

xpedx Environmental Solutions: An Introduction to Green Cleaning

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Defining Green Cleaning

In its most simple form, Green Cleaning is defined as “cleaning to protect health without harming the environment and gets its roots in Executive Order 13101, which was signed by then President Bill Clinton in 1993. The order, which directed the facility managers of thousands of federally owned or operated buildings worldwide to begin using Green products and services, defined green as “the use of products and services that reduce the health and environmental impacts compared to similar products and services used for the same purpose.”

But perhaps what is most important to understand is that Green Cleaning is a “concept” similar to Total Quality Management or Six Sigma. Unlike some current cleaning strategies that focus on appearance, improving labor efficiencies or educing costs, Green Cleaning is a concept that specifically focuses on creating healthy and productive indoor environments in way that simultaneously reduces impacts on the environment.

When this definition is applied to the cleaning industry it affects the selection and use of cleaning products, tools, and equipment that have a less negative impact on building occupants and our environment. However, this does not just apply to cleaning chemicals; Green Cleaning should be viewed as a comprehensive program that involves such things as:

- Selecting the proper cleaning and maintenance tools and equipment, paper products, as well as hand soap
- Using these products properly to reduce their impact on custodial workers, building occupants, and the environment
- Developing a stewardship program to help ensure the Green cleaning program is implemented correctly and continually
- Providing proper training and education for custodial workers, facility managers, and building occupants in both the program and the use of Green cleaning products, and
- Having all parties communicate well.

History of the Green Cleaning Movement

Almost 50 years ago, a woman heard a plane overhead and watched as it sprayed the landscape with a chemical, DDT (dichlorodiphenyl-trichloroethane), which she knew was used to kill mosquitoes. However, a day or two later, she found dead birds in her yard, all of which appeared to have died a horrible death. Their bills were gaped open and their claws drawn in, apparently in agony.

Deeply saddened and upset, she notified the local newspapers. But it was a friend of hers, Rachel Carson -- a scientist, biologist, and a writer -- who became most involved and would, in time, change history.

Carson spent several years researching the use of pesticides, and the more she learned, the more she believed that some of these chemicals were unsafe – not only for birds and animals, but for our waterways, crops, and humans. In 1962, she compiled all that she had learned into a book called *Silent Spring*. Her title came from her frightening prediction that used unwisely or improperly, DDT and similar chemicals could be very devastating to our world. “Spring would come,” she wrote. “but without the glorious song of birds. Only silence lay over the fields and woods and marsh.”

When Carson wrote her book, few people had heard about conservation, protection of the environment, or ecology. But after *Silent Spring*, people began to think much more about our environment and they came to understand it is much more fragile than anyone had realized before. Soon the public began to demand that new laws be passed to protect the air, water, forests, and wildlife.

One result of the book’s created awareness was the establishment of the United States Environmental Protection Agency (EPA) in 1970. The EPA’s mission is to protect human health and to safeguard the natural environment—air, water, and land—upon which all life depends. This is accomplished by creating national guidelines to protect water and air quality, and to ensure pesticides and other chemicals are used safely.

Enter Environmentally “Friendly” Cleaning Products

With Carson’s book, the creation of the EPA, and a variety of new laws and regulations to protect the health of our environment, some “environmentally friendly” cleaning products emerged. Although they were mostly for residential use, many of these products provided the foundation for the development of professional cleaning products, as well as interest in Green cleaning.

In the early 90’s a number of public purchasers such as the Commonwealth of Massachusetts, State of Minnesota, Pacific North West Laboratory, City of Santa Monica, and the US Department of Interior each implemented some of the first contracts for Green Cleaning.

Ten year later lead by the [Center for a New American Dream](#), these same early pioneers came together to discuss how they could work together to not only make their contracting process easier, but to make it easier for similar organizations around the country to participate in the purchase of Green Cleaning products.

The outcome of this work lead to the first adoption of Green Cleaning “standards” developed by Green Seal by Massachusetts. For the first time, multiple organizations agreed to use the same standards which resulted in a significant increase in the demand for these products. As a result of this effort, the “flood gates” were opened and today over 100 manufacturers have Green Cleaning products as the demand has continued to climb.

At about the same time that the early pioneers were developing procurement language for Green Cleaning products, the [US Green Building Council](#) was formed in 1993 with a specific mission to transform (green) the building industry. What is truly important about this organization is that it represents the “customers” of the cleaning industry. As the owners and managers became more committed to Green Buildings, so too did the demand for Green Cleaning increase.

In 2004, the US Green Building Council, now with thousands of members launched their [Leadership in Energy and Environmental Design \(LEED\) Rating System for Existing Building Operations and Maintenance](#). This new Rating System provided a “roadmap” for Green Cleaning making it easier for building owners and managers, as well as cleaning product manufacturers and suppliers to identify what constituted a Green Cleaning program.

In addition to the LEED Rating System, other organizations such as [Hospitals for a Healthy Environment](#) introduced their [10 Step Guide to Green Cleaning Implementation](#) for the health care sector and the [Healthy Schools Campaign](#) launched their [Quick & Easy Guide to Green Cleaning in Schools](#). These programs along with others served to further accelerate demand for Green Cleaning in almost every sector.

While it has been a very slow process, Green cleaning and the use of environmentally preferable products have revolutionized our industry today. And it appears this trend will continue to grow in the future.

The Important Contribution of Green Certification

Green product certification has made a major contribution to the Green cleaning movement. In fact, creating a respected and universally accepted certification process has proven to be one of the milestones in the manufacture, use, and acceptance of environmentally preferable cleaning products.

About 30 years ago, many manufacturers “self declared” their products Green. This often was done with the best of intentions and based on the most reliable information of the day. On other occasions, the claims were unfounded.

At the same time, there was a chorus of voices attempting to define what is and is not a Green cleaning product. Frequently, the standards they proposed were in unison, but often they were not. The result of these conflicts and the Green “self declarations” of some manufactures was a lot of confusion – for the manufacturer, distributor, as well as the end customer.

The manufacturer had no guidelines or parameters to follow that helped to identify what ingredients, processes, and systems were required to produce an environmentally preferable cleaning product.

The janitorial product distributor had no choice but to trust that the manufacturer's claims were indeed credible. And the end customer was forced to rely on the claims of both the manufacturer and distributor.

Fortunately, the confusion ended when independent, third-party organizations such as Green Seal® and the Environmental Choice Program/EcoLogo^M were established. These organizations created a process to determine if a product was Green or not. Moreover, their testing procedures and conclusions were honored by most Green cleaning advocates, manufacturers, distributors, and the end customer.

These certification organizations – as well as others that have been established in just the past few years – have their own seals of approval. Manufacturers can use this seal on package labeling and in marketing, once their products have earned program certification and the right to be called environmentally preferable.

Honored with certification, the distributor and end customer are assured that the product:

- Has a reduced impact on the environment when compared to similar products used for the same or similar purpose
- Has ingredients (or a greater number of ingredients) that are biodegradable and non-toxic
- Performs as well as, if not better than, a comparable non-Green product
- Does not include (or has considerably fewer) harmful ingredients, such as Volatile Organic Compounds (VOCs), carcinogens, and endocrine disruptors, which can harm glands, hormones, and many body functions
- Does not contain hazardous by-products
- Is packaged in recyclable materials; and
- Meets all safety standards for use of the product.

How a Product Becomes Certified

Because Green certification has been so important to the janitorial industry and the Green cleaning advancement, it is important to have a basic understanding of how a product actually becomes Green-certified.

Although different certification organizations may have different evaluation procedures, which may vary depending on the product being tested, the major and most respected organizations adhere to the following procedure:

- The manufacturer must inform the certifying organization why the product should be certified and in which product category the product belongs.
- Once accepted, most certifying organizations do not perform the actual testing and evaluation of the product. Instead, the manufacturer selects a recognized, accredited laboratory to analyze the product.

- The laboratory determines and verifies the product's ingredients and ensures that it meets specific ISO (International Organization for Standardization) quality control standards, the certifying group's Green standards, as well as specific criteria for the particular product type.
- The manufacturer submits the laboratory reports, along with any related materials about the product, to the certification entity for review.
- If the product passes initial tests and analysis, the certifying organization involved usually conducts a site audit to confirm the information provided by the laboratory is accurate. In addition, an attempt is made to trace the entire manufacturing process, from its very beginnings to the end of the assembly line.
- If the product meets all the criteria and passes the site audit, it becomes Green-certified once the manufacturer's president or CEO signs a "Declaration of Compliance" stating that the certified products will continue to meet the certification guidelines.
- Finally, the certification organization reserves the right to conduct random surveillance audits to assure continued compliance.

It should also be noted that certification criteria for a specific product can change. Often, the bar is raised and the standards become more stringent. When this happens, the product may lose its certification and will need to be reformatted to meet the new, higher criteria.

The Ten Steps to Implementing a Green Cleaning System

As we know, the goal of a Green cleaning system is to reduce the impact of cleaning on both health and the environment. And as we have also discussed, Green cleaning is indeed a system, so all its components must be in place and working properly for the program to succeed.

Below are the ten key steps a Green cleaning system must include:

1. Reach an Agreement

The customer, building occupants, and management must all agree on how they define a Green cleaning program and how it will be implemented into their facility. To formalize it, the agreement must be in writing and written in the form of a concise, easy-to-understand contract.

2. Build the Team

With the agreement in hand, all parties must build a team that includes not just cleaning professionals, but the building management and occupants as well. The team will meet and discuss the Green cleaning system, and as a result of these meetings, generate support for the project for all building occupants—a pivotal role in its success.

3. Conduct Baseline Audits

One of the team's first duties is to determine the facility's current housekeeping status by conducting audits to verify how the facility is being cleaned and maintained. This will establish a baseline to judge future improvement. For instance, the surveys would include an inventory and evaluation of existing paper products, liners, and cleaning equipment used in the location. It may also include appraisals of the following:

- Overall cleaning quality
- Cleaning procedures, including training and supervision
- Recycling
- Existing indoor air quality problems and complaint records

4. Develop a Plan

Once the data have been collected, the team must analyze the information to determine the best ways to implement the Green cleaning system. They decide which areas need to be addressed first, based on contract requirements, cost, and potential health and environmental impacts.

5. Get Everyone on Board

It is vitally important that everyone is involved in the process and supports the team's plans and goals. This is often best accomplished by including all necessary parties in the process and making them aware of how and why things are being done.

6. Acquire Green Products and Equipment

To begin the process of Greening a facility, new cleaning products and equipment may need to be purchased. This may include investing in: environmentally preferable cleaning chemicals, as well as vacuum cleaners with high-filtration filters; floor machines with dust-control systems to capture impurities so they don't pollute the indoor environment; or microfiber cleaning cloths and mops, which are more absorbent than conventional cloths and mops and reduce the need for cleaning chemicals.

7. Implement Green Procedures

Begin new cleaning procedures that help cleaning professionals understand and use the environmentally preferable products carefully, safely, and with the goals of Green cleaning in mind.

8. Implement Training in Green Cleaning

Adopting Green cleaning is often an opportunity for all maintenance personnel to learn the most up-to-date cleaning procedures. This often streamlines all cleaning operations and improves the appearance and health of the facility.

9. Take Responsibility through Stewardship

Once a Green cleaning program has begun, cleaning personnel, building occupants, and visitors share the responsibility of maintaining a healthy and productive indoor environment. This is called stewardship. These stakeholders make sure the Green cleaning system is successful by reviewing the program's progress and implementing changes necessary for the health of the facility.

10. Communicate and Provide Feedback

Communication and feedback are vital among chemical suppliers, building occupants, and management. As with any new process or procedure involving many people, the ultimate goal is continued improvement. Information provided by all parties helps facilitate this.

Components of an Effective Green Cleaning Program

As has been referenced, we must view Green cleaning holistically, realizing that it involves much more than just environmentally preferable cleaning chemicals. For instance:

Matting Systems: A Green cleaning program starts at the front door, with 15 to 20 feet of high-quality matting systems placed inside and outside all major entries. According to a study by the International Sanitary Supply Association (ISSA), up to 24 pounds of dirt can be tracked in by just 1,000 people coming through an entrance over a 20-day work period.

A large facility may have hundreds of people entering every day! An enhanced matting system helps trap these soils before they enter and potentially contaminate a facility. And this saves facility managers considerable sums of money in cleaning costs. The same study estimated that removing *just one pound* of soil can cost a facility as much as \$500 in labor and equipment.

High-Filtration Vacuum Cleaners: An effective Green cleaning program includes high-filtration vacuum systems. Green vacuum cleaners often have HEPA or similar high-filtration filters that trap virtually all contaminants. The Carpet and Rug Institute's Green Label Program lists vacuum cleaners that not only are highly efficient at removing soils from carpets but do so in a way that protects indoor air quality.

Carpet Extractors: Greener carpet cleaning systems use environmentally preferable cleaning chemicals and low-moisture extractors. These machines use one gallon or less of water per minute—compared to 3 or 4 with conventional extractors—when extracting carpets. Additionally, these machines have advanced, multistage vacuum systems that more effectively remove moisture from carpets after extraction. This helps prevent the possible growth of mold or mildew. In fact, tests have shown that carpets can dry in less than an hour with some of these machines as compared to several hours or even days with more conventional extractors.

Floor Machines: And not to be forgotten are machines used to clean and polish floors, a top concern in many facilities. Studies by the Harvard University School of Public Health have found that all the benefits of installing an environmentally preferable floor covering can be eliminated the *very first time* the floor is cleaned using traditional floor care chemicals and cleaning equipment. This is because some of the chemicals used in floor care are the most harmful and powerful in the cleaning industry.

Additionally, the use of the floor cleaning equipment itself can have detrimental effects. When floors are buffed or polished, the machine is lightly “sanding” the very top layer of floor finish. This removes scuffs and soils and helps shine the floor, but it also releases dust, which can become airborne and potentially harmful to indoor air quality. More advanced, Greener floor machines have built-in vacuum systems with filters that help trap these contaminants.

Also, some newer floor machines, such as cylindrical machines, use less water and chemicals than older machines. Using less water and chemicals also helps protect the indoor environment.

Other Green Cleaning Tools and Products

Not only is janitorial equipment becoming Greener, many of the tools, supplies, and paper products cleaning professionals use in facilities are also environmentally preferable and play a significant role in Green cleaning.

For instance, paper products from some of the largest paper companies are now Green certified. These products are made from high, post-consumer recycled content, and have eliminated or minimized the use of many dyes and chemicals, especially those normally used in the bleaching process.

The same is true of Green hand soaps, recently introduced. Both the paper products and hand soaps:

- Perform as well or better than conventional hand cleaners
- Are biodegradable and have limited toxicity to aquatic life
- Are packaged in recyclable packaging, incorporating recycled content where possible
- Have eliminated ingredients known or considered likely to negatively impact health and the environment.

Finally, microfiber is becoming recognized as a Green cleaning tool. Why? Microfiber is absorbent. This makes it more effective at cleaning and removing soils and contaminants from surfaces. Additionally, microfiber works effectively with minimal amounts of water and chemical. One of the goals of Green cleaning is to not only use

environmentally preferable cleaning products, but if possible, use just enough chemical—Green or not—to perform a cleaning task satisfactorily.

What Should One Expect Once A Building Turns Green?

Developing a Green cleaning system gets everyone in a facility actively involved in making the building a healthier place to work, learn, live, and use. This creates a productive working dialogue and interaction among building owners, managers, tenants, and maintenance personnel—often for the first time. All parties are on the “same page” with the same objectives in mind as they move away from making cleaning and maintenance decisions based solely on price or expediency, to making decisions that are in the healthiest and best interests of the facility and its occupants.

Potential other benefits once a building turns Green:

- The building often becomes a cleaner facility because custodial workers are trained and re-trained on the most efficient cleaning methods.
- Cleaning workers become much more responsive to the needs and health of the facilities they clean.
- Worker productivity is improved.
- Student retention and performance are enhanced.
- Building safety is improved.
- Building occupants develop greater respect for the cleaning professionals who maintain their facilities.
- Cleaning professionals have greater respect for their jobs, realizing they clean not just for appearance, but also for the health of those using the facility.
- New marketing opportunities emerge for janitorial product manufacturers and distributors, as well as for contract cleaning firms.
- Building occupants develop a greater understanding and respect for how a building is cleaned and maintained, and what is occurring in the facility where they spend eight to ten hours of every business day.

Indoor Air Quality

In addition to these benefits, the use of environmentally preferable cleaning products helps protect indoor air quality (IAQ). Beginning with the energy crisis of the 1970's, buildings in the U.S. reduced the amount of energy necessary for heating and cooling by using more re-circulate air. Unfortunately, as this happened, often fresh-air was also reduced and contaminant levels soared. The result was sick building syndrome, an expression that emerged during this era.

There were many contributing factors to sick building syndrome, including the carpets, upholstery, and wall and flooring materials used in the construction of facilities. And it was soon discovered that cleaning chemicals, because of the VOCs (volatile organic compounds), gasses, and fumes they released, also contributed to the problem, marring IAQ. Since then, environmentally preferable cleaning chemicals have reduced VOCs

and other potentially harmful ingredients, minimizing their impact on the indoor environment.

In addition, other cleaning tools, equipment, and products, such as vacuum cleaners, floor machines, extractors, and matting systems—which we will discuss later—once contributed to, but now help alleviate sick building syndrome, which protects IAQ.

Additional Sources of Information

The Ashkin Group

<http://www.AshkinGroup.com/>

The Ashkin Group's website offers extensive resources relative to Green Cleaning and accesses information from a functional perspective such as how to implement Green Cleaning, as well as from an end-users perspective such as information for facility managers and architects.

Center for a New American Dream - Institutional Purchasing Program

<http://www.newdream.org/procure/>

The Center is a nonprofit that helps end-users select products and services with a reduced effect on the environment and human health. Their Responsible Purchasing Program catalogs green products from numerous programs around the country and includes Green Cleaning among the categories which follow.

Environmental Choice

<http://www.environmentalchoice.com>

Environmental Choice is a nonprofit that certifies green products in more than 300 categories, including those for cleaning.

EPA's Environmentally Preferable Purchasing Program

<http://www.epa.gov/oppt/epp>

Environmentally Preferable Purchasing (EPP) is a federal-wide program that encourages and assists Executive agencies in the purchasing of environmentally preferable products and services.

EPA's Indoor Environment Division

<http://www.epa.gov/iaq/>

EPA's Indoor Environment Division offers a number of outstanding resources and programs on indoor environments including Tools for Schools and programs on mold, building operations and more.

EPA's Office of Children's Health Protection

<http://yosemite.epa.gov/ochp/ochpweb.nsf/homepage>

EPA's Office of Children's Health Protection (OCHP) offers information to support and facilitates efforts to protect children's health from environmental threats.

Green Cleaning Network

www.greencleaningnetwork.org

The Green Cleaning Network is a nonprofit that facilitates the sharing of information among a wide spectrum of industries and stakeholders including end-users, cleaning professionals, policy makers, advocates, third-party certifiers, and more.

Green Cleaning University

<http://GreenCleaningUniversity.org>

Green Cleaning University is an online training program exclusively focused on providing education relative to green buildings and Green Cleaning. They also offer extensive resources in their library.

Green Seal

<http://www.greenseal.org/>

Green Seal provides environmental certification standards and have developed a number of “green” product and service standards specific to the cleaning industry.

Greenguard Environmental Institute

<http://www.greenguard.org/>

The Greenguard Environmental Institute is a nonprofit environmental standard setting organization that focuses on product emissions. They offer a unique program that tests both cleaning products and the process in which they are used simultaneously to get a more comprehensive view of emissions.

Healthy Schools Campaign

<http://www.healthyschoolscampaign.org>

The Healthy Schools Campaign is a nonprofit that advocates for healthy school environments. They have developed the *Quick & Easy Guide to Green Cleaning in Schools* which has been endorsed by most of the major school organizations.

Hospitals for a Healthy Environment

<http://www.h2e-online.org/>

Hospitals for a Healthy Environment (H2E) is creating a national movement for environmental sustainability in health care and has programs on implementing Green Cleaning and waste management.

INFORM - "Cleaning for Health" Report

<http://www.informinc.org/cleanforhealth.php>

INFORM is a nonprofit that has published a document titled “*Cleaning for Health*”. Although a little dated, their document provides extensive information on Green Cleaning.

International Sanitary Supply Association

<http://www.issa.com/greenprocure>

Among the many tools that ISSA has developed, they offer a comprehensive document identifying various state and local initiatives relative to Green Cleaning.

Scorecard - About the Chemicals

<http://www.scorecard.org/chemical-profiles/>

Scorecard is a project of Environmental Defense, which is a nonprofit environmental advocacy organization. The Scorecard provides detailed information on the health, safety and environmental impacts on thousands of chemical ingredients, including those used in cleaning products.

US Green Building Council

<http://www.usgbc.org>

The US Green Building Council is comprised of over 7,000 organizations and their LEED (Leadership in Energy and Environmental Design) Rating Systems for Existing Building Operations and Maintenance provides a “roadmap” to Green Cleaning.

White House Office of the Federal Environmental Executive

<http://ofee.gov/>

This office and website provides a wealth of information relative to federal environmental initiatives, including those relative to Green Cleaning. An excellent portal to federal government initiatives.