings over paper towels—and they saw a full return on their investment in just over 12 months, including installation costs.

What’s more—their hand drying carbon footprint was reduced by 82%. To put that into perspective, it’s the equivalent of saving approximately 560 trees, 100 cubic meters in landfill space, 657,724 gallons of water and emissions from almost 620 gallons of gasoline in one year. That’s not just a home run. It’s a grand slam.





3.0

“Sports Facilities Can Go Green and Save Green” With New Lithium-Ion Battery-Powered Cleaning Process

New, more powerful battery cells, smarter, more efficient battery management technologies and ground-breaking new equipment are now providing “game-changing” performance for post-event cleaning at Atlanta’s premier sports facility. Battery-powered maintenance equipment isn’t a new idea. Battery-powered products have been around for many years, offering a clean, convenient way to approach facility maintenance tasks. Facility managers are all too familiar with the tradeoff of lead acid and Nicad battery equipment – sacrificing power and run-time to be “greener.” With the advent of lithium-ion battery-powered technology, we are experiencing a revolution, with new tools offering true gas-equivalent power and run-time with less noise, no emissions, and reduced fatigue for workers.

“I would encourage our members to explore how Greenworks’ innovative electric tools fit into their stadium operations’ activities,” said Scott Jenkins, Chairman of the Green Sports Alliance.

Lithium-ion battery leaf blowers afford a powerful, efficient and cost-effective way to enhance stadium clean-up efforts.

“Given our venue’s acute focus on green operations and environmental-friendliness, we wanted to avoid gas-powered blowers because of the harmful emissions and noise our crew would be exposed to,” said Jackie Poulakos, Housekeeping Services Manager. “Therefore, we were left to sweep out each section after an event by hand. This approach was time-consuming and expensive.”

Testing the Greenworks Commercial 82-Volt lithium-ion battery-powered blowers proved that there was a better way. As a result, the venue invested in four handheld blowers and six backpack blowers (with batteries and chargers) for use in post-event cleaning operations. They are now saving hundreds of hours per event, allowing them to significantly reduce staff. This reduction resulted in thousands of dollars in cost savings per event, that, when extrapolated over the course of the entire event calendar for 2019, will save the venue half a million dollars in operating costs.

Even sports facilities that currently employ gas-powered equipment in their post-event maintenance process can realize operating efficiencies from the transition to lithium-ion batteries. The Greenworks blowers on average cost a facility 8 cents per charge, whereas the average price of gasoline is approaching \$3 per gallon in the United States. Over the course of a calendar year of events, facilities will save up to 95% in fuel costs.

In addition to the cost savings attributed to using Greenworks lithium-ion battery-powered blowers, the management team has experienced several added qualitative benefits, as well -- namely, they have seen a happier and healthier workforce daily. Employee morale has increased, and time off from the job due to physical injuries is down. In addition to ensuring that employees are not inhaling fumes, the reduced noise levels likely contribute to this impact as well. All of Greenworks blowers have been measured to be under 68-decibels (the agreed-upon standard for noise generated by normal conversation). Furthermore, thanks to the push-button start and ease of use of the Greenworks blowers, management has also broadened its pool of available workers. Tasks that typically may have been too strenuous on some associates are now being performed by that segment of the team with excellent results.

After realizing the multitude of benefits of the integration of lithium-ion battery-powered blowers into its post-event maintenance work first hand, Scott Jenkins and his management team are currently evaluating other opportunities in stadium operations and technology that can provide similar efficiencies such as electric powered pressure washers.

“Based on the success that I’ve seen with battery-powered blowers and a number of pilot studies being done, I’m looking forward to seeing how electric pressure washers and mowers can be used to reduce operating costs, improve the safety of the workplace, and significantly reduce environmental impacts,” said Jenkins.

The implementation of battery-powered blowers could be just the start of the lithium-ion revolution at North America’s greenest sports stadium.





4.0

UGA

Program Launch

In 2006, the University of Georgia and its Facilities Management Division (FMD) realized the need to both streamline its Custodial operations as well as make an intentional decision to focus on Environmental Sustainability. The FMD Services Department partnered with a coalition of student environmental groups known as the Go Green Alliance, which eventually led to the creation of the UGA Office of Sustainability and was a catalyst in the implementation of a comprehensive Green Cleaning Program, designed to conserve resources and become more environmentally responsible.

In 2007, the University of Georgia Facilities Management Division's Services Department embarked on becoming nationally recognized and certified through the International Sanitary Supply Association's (ISSA) Cleaning Industry Management Standard (CIMS-GB) for Green Buildings. UGA recognized that this certification would serve as a unique tool that could help UGA implement an overall management structure that focuses on quality, customer service, and environmental sustainability, while helping reduce worker injuries and facility operating costs.

UGA began its Green Cleaning program by enlisting and partnering with its local janitorial supply company, Athens Janitor Supply, to improve the University's overall supply chain business practices, customer service, and productivity. As a result of these collaborative efforts, the cornerstone of UGA's Green Cleaning Program, the Building Service Worker Academy was born. The Building Service Worker Academy was established by UGA FMD

staff to ensure a consistent methodology of “Best Practices” standards for work procedures based on green cleaning techniques, worker safety training, and customer service among other things. To date, nearly 800 custodial employees and supervisors have completed the academy training program.

Although the University of Georgia is known for its nationally ranked Georgia Bulldogs Football program, few are as familiar with its nationally ranked NCAA Division I Champions - Men’s and Women’s Swimming and Diving program, also known as the “Swim Dawgs”. The teams compete at the Gabrielsen Natatorium, located within the UGA Ramsey Center for Recreational Sports. The women’s first place finish in the 2016 Women’s NCAA national championships was their 21st consecutive top seven effort at that meet. The men’s team has finished in the top 15 at Men’s NCAA national championships every year since 1997. A fifth place showing at the 2016 Men’s championship was the fourteenth top-ten finish for the men’s team in its history.

The Ramsey Student Center is one of the largest recreational and athletic facilities in the nation. Boasting a more than 440 thousand square foot natatorium, 4 gymnasiums (8 basketball courts, 9 volleyball courts and 12 badminton courts), an indoor track, climbing wall, outdoor bouldering wall, racquetball & squash courts, , and over 25,000 square feet of weight-training space. An average of over 4,808 students, faculty and staff visit the Ramsey Student Center daily and approximately 1.2 million visits annually. In 1997, The Ramsey Student Center was named the best student recreational facility in the country by Sports Illustrated.

The Ramsey Center’s Building Services (Custodial) employees are too some of the best in the nation. Utilizing “green” cleaning equipment and best practices, such as Tennant Equipment with ec-H2O™, Gen-Eon electrolyzed water, color-coded microfiber cloths and wet mops used to prevent cross-contamination and infection control, Green Seal Certified chemicals dispersed from dilution stations, ride-on sweepers/scrubbers, cordless backpack vacuums and quality training and support from the Facilities Management Division.



Program Highlights

UGA has been successful in attaining CIMS and CIMS-GB certification in 2008, 2010, 2012, and 2014. UGA was the second university in the nation to achieve these certifications. The participation in the ISSA – CIMS GB certification program has resulted in healthier facilities, reduced absenteeism, and documented savings of more than \$400,000 per year and approximately \$4,000,000 to date. In addition, UGA achieved the co-grand award in the College/University category of the 2010 Green Cleaning Award for Schools and Universities, sponsored by *American School and University* magazine, the Green Cleaning Network and Healthy Schools Campaign.

In keeping with continuous quality improvement, in 2015, UGA commissioned Core Management Services (CORE) to re-evaluate its in-house Green Cleaning Program. CORE was tasked with providing an independent assessment and to make recommendations for improving the performance, efficiency, and effectiveness of the Green Cleaning Program. CORE visited the campus, interviewed management and stakeholders, collected data, and work-loaded over 8,000,000 sq. ft. of cleaning area to accurately assess staffing levels. The CORE evaluation resulted in recommendations to restructure custodial management and increase training personnel. According to CORE, the University of Georgia's Green Cleaning Program ranked highly when compared to peer institutions of its size.



Program Challenges and Valuable Impacts

One of the biggest challenges UGA faced in transitioning to a Green Cleaning Program was the enormous stockpile of chemicals. Since 2008, UGA Facilities Management Division, in partnership with its Environmental Safety department and others, have eliminated hundreds of various cleaning chemicals by standardizing to four Green Seal Certified cleaning chemicals.

As a result of UGA FMD's Green Cleaning Program the following valuable impacts have been realized... an increased focus on improved employee safety, customer service, staff professionalism, ergonomic tools and equipment, increased productivity and recycling, standardization of business practices, and marked reductions in chemical inventory and waste reduction. In addition, since the implementation of the UGA FMD Green Cleaning Program, there has not been a documented facility closure or quarantine due to pathological outbreaks among the 300+ campus facilities. Lastly, UGA FMD has decreased worker injuries and complaints related to volatile organic compounds (VOCs).

Supportive Expert Testimony

Senior Associate Director for Facilities, Brian Williams

"We consider the FMD Building Services staff a part of our departmental family. We would not be the world-class campus recreation facility that we are without the dedication and hard work of FMD building services staff. Each member of the building services staff demonstrates a high level of professionalism and care for our facility and students in ways that I have never experienced before. Our facility is over 23 years old, we have several hundred-thousand visitors a year, and we host numerous large scale events...to put it simply, we could not effectively do our jobs without the building services staff." 11-16-2018

UGA Swim Coach, Brian Smith

expressed how impressed with the cleanliness of the facility and feels that the Services department does a great job keeping the facility clean. 11-9-2018

Building Services Worker II, Barbara Jackson

"Before using the Gen-Eon Misters in the spaces at the Ramsey Center, she would cough and get sick often while performing her assigned work duties. After using the GenEon Mister for a period of two years on a bi-weekly basis within her spaces, she said coughing and the frequency of illnesses has been drastically reduced. 11-13-2018

Brenda Gomez – Building Services Worker II

states that the Tennant T7 Battery Powered Ride on Sweeper/Scrubber uses ECH2O technology to ionize the water in the machine's solution tank to effectively clean floors. The T7 is utilized daily to scrub and clean the floors in the Ramsey Center. 11-13-18



APPENDIX

- 40** Green Sports Alliance's Greening Advisor Sample Purchasing Policy
- 41** High Performance "Green" Cleaning Program
- 45** Case Studies from Greener Cleaning Playbook, Version 1

GREENING ADVISOR SAMPLE PURCHASING POLICY

The goal of this policy is to ensure that products and services purchased or contracted for will conform with the goals of our company's Environmental Policy. We will strive, where feasible, to purchase environmentally preferable products and services that meet the company's needs.

Where possible, purchasing decisions shall favor:

- Products that reduce greenhouse gas emissions or are made with renewable energy
- Products that reduce the use of chemicals or other materials that are hazardous to the environment and employee and public health
- Products that contain the highest possible percentage of postconsumer recycled content
- Products that reduce air and water pollution
- Products that reduce waste
- Suppliers who strive to improve their environmental performance and provide environmentally preferable products, and who can document the supply-chain impacts of their efforts

- Reusable, repairable and durable products
- Products that serve several functions (e.g., multipurpose cleaners, cleaner degreasers, cleaner disinfectants) and reduce the overall number of products purchased
- Products that are recyclable or compostable

Environmentally preferable products and services comparable to their standard counterparts in quality and price should receive purchasing preference. In situations where environmentally preferable products are unavailable or impractical, secondary considerations should include the environmental management practices of suppliers and producers.

The purchase of environmentally preferable products is part of our long-term commitment to the environment. By sending a clear signal to producers and suppliers about this commitment, we hope to support wider adoption of environmentally preferable products and practices.

Get more practical guidance from the free online Green Sports Alliance Greening Advisor at www.greensportsalliance.org



HIGH PERFORMANCE “GREEN” CLEANING PROGRAM (Used With Permission of Aramark)

Introduction

Aramark is a global company, reaching and interacting with millions of people every day, and we make them a promise: that we will enhance the places where they work, learn, recover and play. We create practical solutions to help our employees and clients minimize environmental impacts in our operations and in our communities.

Through implementing a Green Cleaning Program, we've demonstrated the deep respect we have for the environment and our commitment to continuously improve our own environmental practices, while offering expertise and practical solutions to thousands of clients worldwide.

The following is an excerpt of a Green Cleaning Program - a demonstration of our commitment to advancing industry-wide practices.

Purpose

This instruction provides for a planned program of building cleaning that provides the highest quality of services and lowest exposure to personnel with the minimum impact on the environment.

It provides guidance in all aspects of custodial services and details strategies for cleaning procedures, products, and equipment that result in effective cleaning and which reduce the negative human health and environmental impacts of cleaning.

Background

The importance of an effective custodial program cannot be overstated. Impressions formed by the cleaning quality can be lasting – so can the impact of the environment and employee health. It is, therefore, imperative that we continue to implement new technology and “green” procedures as they are developed. It is equally important that the performance of new procedures be objectively evaluated throughout the implementation period.

It should be noted that the majority of facilities in which we serve have professional cleaning programs. The intent of this instruction is to provide a systematic schedule of procedures, products, equipment, training, and communication to create a “green” cleaning program. This instruction can be followed in the absence of an existing custodial program, or that can be coordinated with a facility program to elevate the level of service and achieve third-party certification.

Procedure

For the purposes of this instruction, green cleaning encompasses all indoor activities typically required to clean commercial, public, and industrial buildings. The following information is considered to be an advanced “green” standard that will meet the requirements of all existing, third-party certification programs. The schedule can be modified to meet the various needs of the facility that is being cleaned or the specific building goals. Use the Checklist to document the orientation and safety training.

Definitions

Concentrate

A product that must be substantially diluted with water to form the appropriate solution for use (typically at least 1:8, or as appropriate for the particular product category).

Disinfect

A process for hard inanimate surfaces undertaken to destroy or irreversibly inactivate infectious fungi and bacteria, but not necessarily their spores.

Environmentally Preferable Product

A product certified as such by a Type 1 (i.e., third party) environmental label that was developed in accordance with the ISO 14024 Environmental Labeling Standard. Alternatively, a product may be designated as environmentally preferable by an established and legitimate, nationally-recognized program developed with the purpose of identifying environmentally preferable products. The program must not have any financial interest or stake in sales of the product, or other conflict of interest. Such designation must be based on consideration of human health and safety, ecological toxicity, other environmental impacts, and resource conservation, as appropriate, for the product and its packaging, on a life cycle basis. Product criteria must distinguish market leadership for that product category, and be publicly available and transparent.

Sanitize

A process intended to reduce, but not necessarily eliminate, microorganisms from the inanimate environment to levels considered safe as determined by public health codes or regulations.

Vulnerable Populations

Vulnerable populations represent people who are more susceptible than the general population to chemicals and products that might pose a risk to human health. These populations include but are not limited to children, pregnant women, the elderly and infirm, people sensitive to chemical exposures (e.g., fragrances), and other occupants, customers, or employees that may have a higher susceptibility to cleaning operations.

Requirements

The front-line staff shall develop and maintain a set of written guidelines or Standard Operating Procedures (SOPs) that govern the cleaning procedures, chemical handling and tracking requirements, equipment maintenance and operation procedures, communication protocols and requirements, training and inspection programs, and reporting and record keeping procedures. These guidelines shall be made available to all cleaning personnel and clients. SOPs shall be reviewed for possible revisions on an annual basis.

Building-Specific Green Cleaning Plan

The Aramark front-line staff shall have a building-specific Green Cleaning Plan in place that comprehensively describes the methods by which a facility is cleaned effectively while protecting human health and the environment. In addition to typical cleaning concerns, the Green Cleaning Plan shall:

- Define a comprehensive communications plan as established with the client. The plan shall describe procedures for cleaning personnel to communicate with building management and occupants, as well as a system for providing feedback from building management and occupants.
- Develop and implement a floor maintenance plan, consistent with manufacturers' maintenance recommendations, to extend the life of flooring through routine, periodic, and restorative cleaning operations.
- Determine schedules of routine cleaning operations, activities performed periodically, equipment operation and maintenance, cleaning inspections, and accident preparedness plans. Schedule of cleaning operations detailing the minimum frequency required to clean and maintain the area to a level that adequately protects human health and the environment.
- Schedule of cleaning operations shall be reviewed at a minimum of twice per year and adjusted as needed in response to the changing needs of the building and its occupants.
- Provide a detailed description of how green cleaning operations shall address:
 - Cleaning procedure requirements for such special areas as high-traffic areas, dining and food preparation areas, laboratories, and entryways.



- Storage and use of chemicals within the facility, including consideration of proper ventilation, dilution control procedures, adequate security, and proper management of the area.
- Vulnerable populations such as children, asthmatics, and pregnant women.
- Indoor sources of contaminants or pollution, both temporary and permanent, such as building renovations, indoor plants, and new carpet installations.
- Special requirements for operations involving potentially hazardous materials such as the maintenance of floors containing asbestos or compliance with OSHA Bloodborne Pathogens Standards.
- Cleaning in areas with special engineering concerns such those with inadequate ventilation, poor lighting, and restricted access.
- Seasonal or periodic conditions and periods of increased or decreased use (e.g., school vacation closures).
- Requirements of the building Integrated Pest Management System.
- Special cleaning requirements or conditions that may affect the frequency of cleaning or negatively impact human health or the environment.

Powered Equipment Use/ Maintenance Plan

The Aramark front-line staff shall develop, adopt, and maintain a plan for the use of powered janitorial equipment that maximizes the effective reduction of building contaminants with minimum environmental impact. Aramark front-line staffs shall evaluate that the janitorial equipment currently being used is functioning properly (as validated by equipment manufacturer or by reputable third party service organization) or that it is tagged out of service.

Environmentally Preferable Cleaning Products and Supplies

For the following categories of cleaning products and supplies, the Aramark front-line staff shall use only environmentally preferable products:

- General-purpose cleaners, floor cleaners, bathroom cleaners, glass cleaners, and carpet cleaners;
- Floor finishes and floor strippers;
- Liquid hand soap;
- Toilet tissue and facial tissue;
- Paper towels and napkins;
- Plastic trash can liners.

Powered Cleaning Equipment

All new, powered janitorial equipment purchased in this category shall meet the criteria listed above. These products include powered floor scrubbers, burnishers, carpet extractors, vacuum cleaners, and power washers, and other powered cleaning equipment.

Reducing Chemical Waste/Efficient Use of Chemicals

- Provide easily understood directions to cleaning staff in appropriate written languages or graphic representation for the dilution of chemical cleaning products.
- Track the quantities of chemicals consumed over time by cleaning operations on at least a quarterly basis.
- Use a chemical measuring and dilution control system that limits worker exposure to chemical concentrates while facilitating the proper dilution of chemical concentrates.
- Train workers in the safe and effective use of all relevant chemical cleaning products.
- Use the appropriate technology (coarse spray bottles, automatic chemical dispensers on powered equipment, etc.) for applying the chemical product in a manner that does not result in overuse and waste of the product.
- Provide directions for the proper rinsing and disposal of used or expended chemical solutions or empty chemical containers.
- Prevent other building areas from being adversely affected.
- Reduce, minimize, or eliminate the need for using cleaning chemicals wherever possible.

Reducing Solid Waste

- Purchase chemical products and supplies in quantities that minimize the amount of packaging and container waste generated.
- Segregate and recycle all waste items from cleaning operations, including paper, glass, plastics, cardboard, other packaging materials, empty chemical containers, and worn equipment that are acceptable for recycling in the community.

Communication

To ensure the success of the Building Specific Cleaning Plan, the Aramark front-line staff must have a communications strategy with regard to cleaning personnel and facility managers. The communications plan shall be developed in conjunction with building owners, facility managers, and building occupants.

Staff Training and Development

All cleaning personnel shall be trained in the proper handling of chemicals, proper use and maintenance of capital equipment, and proper cleaning procedures.

Certification

This instruction provides a benchmark for environmentally responsible cleaning services as well as a basis for evaluating and certifying such services in various certification programs including LEED-EB, LEED-HPO and Green Seal GS-42. Each certification program has an established procedure for accepting applications for products or services, evaluating them to an applicable environmental standard, and certifying those that meet all the requirements for certification.





1.0

CASE STUDIES

CenturyLink Field and Events Center

Program Launch

“We began Green Cleaning because not only was it the right thing to do for the environment and our goal of being champions of environmental stewardship, but we wanted to do the right thing for the safety and health of our guests, fans, and employees who come into our stadium on a daily basis,” says Katy Severinsen, Aramark. “The goals and objectives were to be industry leaders and on the forefront of better practices.”

The implementation of the Green Cleaning program was developed through mutually shared ideas with the Facility Manager, ARAMARK Housekeeping General Manager, and Waxie Sanitary Supply Vendor Rep. The ideas shared between the team resulted in products that not only would be effective for the high volume facility but also practical and user friendly.

“We also wanted products that were designed to preserve human health and environmental quality. The idea of Green Cleaning isn’t just about using products that are good for the environment but it’s also about culturally changing the way we think,” says Katy Severinsen, Aramark. “The first areas that we tackled were the all purpose cleaners. We wanted to find products that were EPA certified. We also wanted to eliminate the use of multiple chemicals that we used to clean different surfaces and go to a multi-use one.”

“We began Green Cleaning because not only was it the right thing to do for the environment and our goal of being champions of environmental stewardship, but we wanted to do the right thing for the safety and health of our guests, fans, and employees who come into our stadium on a daily basis.”

—Katy Severinsen

Aramark

Program Highlights

- CIMS certified in 2010 and recertified in 2012
- In 2008, Alpha HP was introduced into the Green Cleaning program. This green seal certified multi-surface cleaner was used in all general cleaning. It simplified processes by eliminated the need for multiple chemicals.
- In 2010, the introduction of Microfiber Towels into the Green Cleaning program. The use of microfiber towels as an alternate to paper, and cloth towels and cotton mops for cleaning. They are seven times more absorbent than normal cleaning towels and are more efficient at removing soils and bacteria from surfaces.
- In 2011, Orbio was introduced in to the Green Cleaning program. This cleaning solution uses split stream technology to create an effective multi-purpose cleaner using water, a small amount of salt, and electricity.
- All employees are trained at Orientation on chemical use and safety. This is vitally important to any successful cleaning operations. Uninformed employees can cause damage to not only surfaces but also harm themselves by the improper use.
- Have reduced over 61,200 diluted gallons of chemicals to clean the stadium.
- Clearly, we have seen many results since we adopted the program, the most important being health (improved indoor air quality, less chemical residue left on surfaces), reduced surface damage (chemicals damage the surfaces over time), employee morale (they are able to perform the tasks with less risk to their health).
- Reduced 1300 pounds of battery waste per year by changing out hand towel dispensers from automated to manual
- Green Seal certified products- currently about 90% of all products purchased for the property are “green” or a 90% green spend
- Roughly 5000 gallons of cooking oil are recycled yearly.
- Bottle top program (50# in 2013).



- In 2013, 2 tons of food donations were made and 1 ton of furniture and equipment
- Carbon footprint reduction-We've reduced our impact on transportation, packaging and deliveries. With the implementation of Orbio as our multi-purpose cleaner, we no longer need general cleaning chemicals packaged and transported to the facility.
- Between 2012 and 2013, our products supply partner, WAXIE, reduced our deliveries by 26 through "bundling" orders and deliveries to reduce impact of transportation
- Diversion program- started to actively track materials in 2006. Below are the yearly results from our waste reduction and diversion practices. Through our composting and recycling initiatives, we've been able to reduce the following amounts from ending up in landfills:
 - 2006- 3%
 - 2007- 16%
 - 2008- 34%
 - 2009- 47%
 - 2010- 57%
 - 2011- 69%
 - 2012- 93%
 - 2013- 96%

Program Challenges

- **Training:** Training is a vital part of any successful cleaning program. Well trained employees are able to understand the cleaning process and lead by example.
- **Simplification:** Don't over complicate it. Making cleaning simple for the employee will enhance the cleaning of a facility as well as employee safety and satisfaction.
- **Education:** People think that the solutions and products aren't as effective and that things are not being cleaned properly or effectively. Educate not only the cleaning staff but the entire building staff as well.
- **Color Code:** Use different color towels for the different surfaces to be cleaned. Avoids cross-contamination.
- **Evaluation of new products and equipment:** Choose the right products for the right facility. Not everything is a viable option everywhere. Evaluate what will work best for your situation.

Expert Advice

- **Make it easy:** The easier that the cleaning program is to understand will result in a better cleaned facility.
- **Knowledge:** Use resources that are available. Ask questions. Don't be afraid of the unknown.
- **Teamwork:** Not only the Housekeeping department but all departments are involved and educated in reducing water, energy, and waste while increasing recycling and composting.



2.0

NHL's Minnesota Wild Updated 2019

Program Launch

Since 2009, the Xcel Energy Center and neighboring Saint Paul RiverCentre have been working to become regional leaders in sustainability. This effort began with a comprehensive waste reduction program that brought the complex's annual recycling rate from 15% to over 50% in less than two years.

Shortly after that program rolled out, facility management also began to consider how their purchasing practices could help reduce waste and improve the venue's sustainability. Custodial products were one of the main focal points of that effort, because green cleaning products were readily available and represented a large proportion of overall operational purchases.

To implement the green cleaning program the staff were directed to look for "green" products, meaning they either contained recycled content or were third-party certified by Green Seal or other credible organizations. If those products met the needs of the facility and could be found within 10% of the price of a comparable non-green option, a switch to that product was made.

Over the next two years, management and cleaning staff worked together to find replacement products. As a result, the vast majority of cleaners, custodial paper supplies, and waste liner bags were switched. Today, about 90% of custodial product purchases meet green standards.

Program Highlights

In general, Xcel Energy Center's green cleaning program has been a resounding success. One key factor in achieving that success has been



“Our green cleaning program quickly became a strategy for operational efficiency and cost reduction. The best part about this strategy is that it led to easy execution. When the process and expectations are so clearly laid out, it is very hard to fail.”

—Jim Ibister

Vice President Facility
Administration, Minnesota Wild

staff education; every season both the full-time and part-time staff receive refresher training on the policies and procedures of the program, along with an update on how it is progressing and any changes that have been made. Temporary and contract-workers also receive regular information on the program and how to comply with it.

Through the process of switching products, several toxic items have been eliminated entirely. Bleach, floor strippers, and harsh seat-cleaning chemicals are no longer used in the facility. There are also additional benefits that have resulted from the program. In many cases, green products were found to be less expensive than traditional ones, in addition to being healthier for staff to use. These products are not only safer environmentally, but they also engage staff in the fact that their work makes a difference, and introduces them to practices they can do at home.

Finally, the cleaning program - and the facility's sustainability program - help to show visitors and the greater community that Xcel Energy Center cares about being a steward of the environment and a contributing member of its community.

Program Challenges

One of the biggest challenges to overcome in this program has been convincing staff that green products will do the same quality job as more toxic products. For example, many people associate the smell of bleach with “clean,” and for certain staff it took time to accept that the facility was actually clean without that smell.

In addition, finding the right green product for each cleaning job was not always easy. Not every product, green or otherwise, will do the same job equally well as any other. This has been especially true for seat-cleaning products and those used to remove adhesive residue. But ultimately, through the dedication of operations management, staff and their partners, adequate replacements have been found for most products in the facility.

Expert Advice

A key piece of advice for facilities seeking to implement a green cleaning program is to establish clear standards and expectations for the program so that key personnel can be empowered to achieve success. Purchasers must understand the definition of “green” in their building - whether it is a certain percentage of recycled content, a certain certification that must be met, or another standard. Similarly, not all green products are in the same price spectrum either, so it may help to set a limit on how much of a premium staff should be willing to pay for green products.

The second piece of advice is best summed up by this quote from Xcel Energy Center's Senior Manager of Operations. He said, “the one thing that I have learned is not to underestimate your staff when it comes to doing the right thing. When we began this process almost 5 years ago I would have never believed that it would have been as successful as it has turned out to be. I thought that I (we) would have been met with more resistance from our staff when it comes to being green and changing how we do things. It turns out that almost all of our staff bought into the program from the beginning and wanted to do the right thing and were not afraid of change.”



3.0

Philadelphia Eagles / Lincoln Financial Field

Program Launch

The Philadelphia Eagles are committed to reducing their environmental impact through their Go Green program, which began in 2003 with the opening of Lincoln Financial Field. In 2007, The Philadelphia Eagles and Aramark Facility Services launched their partnership to Go Green. This program encompassed recycling efforts as well as switching to Green Seal or Eco friendly chemicals. Christina Weiss Lurie, of the Philadelphia Eagles, has a strong passion and vision for the efforts that the organization has off the field.

The goal of the Green Cleaning Policy is to reduce the exposure of building occupants and maintenance personnel to potentially hazardous chemical, biological and particle contaminants, which adversely impact air quality, health, building finishes, building systems and the environment. The organization is motivated to constantly break down barriers in the green cleaning process. During the launch, Aramark Facility Services and Philadelphia Eagles management team began sourcing green products and technology that would reduce the environmental impact.

Initially, Green Seal products replaced non-ecofriendly products such as glass cleaner, all-purpose cleaner, and stainless steel polish. As the program progressed and new technology was introduced, Aramark and



“It has been a wonderful team effort by Aramark and The Philadelphia Eagles. Everyone has really embraced the Go Green effort professionally and personally.”

—Jason Miller

Senior Vice President of Operations
for Lincoln Financial Field

the Philadelphia Eagles continued to make strides in making the operation green. During this transition, Aramark began using Activeion's ionators, which electrically charged tap water to sanitize surfaces and Tennant Equipment with ec-H2O™ technology that electrically converts water into an innovative cleaning solution that cleans effectively and reduces environmental impact. This technology reduced the amount of chemicals that needed to be procured and used in the stadium.

Program Highlights

From 2007 to 2015, Aramark and The Philadelphia Eagles have made great strides in their mission of green cleaning. Currently, all chemicals including bio-enzymatic cleaners, hard-floor cleaners, carpet cleaners, general-purpose cleaners, specialty cleaners, odor control, and disinfectants are Green Seal certified or Eco-friendly. During the 2013 season, Aramark began using the Orbio 5000Sc unit, which uses split stream technology to soften tap water and salt flow into an electrolytic cell. By applying electricity, it creates a separate alkaline solution which is dispensed into spray bottles and automatic scrubbers and reacts with organic soils during the cleaning process. It reduces the need for most cleaning chemicals including glass cleaner, multi-purpose, all purpose, stainless steel, carpet pre-spray, hard surface, and carpet cleaner. The most valuable result Lincoln Financial Field has seen from this conversion is a safer and healthier building for its employees, guests, and the environment.

Program Challenges

Throughout the process of making Lincoln Financial Field a green cleaning operation, there were challenges that needed to be overcome. One of the greatest barriers was buy-in from the front-line employees who were familiar with using hazardous chemicals previously. Employees often commented that they did not think an area was clean because they could not smell ammonia or bleach based products anymore. They associated these smells with cleanliness, which was not prevalent in Green Seal products. With in-depth training and seeing results first hand, employees were able to understand the benefits of green cleaning. Another challenge that was presented was the constantly evolving technology around green cleaning. The team at Lincoln Financial Field is always looking to pursue the healthiest and most ecologically friendly methods.

Expert Advice

Aramark's partnership with the Philadelphia Eagles has been mutually beneficial. With the support of the Philadelphia Eagles, Aramark has been able to deliver exceptional quality utilizing the latest technology while reducing Lincoln Financial Field's environmental impact. As one new product or technology is introduced in the operation, an advanced version or alternative product is on the market shortly after. As a tactic to combat this ever-changing cycle, the team at Lincoln Financial Field conducts thorough research and analysis to ensure the latest trends are effective before procuring. The efforts in green cleaning and the Go Green vision has helped in Lincoln Financial Field receiving the LEED Silver certification, making the Philadelphia Eagles the second NFL team to receive this designation.



4.0

KFC YUM! Center

Overview

The KFC YUM! Center is a \$238 million, 22,500 seat arena that opened in 2010 as the fifth largest college venue in the United States. The arena is home to the University of Louisville men's and women's basketball teams, women's volleyball and is a concert venue for top touring acts.

AEG Worldwide manages the YUM! Center, and has a company-wide push towards improving sustainability at its 100+ global venues. This focus on sustainability led Sean Langer, Director of Operations, to the PathoSans system.

The PathoSans system produces solutions onsite and on-demand using only water, salt and electricity. These two solutions, PathoClean® and PathoCide® are used to clean and disinfect the arena from top to bottom after events. On top of replacing previous toxic cleaning chemicals, the YUM! Center's carbon footprint has been reduced by eliminating pollution from chemical transportation and the need to dispose of chemical shipping and storage containers.

Program Launch

- March 2013 - Sean Langer, Director of Operations at the KFC YUM! Arena was contacted about the PathoSans system, which aligned with the arena's parent company, AEG Worldwide's significant focus on sustainability.
- June 2013 – Pilot PathoSans system installed for a 60 day trial to prove effectiveness, cost savings and sustainability.



“ In my 20 years of facilities operations, the PathoSans system is the best cleaning solution I have ever used. It is eco-friendly, less expensive than purchasing bottles, drums or chemical mixing stations and very user friendly. The staff loves it and the building is by far the cleanest I’ve worked in.”

—Sean Langer

Director of Operations,
KFC Yum! Center

- August 2013 – PathoSans system purchased for arena following successful testing.
- Goals of PathoSans / KFC YUM! Arena Project:
- The main objective laid out by Sean Langer was to minimize the carbon footprint of the arena in regards to cleaning chemicals. The arena had previously taken numerous steps towards sustainability, and PathoSans would be a piece of the overall puzzle.

Program Highlights

- Eliminated disposal of chemical packaging, pollution from chemical shipment to venue and running harmful chemicals down drain lines.
- Simplified the cleaning process and reduced errors through the use of just two solutions (a cleaner/degreaser and a sanitizer/disinfectant) instead of five previously purchased traditional chemicals in the venue. Improved worker efficiency and elimination of cleaning steps due to the effectiveness of the solutions in certain tasks, such as arena riser cleaning.
- Reduced the cost of chemicals through production of solutions onsite for pennies per gallon. Monthly payment for PathoSans system is less than historical monthly chemical expenditures, allowing for immediate cost savings.
- Increased worker safety by using non-toxic solutions. Eliminated health concerns for custodial staff with traditional chemicals. PathoSans solutions are non-allergenic and safe for employees.



5.0

Los Angeles Dodgers / Dodger Stadium

The recent upgrades to Dodger Stadium have been achieved with an eye toward sustainability. These efforts include instituting many measures toward being energy efficient, installation of new water valves, low-flush fixtures, waterless urinals, touch-free timed faucets with aerators to minimize water usage and new power and lighting energy-efficient systems.

In addition, the Dodgers are in the preliminary stages of a Green Cleaning program, working with their distributor of janitorial products (Royal Paper) and their cleaning services provider (ABM).

Some of the Green Cleaning products being utilized include:

- **Certified Cleaning Chemicals:** Royal brand all-purpose cleaner, glass cleaner and heavy duty degreaser among other high volume cleaning chemicals are certified by EcoLogo / Underwriters Laboratories. The products are concentrated to reduce packaging waste and are properly diluted through dilution control equipment supplied by the vendor.
- **Certified Hand Soaps & Hand Sanitizers:** Hand soaps and sanitizers are either certified by Green Seal and/or EcoLogo / Underwriters Laboratories.
- **Paper Products:** Georgia Pacific paper products are being used, which contain at least 40% post-consumer recycled fiber that meet the requirements of EPA's Comprehensive Procurement Guidelines. Hand towels are provided on large rolls as compared to multi-fold towels to reduce consumption and waste, while reducing the environmental impact.





Excellence in Sustainability

The Dodgers use of plastic can liners right-sized to fit the container and from 100% post-consumer recycled resin resulted in roughly 60,000 pounds of plastic being removed from the waste stream in 2014 alone.

This reduced air emissions by ~133 metric tons of CO₂e which is equal to planting 3400 tree seedlings grown for 10 years, powering 12 homes for 1 year, or removing 28 cars from the road for 1 year.

At home make sure to buy plastic bags that are the right size for the container and made with a high percentage of post-consumer recycled plastic resin.

- **Plastic Can Liners:** The Dodgers worked with their supplier Royal Paper and the manufacturer of plastic liners, Revolution Bag, to convert from liners made from virgin plastic resin to liners that are the first to be certified by UL Environment and made from 100% post-consumer recycled resin. The result of converting to 100% PCR and right-sized liners result in roughly 60,000 pounds of plastic being removed from the waste stream annually.

Other initiatives included

- **Water Savings:** In addition to the automated restroom faucets, waterless urinals, and low-flow toilets, low-moisture cleaning carpet cleaning practices and new wash down/pressure washing methods have been implemented for the stadium bowl to reduce water consumption.
- **Training:** ABM has provided extensive training of workers on Green Cleaning, including proper product use, health & safety and the appropriate cleaning processes including the proper cleaning of the waterless urinals.

“Our dedication and focus is not only in the accomplishments that the Dodgers have achieved in the past...but also in preserving and protecting our planet and environment, while conserving critical resources so that we can continue to tell our stories that have yet to be written.”

—David Edford **Director of Facilities, Dodger Stadium**



6.0

Petco Park

Program Launch:

Located in the downtown area of San Diego, California, Petco Park is a \$450 million, 40,209 seat ballpark that provides stunning views of the city skyline and San Diego Bay. Home to the San Diego Padres, the Major League Baseball team is dedicated to the development and execution of environmentally-friendly green programs for Petco Park. A proud partner and facilities service provider to the ballpark, Aramark provides sustainable resources and best practices to help the San Diego Padres operate its ballpark in an environmentally friendly manner every day.

Since beginning its partnership, Aramark and the Padres Ballpark Operations management team identified opportunities that would best represent Petco Park's sustainability commitments and dedication to its Green Cleaning Program. Specifically, the two teams worked together to improve the ballpark's recycling, waste management, and chemical elimination programs, while keeping the safety and health of guests, fans, and employees top of mind.

"We looked at opportunities to move from cleaning with multiple chemicals and multiple dispensers, as well as consider how the chemicals were utilized and if our staff was using it correctly," says Scott Sears, Aramark, on their implementation of a chemical-free cleaning program known as Blue Cleaning™. Introduced in 2011, Blue Cleaning™ uses Electrically Activated Water (EAW) and other non-chemical sources to create the most environmentally responsible approach to cleaning. By activating ionized tap water with electricity, Blue Cleaning creates a non-toxic solution that kills bacteria without the harsh chemicals.



In addition to the cleaning improvements, Aramark focused efforts around establishing an effective recycling and waste management program. This included development and implementation of a robust sorting system for appropriate waste stream disposal, as well as replacement of the baler system with a compactor for cardboard recycling.

Program Highlights

Through this partnership, Aramark and the San Diego Padres have realized considerable savings, while contributing to the overall sustainable efforts of the Green Initiative for Petco Park.

In particular, the integration of Blue Cleaning led to a 75% decrease in chemical usage when performing cleaning operations. Scott Sears added, “With Blue Cleaning, our goal was to not only drive down the chemicals used, but also create a safer product for the staff and guests. Prior to this conversion, employees were at a greater risk of encountering chemical burns and respiratory issues. We have had no safety incidents involving chemicals since the transition to Blue Cleaning™.”

Further chemical elimination was made possible by identifying greener equipment including ec-H2O™ solutions, as well as the move to all microfiber products. While reducing their carbon footprint, the Padres realized cost savings of 15% in game-day cleaning directly related to these product and equipment shifts.

The recycling and waste management program developed in collaboration with Aramark, the Padres, and the custodial employees yielded a 76% waste diversion rate for the 2017 baseball season. Fundamental to this success was the dedication of Team Aramark and the Padres Ballpark Operations management team in educating the staff on the various waste streams of commingled items, as well as the significant environmental impacts of such sustainable practices.

Program Challenges:

Aramark and the Padres Ballpark Operations management team faced some challenges throughout the process of working towards a greener Petco Park, specifically, the staff’s hesitancy in the effectiveness of Blue Cleaning™. In order to suppress any doubts about the efficacy of cleaning without chemicals, as well as ensure a successful product conversion, a comprehensive training program was executed to coach the staff on safety, product handling, benefits and results, and cleaning deployment.

When initiating the recycling program, Aramark concentrated efforts on first educating the leadership team on the importance of waste management and the lasting impacts on their physical environment. With their approval and encouragement, Aramark transferred these same lessons to the staff, promoting the need for continual trash audits and ongoing accountability to sustain environmental success. A cultural shift began to take place within Petco Park. The staff actively sought out more ways in which they could further the sustainability efforts of the ballpark, which led to the development of specialized recycling centers.

Expert Advice:

Fully engaging both the leadership and staff has been critical to the success of the Green Initiative at Petco Park. Scott Sears suggests, “Start small. Understand how each task will be implemented and exactly what the impact will be. Build engagement and buy-in with the staff on training and partnering with your vendor to assist with the training and implementation of your program.”

Additionally, educating the staff on standards and expectations of the program was integral in achieving success. With full knowledge and understanding of these green initiatives, the staff became stewards of sustainability, feeling empowered by their contributions to a greater, greener ballpark for all to enjoy.

GREEN
SPORTS
ALLIANCE

greensportsalliance.org

 @sportsalliance

