



The Business of Green Cleaning

Stephen Ashkin and David Holly

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ABOUT THE AUTHORS

Stephen Ashkin

Stephen Ashkin has been a leader in the green cleaning movement since long before it was even recognized as a movement. His efforts in pioneering many of the concepts that are now taken for granted has led to his being thought of as the "Father of Green Cleaning." Steve is President of The Ashkin Group, LLC and Executive Director of the Green Cleaning Network. He has been in the cleaning industry for over 25 years where he has held senior management positions in leading commercial and consumer product companies. Steve has been a leader in the effort to green the cleaning industry since 1990 and is a prolific writer, speaker, and advocate for greener, safer, healthier and more sustainable cleaning.

David Holly

David has been a part of the cleaning industry for over thirty years. He has worked in virtually every facet of the business. He was the Vice President of a regional facility services provider, Director of Sales and Marketing for S.C. Johnson Professional, and Director of Marketing for Multi-Clean. Currently, David is the President of Don't Panic Productions, Inc. - a new media company that produces multimedia sales, marketing and training materials for companies in the cleaning industry. As a member of The Ashkin Group, David works with manufacturers, distributors, facility services providers, as well as property owners and managers as they look for ways to green their cleaning operations. David is the co-author (with Ashkin) of Green Cleaning for Dummies, (Wiley, 2007) and the co-founder of Green Cleaning University. A frequent speaker at conferences in the United States and internationally, David devotes the majority of his time to Green Cleaning issues.

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The Business Of Green Cleaning

FORWARD

David J. Brady

Momentum is growing as more and more companies realize that a well-defined and focused sustainability strategy is beneficial to the bottom line. We have always known that sustainable practices are the right thing to do for the environment and for our communities—now we are also aware that they are good for business.

Research making this point is being continuously touted on Web sites and presentations with a rapidly growing frequency. Data is being collected and disseminated faster and more broadly than ever before. Employees are expecting that their employers act responsibly. Municipalities are applying more regulatory focus on design, construction and operations standards. Green is no longer just an adjective—but rather an adverb representing a course of action for individuals, entire enterprises and providers of products and services. The following pages are a product of the Knowledge Management Committee of the IFMA Foundation.

Research like this provides IFMA with great insight into what it can do as an organization to assist the facility management community. Today's facility manager needs to be able to clearly communicate the benefits and economic impact of sustainability and energy efficient practices. There is a dramatic need for each of us, and our companies, to care for our environment but it is just as important that we are able to convey how these initiatives can be beneficial to our company's financial success.

I would like to recognize the IFMA Foundation's efforts in undertaking the writing of this report and for re-emphasizing its commitment to both the future of facility management and green practices.

David J. Brady President and CEO, International Facility Management Association

FORWARD By Teena Shouse

Some people talk about it while others do something about it. What is the IT? It is Green Cleaning to support sustainability. Steve Ashkin and David Holly, the authors of this book, are "Doers".

What is unique is their approach to a very complex and often misunderstood subject. To really provide justice to an issue such as Green Cleaning, one must do homework: research products, processes, practices, and understand obstacles to overcome. That, however, is only the beginning. Then, there is the issue of "selling" the concept. How does one inform and educate effectively the benefits of Green Cleaning? Does Green Cleaning fit within the overarching facility management mission? If not, how could it enhance such a mission if introduced effectively?

To add to the knowledge factor, it takes passion for the subject matter and clear desired outcomes of Green Cleaning. I hope that you will sense the passion from this new IFMA Foundation book. The authors, like many of us in the FM profession, work diligently to educate and inform. Why? Because our work supports the Triple Bottom-line.

Worldwide, individuals and the companies they support are reviewing processes like Green Cleaning from all three perspectives: environment, financial and people, the Triple Bottom-line. Green Cleaning is one great example of a sustainable practice that is good for all three. It can provide a healthier more efficient work environment, it can be cost effective and at the same time have a positive effect on the environment. It is a win-win-win for all.

As you read each page of this new book, to be a true Sustainable Doer ask yourself, "can I adopt a Triple Bottom-line approach to my cleaning strategy? If not, why?" Enjoy this book and I challenge you to do your part to contribute to our environment.

Teena Shouse CFM and former IFMA Chair Sr. FM Consultant Facility Engineering Associates, PC

FORWARD By Sheila Sheridan

The "triple bottom line" is a term that is used continuously within the sustainability community. With the IFMA Foundation's new book, the reader can navigate the green cleaning environment with a sense that the authors has paid in-depth attention to the details needed for an organization to travel the road to an all encompassing green cleaning program. **The Business of Green Cleaning** provides expert knowledge and experience which comes together in this realistic and timely "how to" book.

The reader can utilize this book to achieve success both for the sustainability movement and green cleaning program. The triple bottom line theme plays well in this book.

A Green cleaning program involves so involves more than the cleaning itself. If an organization is to profess to be practicing green cleaning, then numerous areas need to be addressed. This book delineates well the areas and knowledge needed to be successful so that the organization is a true practitioner of green cleaning. The products and materials are always what the consumer considers when there is a discussion about green cleaning. The reader may purchase and use green materials but these actions are only a third of the equation. This book discusses and shares with the reader how important this and two other areas are to the organization's commitment to the term "green cleaning". An organization must establish processes, procedures and be able to document the green cleaning benefits not just to the organization but to the building occupants and to cleaning personnel.

This book will age gracefully because all the information is there to establish, develop and maintain a green cleaning program over the years. I suggest to the practitioner that he/she keep this book as a knowledge tool.

Sheila Sheridan

IFMA Fellow, CFM and former IFMA Chair LEED AP, LEED Faculty, USGBC EPP Reviewer Sheridan Associates

ACKNOWLEDGEMENT

'Expand knowledge of the built environment, in a changing world, through scholarships, education and research

The Vision Statement of the IFMA Foundation

The IFMA Foundation is pleased to announce "The Business of Green Cleaning." This remarkable publication materialized as a direct result of a need expressed by you, the Leaders in the built environment, combined with the drive and passion of a small group of dedicated persons.

In late 2007, The Foundation surveyed over 20,000 individuals in facility and property management for their input on vital research topics. The number one response was the demand for a comprehensive publication on green cleaning - a document that could educate and facilitate the implementation and management of healthy, performance cleaning programs in the workplace.

The IFMA Foundation responded to this challenge for such a document and formed a subject matter expert (SME) team which included:

- Michael Arny, Founder, The Leonardo Academy
- Stuart Carron, Director of Facilities, Johnson Diversy, Inc.
- Katie Sakach, General Manager, Transwestern
- Alan Skodowski, Senior Vice President Director of LEED & Sustainability, TransWestern
- Dan Wagner, Director of CIMS, International Sanitary Supply Association

The SME team developed an RFP for the publication, selected the authors and provided guidance and direction throughout the entire development of this book. Their input was invaluable. The result of the efforts of the SME was "The Business of Green Cleaning," authored by Steve Ashkin and David Holly - the most comprehensive guide to green cleaning for the built environment available today.

Upon completion of "The Business of Green Cleaning," the SME team realized that this publication will serve as "the foundation" for further research as well as the platform for the discovery of emerging technologies and trends in cleaning operations. The road for further updates and sharing of information has been paved for the continuing journey towards a sustainable clean and healthy workplace.

"The road of life twists and turns and no two directions are ever the same. Yet our lessons come from the journey, not the destination."

Don Williams, American Novelist and Poet

Respectfully,

Jennifer A. Corbett-Shramo, IFMA Fellow Champion of the Business of Green Cleaning SME Team IFMA Foundation Trustee



Green Cleaning is a journey. For a facility manager, this may be a journey from awareness of the issues and opportunities through investigation, the various stages of implementation to stewardship and creating a foundation for the sustainability of an organization. For an organization, the journey is similar, developing an organizational awareness, internal and external communication systems, implementing new processes and again moving toward the goal of sustainability.

The manufacturers and distributors of the products, equipment, paper, plastic, and other supplies used to maintain facilities are engaged in the journey as well. Not many years ago, only a handful of manufacturers offered a selection of green products. Likewise, distributors were reluctant to "lead" with green products in a sales meeting. Today the landscape is entirely different. Every major manufacturer has a green line. In the most recent (2008) ISSA / Interclean Trade Show it would have been far easier to count those exhibitors NOT talking green than those who were. Almost every exhibit either offered green products or programs or in some way demonstrated the commitment of the company involved to green.

The writing of this book has been a green journey as well. It began with the awareness of the need, identified by the IFMA Foundation, for a book that discussed the business of Green Cleaning for property and facility managers. The authors conducted a great deal of research to provide the most recent, useful information possible for an international audience. Emails, telephone conversations, and other solicitations for information, along with internet and library research were employed to gather information. One of the most intense Green Cleaning surveys was conducted to understand what the buyers of Green Cleaning products and services felt about the costs of those products and services.

Like any journey, this book is an on-going, living document. It represents the first effort to bring an international view of the business of Green Cleaning to property managers across the globe in this type of format. While very good information is presented here, there are clearly opportunities to expand the scope of the reporting on Green Cleaning progress around the world.

One excellent result of the publication of this book would be to encourage facility managers, service providers, manufacturers and everyone else engaged in the Green Cleaning journey around the world to open up even more lines of communication, sharing experiences and suggestions for improvement. Future editions or revisions to this book will benefit from and expand upon that communication and hopefully continue to drive the Green Cleaning and sustainability messages even further.

The authors are especially grateful for the response to the request for case studies. In a book like this, it is normal to find two or three case studies in the Appendix. This book features twenty-one case studies, requiring a section of the book devoted to them alone. Facility managers reading this book will hear from experts and, even more importantly, from their peers. Many of these case studies are from property or facility managers sharing their experiences with the reader. There are three major sections of this book:

- The body of the book, comprising fourteen chapters with a "conclusion" that looks ahead to what is coming next in Green Cleaning. This part of the book may be read from Chapter 1 through 14 or the reader may skip from part to part seeking specific information.
- The next section is the collection of Appendixes. These offer specific information, more detail, templates and examples designed to assist a facility manager in designing, implementing or managing a Green Cleaning program. This section will likely be referred to on an on-going basis.
- 3. Finally, the third section is the collection of case studies referred to earlier. These studies offer examples of how a specific issue was handled, provides real examples of costs and other considerations in developing a Green Cleaning program as well as a wealth of advice for the facility manager embarking on the green journey. Like the Appendixes, the case studies will likely be referred to by the reader many times.

The materials presented in all three sections were selected specifically to be actionable, doable and readily available to facility managers. While not minimizing any of the important, hard work necessary to design and implement an effective Green Cleaning program, the tools and resources presented here were chosen to make the process as easy as possible to accomplish.

Green Cleaning is a journey. Phenomenal progress has been made in the past few decades. The responsibility, for a large part of that progress, is due to the efforts of facility managers. They are the consumers of the products and services offered by the cleaning industry. By recognizing the impact that cleaning has on occupant health and productivity, as well as realizing the impact buildings have on the environment, property managers have created the demand for Green Cleaning products and services.

As far as the journey has come already – there is more to be accomplished. It is our wish that this book will contribute to moving Green Cleaning even farther in its journey. Together, as an industry, we can change the world.

The Business Of Green Cleaning

1 OVERVIEW OF GREEN CLEANING

CHAPTER ONE

Green Definitions and Sustainability

In 1993, U.S. Presidential Executive Order 12873 (reauthorized in 1998 as Executive Order 13101) focused the purchasing power of the U.S. federal government on "environmentally preferable" products. This executive order contains an important definition for *environmentally preferable*, which is used interchangeably with green: "reducing the health and environmental impacts compared to similar products and services used for the same purpose." ¹

Based on this definition, Green Cleaning in its most simple form can be defined as *cleaning to protect health without harming the environment.*²

This definition characterizes green as simultaneously addressing both environmental and health impacts. This is particularly important because cleaning is labor intensive; thus, there is a need to reduce harmful exposures to both cleaning workers and building occupants, in addition to reducing environmental impacts.

The definition further characterizes green as a comparison. It does not suggest that traditional cleaning products are inherently bad for health or the environment. Rather, the definition aligns with the process of continual improvement where the emphasis of the improvement is health and the

environment, rather than a more traditional selection criterion, which placed performance and cost as the highest priorities.

The definition goes on to state that the "comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service." While this clearly points to the entire life cycle of the products, it also recognizes that the improvements can be during the operation and maintenance or use stage of the products or service.

As stated previously, the potential benefits of a Green Cleaning program can be negated if the product is used incorrectly. Incorrect use can actually result in increased health and environmental problems. Furthermore, life cycle assessments of cleaning products typically indicate that the use stage of cleaning products can represent more than 50 percent of the total impacts.

This recognition has led to a further refining of the definition. Green cleaning has evolved beyond just a specific product or service and is best thought of as a concept similar to "total quality management and continuous improvement" that, in this case, focuses on the entire effort to maintain a healthy, safe, and attractive building while minimizing harmful impacts on building occupants, cleaning people, and the environment. It encompasses many concepts such as continual improvement, stewardship, and other issues beyond just those associated with effective cleaning, protecting health, and the environment.

¹¹ Executive Order 13101 can be found at http://www.epa.gov/epp/pubs/13101.pdf

2 Green Cleaning for Dummies - Stephen Ashkin and David Holly - Wiley Publishing Company 2007

Operationally, Green Cleaning is tied closely to the concept of sustainability and the triple bottom line. The concept of sustainability is derived from the United Nations, who in 1987 published the report of the Brundtland Commission.³ Our Common Future, which defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."⁴

The cleaning industry is certainly not the primary culprit responsible for major global environmental problems such as climate change, air and water pollution or natural resource degradation. However, due to the sheer size of the industry, its impacts are nonetheless significant. And thus both the suppliers of cleaning products and services and those who purchase those products and services can make an important contribution to addressing these issues.

For example in the United States, the commercial, industrial, and institutional cleaning industry (nonresidential) is comprised of approximately one hundred thousand companies, many of which have multiple buildings and numerous trucks, cars, and other delivery and service vehicles, all of which consume energy and fuels which contribute to environmental impacts. The industry itself manufactures and consumes approximately 6.2 billion pounds of chemicals, most of which are made from valuable but limited and nonrenewable natural resources and some of which can be harmful to both human health and the environment during the extraction of raw materials, manufacturing, use, and disposal.

The cleaning industry consumes approximately 4.5 billion pounds of janitorial paper products, including hand towels, toilet and facial tissue, and cleaning wipes. Most of these products are made from virgin tree fiber, which requires the annual cutting of approximately thirty million trees. It is important to recognize that most trees are cut down for other uses, such as for construction materials and furniture, and that the fiber typically used for janitorial paper often comes from sawdust and other waste products. But nonetheless, the manufacturing of these products, their bleaching, and disposal have large environmental impacts and offer many important opportunities for improvement.

The cleaning industry consumes and disposes of approximately 1 billion pounds of janitorial tools, supplies, and equipment, filling approximately forty thousand garbage truck loads heading to landfills. But it contributes further environmental impacts from the extraction of raw materials, manufacturing, and transportation of the products used to replace those that were disposed so that the cleaning process can be continued.

Our industry employs approximately 4.2 million cleaning personnel at any given time and affects many more due to the high level of turnover in some industry sectors. These workers may have long-term, exposure to cleaning and maintenance chemicals, some of which are known to cause both acute and chronic health problems such as eye and skin burns, respiratory irritation, trigger asthma, reproductive and developmental problems, and more. Plus janitorial workers use equipment such as vacuum cleaners and mopping systems, and lift and move heavy objects, all of which can cause musculoskeletal problems, such as back injuries.

And finally, the U.S. commercial, industrial, and institutional cleaning industry (nonresidential) is huge in economic terms. While U.S. government places the size of the industry at approximately \$180 billion per year, some believe that this figure significantly understates the real value, as many buildings are cleaned by workers not classified as

³³ More information on the Brundtland Commission and Our Common Future can be found at http://www.un-documents.net/wced-ocf.htm 4 World Commission on Environment and Development (WCED), Our Common Future. (New York: Oxford, 1987) cleaning personnel—employees working in factories or even in schools, for example. Conceivably, this could increase the true economic value of cleaning to upwards of \$500 billion.⁵ And irrespective of the overall impacts on the U.S. gross national product, cleaning represents a significant expense for facility managers and typically averages \$1.30 per square foot for a Class A commercial building and upwards of \$2.25 per square foot in some major metropolitan areas.⁶

The previous example is specific to institutional, industrial, and commercial cleaning in the United States, and while the cost for cleaning may vary around the globe, it is nonetheless an important driver for any facility. Furthermore, the impacts on people and the environment are significant regardless of where the facility is located.

As a result, Green Cleaning has direct ties to sustainability, especially when using the concept of the Triple Bottom Line.⁷ The phrase, coined in the United Kingdom by John Elkington in 1994, suggests that organizations cannot solely focus on profits but must also consider impacts on people and the planet. Often a three-legged stool is used to illustrate the concept because it demonstrates that all three legs must be strong and that none is more important that the others. The triple bottom line and sustainability are powerful reminders of the important ways in which the cleaning industry impacts an organization, its finances, its workers, and the environment.

⁵ Estimation from The Ashkin Group. For more information go to http://www.ashkingroup.com

⁶ Cleaning Makes Cents. Benchmarks for Managing your Cleaning Operations. BOMA International, 1996 can be found at http://www.boma.org/ 7 More information on the Triple Bottom Line can be found at http://www.johnelkington.com/TBL-elkington-chapter.pdf

CHAPTER TWO Green Terms, Organizations and Standards

🔽 ESSENTIAL GREEN TERMS

Bio-Based Product. Most ingredients used in traditional cleaning products are made from fossil fuels, which are valuable but limited, and nonrenewable natural resources. Alternatively, bio-based products offer important new options because they are composed in whole or in significant part of biological products or renewable agricultural materials, which means they can continually be produced without diminishing supply.8

Biodegradability. Capable of decomposing under natural conditions.⁹ More preferable products biodegrade rapidly as compared to similar products that biodegrade more slowly which often increases the potential for it to cause harm to health or the environment.

Bleaching Process. While some janitorial paper products are unbleached, most products use a variety of bleaching processes to whiten the final paper. Some bleaching processes use elemental chlorine. This process produces Dioxin a known carcinogen which is persistent in the environment meaning that it doesn't go away. The use of chlorine dioxide which is also know as elemental chlorine-free (ECF) reduces the amount of Dioxin by approximately 90 percent and is thus preferable compared to the use of elemental chlorine bleaching. The use of hydrogen peroxide and other compounds known as totally chlorine-free (TCF) bleaching can further reduce the amount of Dioxin and would be preferable compared to other bleaching processes.¹⁰

Certification. The process by which a third party, typically a nonprofit, evaluates a product according to a specific standard to "certify" that the product meets the stated requirements. Certification makes it easier for both manufacturers and purchasers to address complicated health, safety, environmental, and performance criteria and has become an important tool used to accelerate the adoption of Green Cleaning.11

Chemical Minimization. Chemicals are often a necessary and valuable part of an effective cleaning program, however it is essential to ensure that they are used in only the minimum amounts required to complete the task at hand. Chemicals used inefficiently enter the natural environment and can have unpredictable and negative effects both on ecosystems and human health. Thus it is preferable to select powered janitorial equipment which minimizes or eliminates the use of cleaning chemicals compared to similar equipment that can be used for the same purpose.¹²

Corporate Social Responsibility. A concept whereby organizations consider the interests of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders, as well as the environment.¹³

Dyes. Ingredients whose sole purpose is to affect the color and does not contribute to the cleaning efficacy of the product itself. However dyes can be valuable from a safety perspective to reduce potential product misuse by cleaning personnel who use color to differentiate between products. Some dyes are made from heavy metals such as cobalt and can cause health and environmental impacts when they enter the environment after the disposal of the product. More preferable dyes typically do not contain heavy metals and other components that may affect

⁸ http://www.ofee.gov/gp/bioprod.asp

⁹ http://www.epa.gov/OCEPAterms/bterms.html
¹⁰ The Ashkin Group, LLC.

¹¹ Ibid ¹² Ibid 13 http://en.wikipedia.org/wiki/Corporate_Social_Responsibility health and the environment compared to less preferable alternatives that contain more harmful components.¹⁴

Employee Notification. Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. The employer may utilize information developed for the hazard communication standard for this purpose.¹⁵

Environmentally Preferable Purchasing (EPP).

The term 'environmentally preferable purchasing' was codified by the US EPA in 1993 to formally initiate the EPA's work on developing standards and processes to identify 'environmentally preferable' products for targeted purchasing by the federal government. Environmentally preferable purchasing (EPP) recognizes the power of purchasers and the use of the marketplace to drive environmental and health improvements.¹⁶

Ergonomics. Ergonomics is the science of designing the job, equipment, and workplace to fit the worker. Proper ergonomic design is necessary to prevent repetitive strain injuries, which can develop over time and can lead to long-term disability.¹⁷ Equipment that is of the appropriate design, weight and fit is preferable to prevent injuries to cleaning personnel compared to similar equipment that may not be as appropriate. For example a vacuum cleaner that is properly balanced and easier to push will reduce the likelihood of back and other musculoskeletal injuries compared to one that is not balanced and is difficult to push.

Extended Product Responsibility. An emerging

principle for a new generation of pollution

¹⁴ The Ashkin Group, LLC

¹⁵ 29 CFR 1910.120(c)(8) http://www.osha.gov/pls/oshaweb/owadisp.

show_document?p_table=STANDARDS&p_id=9765 ¹⁶ http://www.epa.gov/epp/pubs/about/about.htm prevention policies that focus on product systems instead of production facilities. It relies for its implementation on life-cycle analysis to identify opportunities to prevent pollution and reduce resource and energy use in each stage of the product chain through changes in product design and process technology. All actors along the product chain share responsibility for the lifecycle environmental impacts of products, from the upstream impacts inherent in selection of materials and impacts from the manufacturing process itself to downstream impacts from the use and disposal of the products.¹⁸

Flashpoint. The lowest temperature at which evaporation of a substance produces sufficient vapor to form an ignitable mixture with air.¹⁹ More preferable products have a higher flashpoint compared to those with low flashpoints which increase the risk of flammability during storage, use and disposal.

Fragrances. Ingredients whose sole purpose is to affect the odor or smell of a product and does not contribute to the cleaning efficacy of the product itself. However fragrances can be valuable to mask the malodor of some basic ingredients without which may result in occupant complaints and the use of additional products to eliminate the perception of the lack of cleanliness actually due the malodor of the cleaning product itself. Some fragrances are made from hundreds of individual compounds that are typically high in VOCs and when inhaled can cause a variety of health problems such as dizziness, nausea, and trigger asthma especially among vulnerable and sensitive populations. Furthermore, some cleaning products contain higher concentrations of fragrances compared to others. More preferable products contain fragrances that minimize impacts on health and the environment either based on the formulation of the fragrance or due to the use of

¹⁷ http://en.wikipedia.org/wiki/Ergonomics

¹⁸ http://eercut.utk.edu/clean/xframes-EPR.html

¹⁹ http://www.epa.gov/OCEPAterms/fterms.html

lower concentrations (enough to simply mask the malodor of the basic ingredients) in the cleaning product compare to other products used for the same purpose.²⁰

Green. A term that is used interchangeably with "environmentally preferable." The definition comes from Presidential Executive Order 13101²¹, which defines it as "products or services that reduce the health and environmental impacts compared to similar products and services used for the same purpose."

Green Cleaning. Based on the definition of green, Green Cleaning is defined as cleaning that protects health without harming the environment. It is also important to recognize that Green Cleaning includes all products used in the cleaning process, including preventative methods such as entrance mats. Green cleaning also includes the appropriate procedures and staffing levels with an overall goal of creating healthy, high-performing buildings with minimal impacts on the environment.²²

Greenwashing. A term that describes green advertising, labeling, and other sales or promotional activities that use misleading, vague, irrelevant or unsubstantiated environmental claims to sell a product or service.²³ Greenwashing is a serious problem because it confuses consumers and creates a serious disadvantage for companies and products trying to do the right thing.

Health. Defined by the first World Health Organization as the complete state of physical, mental and social well-being and not merely the absence of disease or infirmity. Therefore, health may be regarded as a balance of physical, mental, and social aspects of life in a being.²⁴

Ingredient Choices. Chemical cleaning and maintenance products are typically made from a

- ²¹ http://www.ofee.gov/eo/13101.asp
- ²² Green Cleaning for Dummies (ISSA Special Edition), Stephen Ashkin and David Holly, 2007
- ²³ http://www.terrachoice.com/Home/Six%20Sins%20of%20 Greenwashing/The%20Six%20Sins

combination of individual ingredients. For each category of chemical cleaning and maintenance products some ingredients have been identified to be more preferable compared to other ingredients used for the same purpose based on a variety of factors including impacts during the extraction of raw materials, manufacturing, and the short-and long-term impacts on both health and the environment during the ultimate usage of the product or its disposal after use.²⁵

Integrated Pest Management (IPM). An

effective and environmentally sensitive approach to pest management that relies on a combination of commonsense practices. "IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment." IPM includes regular monitoring to detect problems early; acting against pests only when necessary; choosing the most effective option with the least risk to people and the environment; and applying biological knowledge about pests to create long-term solutions.²⁶

Life Cycle. The comprehensive examination of a product's environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use, and disposal.²⁷

Living Wage. The minimum hourly wage necessary for a person to achieve some specific standard of living. In developed countries this standard generally means that a person working forty hours a week, with no additional income, should be able to afford a specified quality or quantity of housing, food, utilities, transport, health care, and recreation. In the US information on the hour wage necessary to meet the living wage in various parts of the country can be found at Economic Policy Institute.²⁹

²⁶ http://www.epa.gov/opp00001/factsheets/ipm.htm

²⁰ The Ashkin Group, LLC

²⁴ http://www.who.int/about/definition/en/print.html

²⁵ The Ashkin Group, LLC

²⁷ http://www.epa.gov/OCEPAterms/Iterms.html

²⁸ http://en.wikipedia.org/wiki/Living_wage

²⁹ More info on the Economic Policy Institute and their Living Wage calculator can be found at http://www.epi.org/budget_form.cfm?CFID= 2801655&CFTOKEN=18240785

Material Safety Data Sheet (MSDS). Material Safety Data Sheets are concise summary documents intended to provide workers and emergency personnel with the critical information necessary for the handling, working with, or treatment of exposure to, particular substances or products. MSDS's present standardized information such as physical data (melting point, boiling point, flash point etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and procedures for leaks or spills.³⁰

Minimum Wage. The lowest hourly, daily, or monthly wage that employers may legally pay to employees or workers. Equivalently, it is the lowest wage at which workers may sell their labor. Minimum wage laws are now enforced in more than 90% of all countries.³¹

Noise. Minimizing the exposure of occupants and cleaning personnel to noise is an important consideration. Noise can be damaging to health and create unnecessary stress. Thus it is preferable to use equipment that is quieter (less noisy) especially if used when the facility is occupied compared to similar equipment that is noisier.³²

pH. An expression of the intensity of the basic or acid condition of a liquid; may range from 0 to 14, where 0 is the most acid and 7 is neutral. Natural waters usually have a pH between 6.5 and 8.5.³³ More preferable products are closer to a neutral pH of 7, while products at either extreme closer to 0 or 14 are less preferable as extreme pHs typically result in a greater risk for the product to be corrosive and irritate or burn eyes and skin.

Pollution Prevention. Practices that reduce or eliminate the creation of pollutants through either increased efficiency in the use of raw materials, energy, water, or other resources or protection of natural resources by conservation.³⁴ It is preferable

³³ http://www.epa.gov/OCEPAterms/pterms.html

to prevent pollution from happening as opposed to solving the problem once it has been created.

Post-Consumer. This is a special designation to identified recycled content that was recovered after the material served its intended use as a consumer item. This designation was established to encourage household curbside collection and recycling and the higher amount of post-consumer recycled content is preferable compared to lower percentages.³⁵

Product Stewardship (otherwise known as Extended Product Responsibility). A principle that directs all actors in the life cycle of a product to minimize the impacts of that product on the environment. Product stewardship means that all parties who have a role in designing, producing, selling, or using of a product assume responsibility for the environmental impacts of that product throughout its life. What is unique about product stewardship is its emphasis on the entire product system in achieving sustainable development.³⁶

Renewable Resource. A natural resource qualifies as a renewable resource if it is replenished by natural processes at a rate comparable or faster than its rate of consumption by humans or other users.³⁷ While using renewable resources is often preferable when compared to using nonrenewable resources, some renewable resources can be replenished faster than others.

Recycling. The series of activities, including collection, separation, and processing, by which materials are recovered from the waste stream for use as raw materials in the manufacture of new products.³⁸

Resource Efficiency. Energy and water consumption are perhaps the most critical environmental priority of our time. Even small equipment items can consume large volumes of

³⁶ http://www.epa.gov/epawaste/partnerships/stewardship/basic.htm
³⁷ http://en.wikipedia.org/wiki/Renewable_resource

³⁰ http://www.osha.gov/SLTC/hazardcommunications/index.html

³¹http://en.wikipedia.org/wiki/Minimum_wage

³² The Ashkin Group, LLC

³⁴ http://www.ofee.gov/eo/13101.asp

³⁵The Ashkin Group, LLC

³⁸http://www.epa.gov/OCEPAterms/rterms.html

energy and water when used regularly. Thus it is preferable to use powered equipment that reduce the use of resources such as energy and water compared to similar equipment that use more resources.³⁹

Self-Certification. The process where a manufacturer relies only on its own testing to claim that its product is green. To avoid greenwashing, manufacturers should be able to provide test data to substantiate their claims.⁴⁰

Sustainable Forest Management. The management of forests according to the principles of sustainable development. Sustainable forest management uses very broad social, economic and environmental goals.⁴¹ One of the primary environmental goals is to eliminate clear cutting and to insure that logging is conducted in a manner that protects the long-term health of the forest ecosystem. Products derived from sustainably managed forests are preferable compared to those that are not.

Sustainability. A term that became a foundational part of the green movement in 1987 when it appeared in the publication of the World Commission on Environment and Development report, Our Common Future. Also known as the Brundtland Report, this document defined "sustainable development" as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."⁴²

Total Recycled Content. The total amount of material (fiber) that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (preconsumer), or after consumer use (post-consumer). Using paper products with a high total amount of recycled content is preferable because it can reduce impacts on forest ecosystems compared to the use of virgin tree fiber which requires more tree cutting which can negatively impact forest ecosystems. Furthermore, manufacturing impacts on the environment are less when using recycled fibers compared to those using virgin tree fibers.⁴³

Triple Bottom Line. A phrase coined by John Elkington in 1994 that suggests that organizations cannot solely focus on profits but must also consider impacts on people and the planet. Often a three-legged stool is used to illustrate the concept because it demonstrates that all three legs must be strong and that none is more important that the others.⁴⁴

Volatile Organic Compounds (VOCs).

Any organic compound such as solvents that participates in atmospheric photochemical reactions.⁴⁵ More preferable products have lower levels of VOCs, while higher VOCs increase the potential for the products to cause dizziness, respiratory irritation, trigger asthma and other health related issues, and cause atmospheric reactions such as smog when it evaporates during or after product use.

³⁹The Ashkin Group, LLC

⁴⁰ Ibid

- ⁴¹ http://en.wikipedia.org/wiki/Sustainable_forest_management
- ⁴² WCED, Our Common Future.
- ⁴³ The Ashkin Group, LLC

⁴⁴Elkington, J. (1994) "Towards the sustainable corporation: Win-win-win business strategies for sustainable development." California Management Review

⁴⁵ http://www.epa.gov/OCEPAterms/vterms.html

CHAPTER THREE

ESSENTIAL GREEN ORGANIZATIONS AND STANDARDS

American National Standards Institute (ANSI)).

A private, nonprofit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States. ANSI also accredits organizations that carry out product or personnel certification in accordance with requirements defined in international standards. For more information go to http://www.ansi.org/

Apollo Alliance. A coalition of business, labor, environmental, and community leaders working to catalyze a clean energy revolution in America, cut the carbon emissions that are destabilizing our climate, and expand opportunities for American businesses and workers. The Apollo Alliance promotes policies and initiatives to speed investment in clean energy technology and energy efficiency, put millions of Americans to work in a new generation of well-paid, green collar jobs. For more information go to http://apolloalliance.org/

APPA (formerly the Association of Physical

Plant Administrators). A professional organization focused on the operations, maintenance and quality of educational facilities. APPA represents over 1,500 institutions including facilities professionals from colleges and universities; medical and law schools; K-12 schools and districts; museums and parks; military installations; and government. APPA provides a variety of educational tools, guidance documents, and manuals intended to maximize the effectiveness of educational facilities as supportive learning environments. For more information go to http://www.appa.org/

ASTM (formerly the American Society for

Testing and Materials). The largest and oldest standard setting organization in the United States, formed in 1898. Using a consensus process,

ASTM supports thousands of volunteer technical committees, which draw their members from around the world and collectively develop and maintain more than twelve thousand standards. For more information go to http://www.astm.org/

ASTM E1971. An abbreviation for the Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings, which covers a procedure to assist owners and operators of commercial and institutional buildings in the stewardship of cleaning and housekeeping operations. The focus of this guide is to address appropriate cleaning activities and processes, to promote eco-efficiency and sustainability, and to avoid adverse impacts on the building occupants, cleaning personnel, the building structure itself, and the environment. Adherence to the principles set forth in this guide can lead to greater tenant/ occupant satisfaction, reduced operational costs and greater productivity (of occupants and cleaning personnel). For more information go to http://www. astm.org/database.cart/historical/e1971-98.htm

Carpet & Rug Institute (CRI). The Carpet and Rug Institute is a nonprofit trade association representing the manufacturers of carpets, carpet suppliers, and carpet service providers. The CRI provides technical information, education, and public relations for the industry, as well as hosting the Green Label and Green Label Plus programs, which test carpet, cushion and carpet adhesives for chemical emission levels and impacts on indoor air quality. For more information go to http://www. carpet-rug.org/

Center for Clean Products and Clean

Technologies. Housed at the University of Tennessee, Knoxville, the Center has a mission to develop, evaluate, and promote cleaner products and cleaner technologies that minimize pollution at the source and contribute to long-term sustainable development. The Center has led the technical development of a number of important product certification standards in the North American cleaning industry. For more information go to http:// eerc.ra.utk.edu/ccpct/index.html

Cleaning Industry Management Standard

(CIMS). A management standard developed by the International Sanitary Supply Association (ISSA). CIMS sets forth a management framework designed to assist building service contractors and in-house service providers develop quality, customer-centered organizations and is based on universally accepted principles that have proven to be the hallmarks of well-managed, successful cleaning operations. For more information go to issa.com/standard

Environmental Choice "EcoLogo". EcoLogo was launched by the Canadian federal government in 1988. It develops environmental standards and certifies products in more than 120 categories. EcoLogo certifications exist for a large number of chemical cleaning products including hand cleaners and hand soaps (CCD-104), cleaning and degreasing compounds (CCD-110), hard surface cleaners (CCD-146), hard floor care (CCD-147), and carpet and upholstery care (CCD-148), as well as for janitorial paper products including toilet tissue (CCD-082) and hand towels (CCD-086). For more information go to http://www.ecologo.org

Global Ecolabeling Network (GEN). A

nonprofit association of thirdparty, environmental performance labeling organizations founded in 1994 to improve, promote, and develop the "ecolabeling" of products and services. Currently there are twenty-five members representing the following countries: Australia, Brazil, Canada, Croatia, Czech Republic, the European Union, Germany, Hong Kong, India, Indonesia, Japan, Korea, New Zealand, Nordic 5 Countries, Philippines, Russia, Singapore, Sweden, Taiwan, Thailand, Ukraine, the United Kingdom, and the United States. For more information go to http://globalecolabelling.net

Green Seal. An independent nonprofit organization that provides science-based environmental

certification standards. Green Seal works with manufacturers, industry sectors, purchasing groups, and governments at all levels to "green" the production and purchasing chain. Green Seal (GS) provides standards for cleaning products including chemicals (GS-37), floor finishes and strippers (GS-40), hand soaps (GS-41), janitorial paper products (GS-01 & GS-09), as well as for cleaning services (GS-42). For more information go to http://www. greenseal.org

Green Cleaning Network. The Green Cleaning Network is an information clearinghouse and communication hub intended to support the adoption of Green Cleaning practices for the benefit of human health and the environment. The GCN seeks to facilitate linkages between organizations, companies, and customers interested in Green Cleaning and to educate both providers and customers as to the benefits of Green Cleaning as well as technical and policy developments in the field. For more information go to http:// greencleaningnetwork.org

Green for All. A U.S. organization dedicated to building an inclusive green economy strong enough to lift people out of poverty. By advocating for local, state and federal commitment to job creation, job training, and entrepreneurial opportunities in the emerging green economy – especially for people from disadvantaged communities – Green for All fights poverty and pollution at the same time. For more information go to http://www.greenforall.org

Greenguard Environmental Institute (GEI).

GEI is an independent non-profit organization establishing acceptable indoor air standards for indoor products, environments, and buildings. The Greenguard program provides third-party certification for a wide variety of building, cleaning, and furnishing products, based on the chemical and particle emissions released by those products. Certified products include cleaning products, paints and finishes, construction materials, and a number of furniture and furnishings. For more information go to http://www.greenguard. org/

International Facility Management

Association (IFMA). The world's largest and most widely recognized international association for professional facility managers, supporting more than nineteen thousand members in sixty countries. The association's members, represented in one hundred twenty-five chapters and fifteen councils worldwide, manage more than thirty-seven billion square feet of property and annually purchase more than one hundred billion dollars in products and services. For more information go to http://www. ifma.org/

International Facility Management Association Foundation (IFMA Foundation).

A nonprofit corporation that is separate from IFMA and works to promote priority research and educational opportunities for the advancement of facility management. For more information go to http://www.ifmafoundation.org/

International Sanitary Supply Association

(ISSA). A global cleaning industry association whose members include more than five thousand five hundred distributor, manufacturer, building service contractor, and in-house service provider companies. ISSA offers the industry's largest cleaning shows around the world; a vast array of educational videos and resources; networking on local, national, and international levels; industry management standards; legislative and regulatory services; and industry news specifically focused on the world's cleaning community. For more information go to http://www.issa.com/

International Organization for Standardization

(ISO). A nongovernmental organization and the world's largest developer and publisher of international standards. It is a network of the national standards institutes of 157 countries with a central secretariat in Geneva, Switzerland, that coordinates the system. For more information go to

http://www.iso.org/iso/home.htm

ISO 9000. A family of standards for quality management systems maintained by ISO. Certification to an ISO 9000 standard does not guarantee the compliance (and therefore the quality) of end products and services; rather, it certifies that consistent business processes are being applied. For more information go to http://www.iso.org/iso/ management_standards.htm

ISO 14000. A family of standards for environmental management systems maintained by ISO. ISO 14000 is similar to ISO 9000 quality management in that both pertain to the process (the comprehensive outcome of how a product is produced) rather than to the product itself. The overall idea is to establish an organized approach to systematically reduce the impact of the environmental aspects that an organization can control. For more information go to http://www.iso.org/iso/management_standards.htm

Leadership in Energy and Environmental Design (LEED). LEED is a series of "rating systems" that define the standards for sustainable construction of new buildings, operations and maintenance, schools, interiors, and other aspects of buildings. LEED is a product of the U.S. Green Building Council. (Note: LEED is correctly pronounced "lead" singular as in "to lead a parade," rather than "leads" plural – a common mistake.) For more information go to http://www.usgbc.org/ DisplayPage.aspx?CMSPageID=222

Occupational Safety & Health Administration (OSHA). The U.S. Department of Labor established the OSHA in 1971 to ensure employee safety and health in the United States by working with employers and employees to create better working environments. For more information go to http:// www.osha.gov/

OSHA Hazardous Communication Plan (29 CFR 1910.122). Protection under OSHA's Hazard Communication Standard (HCS) includes all workers exposed to hazardous chemicals in all industrial sectors. This standard is based on a simple concept - that employees have both a need and a right to know the hazards and the identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring. For more information go to http://www.osha.gov/pls/oshaweb/owadisp. show_document?p_table=FACT_SHEETS&p_id=151

Registration, Evaluation, Authorization, and Restriction of Chemical Substances (REACH).

A new European Community Regulation on chemicals intended to improve the protection of human health and the environment, to give greater responsibility to industry to manage the risks from chemicals, and to provide safety information on the substances. The regulation also calls for the progressive substitution of the most dangerous chemicals when suitable alternatives have been identified. For more information go to http:// ec.europa.eu/environment/chemicals/reach/reach_ intro.htm

Service Employees International Union (SEIU).

A North American trades union representing 2 million working people Their focus is in three sectors where they are the largest property services union, with 225,000 members in the building cleaning and security industries, including janitors, door men and women. They also represent health care and public services workers. For more information go to http:// www.seiu.org/about/index.cfm

US Green Building Council (USGBC)

The U.S. Green Building Council is a non-profit organization focused on promoting and expanding sustainable building design, construction, and operations practices. The USGBC is composed of over 17,000 member organizations including private, public, and non-profit entities, representing the breadth of the design, construction, operations and maintenance community. In 2000, the USGBC released the Leadership in Energy and Environmental Design (LEED) rating system, a third-party certification program which is the leading benchmark for the design, construction and operation of sustainable buildings. For more information go to http://www.usgbc.org/

World Federation of Building Service

Contractors (WFBSC). A union of national and international cleaning service provider associations dedicated to achieving universal recognition for the building service contracting industry and to improving awareness of the industry, knowledge, and professional competence. Members of the Federation include Argentina, Australia, Belgium, Brazil, Canada, France, Germany, Japan, Korea, Netherlands, New Zealand, Taiwan, the United Kingdom, and the United States. For more information go to http://www.wfbsc.org/

World Green Building Council (WorldGBC).

The World Green Building Council is a 'union of national councils' aligning national not-for-profit organizations committed to promoting the design, construction, and operation of sustainable buildings around the world. Founded in 1999, the WorldGBC supports the development of sustainability rating systems, provides critical organizational and technical tools, and seeks to accelerate market transformation towards green design, building, and operations. The WGBC currently has 12 member councils and five additional 'emerging' councils. For more information go to http://www.worldgbc.org/

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CHAPTER THREE

Global Eco-labeling Systems and Standard Setting Organizations

It must also be stated that identifying all of the important health, safety, environmental, packaging, and other attributes along the entire life cycle of a cleaning product can be quite a daunting task. In many countries, there are government regulations and programs that identify greener products. Additionally, there are a number of not-for-profit ecolabeling organizations around the globe whose specific mission is to develop standards for greener products and often to certify products and services that are in compliance with their standards.

It is important to point out that these ecolabeling standards may not be "perfect," as the science behind these issues continues to evolve almost on a daily bases. But the true value of an ecolabeling program is that it makes purchasing greener products easier. In addition, both facilities and cleaning service providers can purchase with greater confidence because the standards used by the programs are clear and transparent, and they assure that a thorough review of what can be extremely complex testing data has occurred.

As of 2008, there were twenty-five members of the Global EcoLabeling Network (GEN)⁴⁶, which is a nonprofit association of the global third-party, environmental performance labeling organizations. GEN was founded in 1994 to improve, promote, and develop the "ecolabeling" of products and services.

- Serve its members, other ecolabeling programs, other stakeholders, and the public by improving, promoting and developing the ecolabeling of products, the credibility of ecolabeling programs worldwide, and the availability of information regarding ecolabeling standards from around the world;
- Foster co-operation, information exchange and harmonization among its members, associates, and other ecolabeling programs with regard to ecolabeling;
- Facilitate access to information regarding ecolabeling standards from around the world;
- Participate in certain international organizations in order to promote ecolabeling generally; and
- Encourage the demand for, and supply of, more environmentally responsible goods and services.

In support of this mission, GEN members:

- Set criteria for and certify products and services with lower environmental burdens and impacts than comparable products/services with the same function;
- Provide information, advice and technical assistance to organizations contemplating or developing programs;
- Disseminate information to the public; and
- Represent the interests of ecolabeling in various international meetings and events.

Typically, members of GEN will have multiple standards for a wide range of products such as cleaning chemicals, floor and carpet care products, paper hand towels, and toilet tissue. (See Appendix2)

The mission of the GEN is to:

⁴⁶For more information on the Global Ecolabelling Network go to http://globalecolabelling.net/

CHAPTER FOUR

"Roadmaps" to Green Cleaning

Even in those countries with ecolabeling programs, it may still require significant effort to identify which products, programs, and standards are most appropriate for a specific facility. In many countries there are green building programs and organizations that have standards and rating systems that can serve as valuable "roadmaps" to help identify appropriate standards and products specifications.

Among such organizations is the World Green Building Council⁴⁷, the umbrella organization for members of national green building councils. The organization's stated mission includes supporting effective green building rating systems and sharing best practices globally. In 2008, the World Green Building Council had twelve members and five additional "emerging" councils.

One leading member of the World Green Building Council is the United States Green Building Council (USGBC)⁴⁸, which has developed a series of rating systems called 'Leadership in Energy and Environmental Design' better known by its acronym LEED⁴⁹. The LEED rating systems are effectively 'report cards' that assist architects, builders, and facility managers in quantifying the sustainability performance of their buildings and spaces. The LEED rating systems include programs for the construction of new buildings, commercial interiors, schools, health care, homes, and more. The USGBC also has a rating system that addresses ongoing operations and maintenance called LEED for Existing Buildings: Operations & Maintenance (LEED: EBOM)⁵⁰, which provides a benchmark for building owners and operators to measure sustainability performance in operations, improvements, and maintenance.

Contained within the various requirements of LEED: EBOM are a specific set of requirements for cleaning chemicals, hand soaps and sanitizers, janitorial paper products, plastic trashcan liners, powered cleaning equipment, policies, training requirements, auditing strategies and more. In this fashion, LEED: EBOM can serve as a roadmap to identifying the various requirements a facility may adopt when implementing a Green Cleaning program.

Other U.S.-based roadmaps for Green Cleaning include:

The Quick & Easy Guide to Green Cleaning in Schools ⁵¹**.** Publisher: Healthy Schools Campaign. This book provides Green Cleaning recommendations specific to schools.

10 Step Guide to Green Cleaning

Implementation⁵²**.** Publisher: Practice Greenhealth. This guide provides Green Cleaning recommendations for hospitals.

Guidelines for Creating High-Performance Buildings⁵³. Publisher: Commonwealth of Pennsylvania's Department of General Services. In addition to information on landscaping, lighting, and other maintenance areas, this book provides guidelines on green cleaning.

GS-42 Environmental Standard for Cleaning

Services⁵⁴. Publisher: Green Seal. This publication establishes third-party recommended requirements for a Green Cleaning program.

As noted previously, ecolabeling programs are valuable because they facilitate the process of identifying and comparing cleaning products on the basis of sustainability considerations. In the same way, the Green Cleaning roadmaps described above are a collection of standards and recommendations which, when applied thoughtfully

⁵⁰For more information on LEED for Existing Buildings: Operations & Maintenance go to http://www.usgbc.org/DisplayPage.aspx?CMSPageID=221

⁴⁷For more information on the World Green Building Council go to http://www.worldgbc.org/

⁴⁸For more information on the U.S. Green Building Council go to http://www.worldgbc.org/

⁴⁹For more information on the LEED Rating System go to http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222

⁵¹For more information on the Quick & Easy Guide to Green Cleaning in Schools go to http://healthyschoolscampaign.org/campaign/green_clean_schools/ ⁵²For more information on the 10 Step Guide to Green Cleaning Implementation go to http://www.h2e-online.org/docs/h2e10stepgreenclean-r5.pdf

and strategically, can be used to make the development of a comprehensive Green Cleaning program easier. Because these roadmaps are often recognized by product and service suppliers, the use of their specifications often result in more costeffective products and services due to increased adoption, use, and competition in the marketplace.

Where existing ecolabels or standards do not fit with facility goals or priorities, managers may elect to supplement such programs with their own slate of sustainability considerations. In general, however, building owners, facility managers, purchasers, and others who are trying to identify appropriate products will find it easier to use these existing roadmaps than to develop unique standards in a wide array of product categories. The complexity of these products and their relative sustainability benefits does not readily lend itself to independent analysis for a wide range of performance criteria.

Finally, at the macro level, the use of recognized roadmaps provides an organization with a higher level of certainty that it is, at a minimum, addressing the fundamental issues relating to a Green Cleaning program. And at the micro level, the use of ecolabels, standards, and certification systems allows purchasers to buy with confidence.

⁵³For more information on the Pennsylvania Guidelines for Creating High-Performance Buildings go to http://www.dgs.state.pa.us/dgs/cwp/view.

⁵⁴ For more information on Green Seal's GS-42 Environmental Standard for Cleaning Services go to http://www.greenseal.org/certification/cleaning_ services_gs_42.pdf

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3 COMPONENTS OF A GREEN CLEANING PROGRAM

CHAPTER FIVE

Cleaning Products and Equipment

In chapter one, "Green Definitions and Sustainability," two key concepts and their definitions were introduced that are important throughout the discussion on selecting cleaning and maintenance chemicals, powered janitorial equipment, janitorial paper products, tools, and other supplies and will be relied upon throughout this chapter. Those concepts are green, which is defined as "reducing the health and environmental impacts compared to similar products and services used for the same purpose," and goes on to state that the "comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service," which is often described as the life cycle of the product or process. And Green Cleaning, which is defined as "cleaning to protect health without harming the environment."

Whether a facility uses its own staff for cleaning and directly purchases all cleaning products or uses a cleaning service provider, which purchases all the products as part of the service agreement, the discussion of ecolabeling standards and "roadmaps" to Green Cleaning in the previous section were intended as an aid to identifying greener cleaning products. For more detailed information on using ecolabels and "roadmaps" for product purchasing see Appendix1.

This chapter will focus specifically on a limited number of critical product selection criteria for a variety of products and equipment commonly utilized in facility cleaning programs especially for use when ecolabels and other standards do not exist, such as in countries where such programs do not exist or where the standards exist but are deemed inadequate for a specific facility. This approach recognizes that in each product category while there may be a large number of important health, safety, environmental, performance and other attributes of importance, but most of these attributes are indistinguishable within the category.

For example, almost all cleaning chemical manufacturers use similar formulations for conventional all-purpose cleaners but these formulations are often significantly different from a degreaser or carpet shampoo. And beyond just cleaning chemicals, almost all janitorial paper products are made from cellulose fibers with important differences limited to fiber sources and bleaching processes. While almost all vacuum cleaners are all made of similar components with manufacturing processes with important differences limited to a few attributes such as durability and ergonomics — which can be considered a "green" attribute due to its impact on worker health.

As a result, the following section focuses on those limited number of distinguishing attributes within a given category of products that can help identify which products might be more preferable from a green perspective compared to other similarly used conventional products.

These product categories include various cleansers, polishes, strippers, spot removers and similar items, as well as disposable items including janitorial paper products and plastic trash bags. In addition, various elements of basic powered equipment including vacuums and hard-floor cleaning equipment are included. Additional detailed information on each product category which maybe helpful from a procurement perspective is found in Appendix 1. Consider also the findings reported in *Indiana University Sustainability Task Force Recommendations on Green Purchasing / Green Cleaning* in Appendix 13.

PRODUCT CONSIDERATIONS

A. Chemical Cleaning and Maintenance Products

Chemical cleaning products are used for a wide array of applications from cleaners to disinfectants to polishes to floor coatings and more. As a result, this category of products significantly differs in order to accomplish the products intended task. Also as a result of the diverse formulations and choice of ingredients, these products can impact the environment and health in a variety of ways. The following are some of the basic concepts to help distinguish more preferable green chemical cleaning and maintenance products from less preferable conventional products used for the same purpose:

Bio-Based / Renewable Resources

Ingredients composed in whole or in significant part of biological products or renewable agricultural materials. From a sustainability perspective, products made from bio-based resources may be preferable compared to those ingredients derived from valuable, but non-renewable or nonregenerative sources such as petroleum, coal or natural gas.

Biodegradability

Capable of decomposing under natural conditions. More preferable products biodegrade rapidly as compared to similar products that biodegrade more slowly which often increases the potential for it to cause harm to health or the environment.

рΗ

An expression of the intensity of the basic or acid condition of a liquid; may range from 0 to 14, where 0 is the most acid and 7 is neutral. Natural waters usually have a pH between 6.5 and 8.5. More preferable products are closer to a neutral pH of 7, while products at either extreme closer to 0 or 14 are less preferable as extreme pHs typically result in a greater risk for the product to be corrosive and irritate or burn eyes and skin.

Volatile Organic Compounds (VOCs)

Any organic compound such as solvents that participates in atmospheric photochemical reactions. More preferable products have lower levels of VOCs, while higher VOCs increase the potential for the products to cause dizziness, respiratory irritation, trigger asthma and other health related issues, and cause atmospheric reactions such as smog when it evaporates during or after product use.

Flashpoint

The lowest temperature at which evaporation of a substance produces sufficient vapor to form an ignitable mixture with air. More preferable products have a higher flashpoint compared to those with low flashpoints which increase the risk of flammability during storage, use and disposal.

Dyes

Ingredients whose sole purpose is to affect the color and does not contribute to the cleaning efficacy of the product itself. However dyes can be valuable from a safety perspective to reduce potential product misuse by cleaning personnel who use color to differentiate between products. Some dyes are made from heavy metals such as cobalt and can cause health and environmental impacts when they enter the environment after the disposal of the product. More preferable dyes typically do not contain heavy metals and other components that may affect health and the environment compared to less preferable alternatives that contain more harmful components.

Fragrances

Ingredients whose sole purpose is to affect the odor or smell and does not contribute to the cleaning efficacy of the product itself. However fragrances can be valuable to mask the malodor of some basic ingredients without which may result in occupant complaints and the use of additional products to eliminate the perception of the lack of cleanliness actually due the malodor of the cleaning product itself. Some fragrances are made from hundreds of individual compounds that are typically high in VOCs and when inhaled can cause a variety of health problems such as dizziness, nausea, and trigger asthma especially among vulnerable and sensitive populations. Furthermore, some cleaning products contain higher concentrations of fragrances compared to others. More preferable products contain fragrances that minimize impacts on health and the environment either based on the formulation of the fragrance or due to the use of lower concentrations (enough to simply mask the malodor of the basic ingredients) in the cleaning product compare to other products used for the same purpose.

Ingredient Choices

For each category of chemical cleaning and maintenance products some ingredients have been identified to be more preferable compared to other ingredients used for the same purpose based on a variety of factors including impacts during the extraction of raw materials, manufacturing, and the short- and long-term impacts on both health and the environment during the ultimate usage of the product or its disposal after use.

B. Disposables

1. Janitorial Paper Products (e.g. Paper Hand Towels and Toilet Tissue)

The issues associated with selecting paper products compared to cleaning products are significantly simpler. The issues of concern for paper are primarily during the raw material extraction stage which typically includes the cutting of trees and the impacts on forest ecosystems and during the manufacturing stage. Whereas cleaning chemicals may have more than a dozen individual ingredients which can vary significantly from category to category and even amongst different products within the same category, paper is relatively similar. Paper has less emphasis on health issues during the products use-stage, or environmental impacts as a result of disposal. The following are some of the basic concepts to help distinguish more preferable green janitorial paper products from less preferable conventional products used for the same purpose:

Total Recycled Content

The total amount of material (fiber) that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer). Using paper products with a high total amount of recycled content is preferable because it can reduce impacts on forest ecosystems compared to the use of virgin tree fiber which requires more tree cutting which can negatively impact forest ecosystems. Furthermore, manufacturing impacts on the environment are less when using recycled fibers compared to those using virgin tree fibers.

Post-Consumer

This is a special designation to identified recycled content that was recovered after the material served its intended use as a consumer item. This designation was established to encourage household curbside collection and recycling and the higher amount of post-consumer recycled content is preferable compared to lower percentages.

Bleaching process

While some janitorial paper products are unbleached, most products using a variety of bleaching processes to whiten the final paper. Some bleaching processes use elemental chlorine.

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This process produces Dioxin a known carcinogen which is persistent in the environment meaning that it doesn't go away. The use of chlorine dioxide which is also know as elemental chlorine-free (ECF) reduces the amount of Dioxin by approximately 90 percent and is thus preferable compared to the use of elemental chlorine bleaching. The use of hydrogen peroxide and other compounds known as totally chlorine-free (TCF) bleaching can further reduce the amount of Dioxin and would be preferable compared to other bleaching processes.

Product Performance

Some janitorial paper products due to its low performance may require additional materials to accomplish its intended purpose and thus increases the resulting environmental impacts due to the use of more materials. Products with higher performance which results in the use of less material are preferable compared to lower performing materials which requires more paper to be used.

Sustainable Forest Management

The management of forests according to the principles of sustainable development. Sustainable forest management uses very broad social, economic and environmental goals. One of the primary environmental goals is to eliminate clear cutting and to insure that logging is conducted in a manner that protects the long-term health of the forest ecosystem. Products derived from sustainably managed forests are preferable compared to those that are not.

2. Plastic Trash Bags

Plastic trash bags are typically derived from petroleum or natural gas which are valuable, but limited and non-renewable natural resources. Furthermore, after disposal they do not degrade in landfills. The following are some of the specific issues to compare for this product category:

Total Recycled Content

The total amount of material (plastic) that have

been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer). It is preferable to use plastic trash bags with a higher total amount of recycled content as compared to the use of virgin resins or with a lower amount of recycled resin which reduces the use of these non-renewable resources increasing the availability for use by future generations.

Post-Consumer

This is a special designation to identified recycled content that was recovered after the material served its intended use as a consumer item. This designation was established to encourage household curbside collection and recycling and the higher amount of post-consumer recycled content is preferable compared to lower percentages.

Product Performance

Some plastic trash bags due to low performance such as those that are too thin or not strong enough to contain the materials inside and those that are too large for the receptacle may require additional materials (bags) to accomplish the intended purpose or simply waste materials thus increasing the environmental impacts due to the use of additional materials. Products with higher performance and of the correct size for the receptacle will result in the use of less material and are preferable compared to lower performing materials and inappropriately sized bags.

C. Powered Janitorial Equipment

The cleaning process uses numerous sizes and types of powered janitorial equipment including vacuum cleaners, powered floor buffers and burnishers, automatic scrubbing machines, pressure washers, vapor cleaning machines, "no-touch" cleaning machines and more.

Fundamental considerations for powered janitorial equipment must include the following:

Resource Efficiency

Energy and water consumption are perhaps the most critical environmental priority of our time. Even small equipment items can consume large volumes of energy and water when used regularly. Thus it is preferable to use powered equipment that reduces the use of resources such as energy and water compared to similar equipment that use more resources.

Noise

Minimizing the exposure of occupants and cleaning personnel to noise is an important consideration. Noise can be damaging to health and create unnecessary stress. Thus it is preferable to use equipment that is quieter (less noisy) especially if used when the facility is occupied compared to similar equipment that is noisier.

Ergonomics

Ergonomics is the science of designing the job, equipment, and workplace to fit the worker. Proper ergonomic design is necessary to prevent repetitive strain injuries, which can develop over time and can lead to long-term disability. Equipment that is of the appropriate design, weight and fit is preferable to prevent injuries to cleaning personnel compared to similar equipment that may not be as appropriate. For example a vacuum cleaner that is properly balanced and easier to push will reduce the likelihood of back and other musculoskeletal injuries compared to one that is not balanced and is difficult to push.

Chemical Minimization

Some powered janitorial equipment are simply large cleaning chemical dispensers. While chemicals are often a necessary part of an effective cleaning program, ensuring that they are used in only the minimum amounts required to complete the task at hand is essential. Chemicals used inefficiently enter the natural environment and can have unpredictable and negative effects both on ecosystems and human health. Thus it is preferable to select powered janitorial equipment which minimizes or eliminates the use of cleaning chemicals compared to similar equipment that can be used for the same purpose.

While Green Cleaning chemicals typically receive a great deal of attention, there has been significant development on the equipment side as well. For example a recently introduced auto scrubber uses no cleaning chemicals at all. Instead it relies on the creation of electrolyzed water to accomplish its cleaning tasks. A case study from GCA illustrates the impact of this new technology.

Among (this technology's) attributes and benefits, it begins as water and ends as water, so it can be handled and disposed of easily and safely; it uses 70 percent less water than traditional cleaning methods; it leaves behind no slippery detergent residue on the floor; it does not emit hazardous chemicals into the air; and it does not release used detergent discharge into water systems. Further, eliminating the need for chemical additives enhances worker safety and reduces costs for purchasing and disposal of chemicals.

"Admittedly, I was a bit skeptical when I first heard about (the) technology. It sounded too good to be true," said Lee. "But one of our clients tested the technology and found it to perform as good as if not better than traditional cleaning methods. Within a week of testing the (it), that client purchased (one of these) automatic scrubbers, and we incorporated it into their Custom Green cleaning program." (Case Studies –GCA.)

Considerations around powered janitorial equipment should not be limited solely to equipment found inside the facility. Facility managers are often confronted with the need to maintain areas outside the facility – parking decks and lots, walkways, gathering areas – as well. In many regions, waste water is closely regulated to prevent it from being added to storm water streams. Fines and even criminal charges can apply to the illegal dumping of waste water into a storm drain. Traditionally, this has resulted in less efficient cleaning processes as operators must return to central dumping and recovery areas. However, that is changing with the introduction of new, higherefficiency and more sustainable large cleaning equipment.

Fortunately, a new generation of "Green" cleaning equipment technology is now available. Storm drain covers block the wash water from flowing into our waterways. Vacuum systems, which collect the wash water, as well as, mobile treatment equipment are available, enabling the equipment operator to quickly clean, recycle and reuse wash water or discharge legally to the onsite sewer. Even if they recycle and reuse their wastewater just once, water consumption is cut in half.

For instance, new drivable pressure washing machines clean more efficiently and faster and use less water than conventional pressure washers who are walking, utilizing hose wands, which do not include vacuum recovery and wastewater treatment systems. Driving Pressure Washing Machines do not require the use of toxic cleaning agents, because the power of the pressurized hot water surpasses 50,000 cleaning units, 5,000 psi at 10gpm flow rate. Due to the increased speed of cleaning, they use 70% less water and reduce labor up to 80%. And most importantly, all the wash water is automatically collected, cleaned within the mobile treatment system, and reused or it can be discharged on site to the sewer. (Appendix 11 - Green Outdoor Cleaning)

D. Electric Hand Dryers

Electric hand dryers can be a valuable part of a Green Cleaning program, but the selection and use (number of hand dryers) must be carefully considered. Electric hand dryers can reduce the environmental impacts associated with the manufacturing of paper hand towels and their disposal after use. However in addition to environmental benefits it is important to point out the value of getting building occupants to wash their hands.

Handwashing is incredibly important both from the perspective of protecting occupant health and to reduce illness and absenteeism thereby increasing productivity and performance. Thus any strategy, product or piece of equipment that encourages effective handwashing is preferable and those that discourage handwashing are less preferable. This is an important consideration because facility managers considering electric hand dryers should provide sufficient electric dryers so that restroom users are not deterred from washing their hands due to a long wait in line to dry their hands. A recent study on the results of an effective handwashing program is included in the Appendix. An excerpt from that study is included below.

This study demonstrated that using an alcohol-based instant hand sanitizer in conjunction with an educational program in a workplace setting could produce a positive effect on absenteeism. The absenteeism rate observed in the case population was 21% lower than the control population.

This indicates adding an alcohol-based hand sanitizer program to a workplace wellness program could gain an employer several employee work days per year. Additionally, based on seasonal analysis, it appears this program is most effective during winter months when transmissible illnesses such as influenza and the common cold are most prevalent.

The significance of this result is especially relevant to white-collar workers who are typically outside of the suggested population for influenza vaccinations (i.e. children and the elderly). The results suggest that by properly using an alcohol-based instant hand sanitizer, the employee is given an alternative means

of protection against illnesses other than vaccinations. (Case Studies – Handwashing Study.)

Furthermore, many hand dryer remove moisture from the hands through the use of high velocity air which can spread water droplets contaminated with pathogenic bacteria that can be inhaled by others using the restroom creating a potentially serious health risk, which is reduced when using paper hand towels. However some new electric hand dryers filter the air to reduce the risk of spreading harmful contaminants. Thus products that encourage handwashing and reduce the potential spread of harmful contaminants are preferable compared to others products that discourage handwashing and increase the potential spread of harmful contaminants.

The following are some of the specific issues to compare for this product category:

Resource Efficiency

Energy consumption is one of the most critical environmental priority of our time due to the environmental impacts that result from the production of the energy itself. Thus it is preferable to select electric hand dryers that use energy compared to similar products using more energy.

Durability

More durable products such as electric hand dryers can reduce environmental impacts compared to less durable electric hand dryers as it will require less frequent replacement. For example, a very simple comparison of electric hand dryers with one that lasts twice as long but costs twice as much as a comparable electric hand dryer. From a life cycle cost perspective the electric hand dryers are identical. But from an environmental perspective the electric hand dryer that lasts twice as long has half the environmental impacts due to the fact that less raw materials are extracted, less impacts result from the manufacturing phase, less transportation impacts, etc, and thus would be more preferable compared to a similar, but less durable product.

E. Other Products

The selection of other cleaning products, tools and supplies should be pursued with the definition of green – "reducing the health and environmental impacts compared to similar products and services used for the same purpose" – firmly in mind. General areas for consideration may include:

Recycled Content

Recycled materials compared to virgin materials can reduce environmental impacts from the extraction of raw materials and typically the manufacturing of products using recycled materials has less environmental impacts compared to similar products using all virgin materials.

Durability

Durable products such as a more durable mop bucket will reduce environmental impacts compared to less durable bucket as it will require less frequent replacement. For example, a very simple comparison of two mop buckets with one that lasts twice as long but costs twice as much as a comparable mop bucket. From a life cycle cost perspective the mop buckets are identical. But from an environmental perspective the mop bucket that lasts twice as long has half the environmental impacts due to the fact that less raw materials are extracted, less impacts result from the manufacturing phase, less transportation impacts, etc, and thus would be more preferable compared to a similar, but less durable product.

Packaging

Products that reduce packaging components such as using smaller and lighter shipping containers or those that allow for more products to be packed on a shipping pallet or in a truck can reduce the environmental impacts associated with the manufacturing of the packaging materials, as well as the associated transportation impacts. Thus products with less packaging are preferable compared to similar products using more packaging.

Repairability and the Availability of Replacement Parts

Products, tools and equipment that are repairable and where the supplier makes replacement parts readily available will reduce environmental impacts compared to products that cannot be easily repaired. For example, if one manufacturer of a mop bucket supplies replacement parts while the manufacturer of a similar bucket does not, in the event that a castor or other component breaks, the bucket with available replacement parts would be more preferable because only the broken component needs replacement, whereas the other bucket would require that the entire product be replaced increasing environmental impacts.

Resource Efficiency

Energy and water consumption are perhaps the most critical environmental priority of our time. Some small tools and equipment can consume large volumes of energy and water when used regularly. Thus it is important to consider resource efficiency and to prefer those products that reduce the use of resources compared to similar equipment that use more resources.

WHEN PRODUCT STANDARDS DO NOT EXIST

As discussed in Part II, where appropriate ecolabels or third party certification programs exist, such programs greatly facilitate the product and equipment selection process. However, because the cleaning process employs such a wide assortment of products, equipment, tools, and supplies, it is inevitable—even in countries with well-established green standards and certifying organizations—that there will be products used where appropriate standards and ecolabels do not yet exist. Furthermore, there may be existing standards, but individual facilities and organizations may determine that these standards don't adequately address all of its needs. For example, schools and health care facilities may desire more stringent standards to protect vulnerable occupants if the existing standards are based on industrial and occupational exposures limits. Other organizations may have specific environmental objectives that may require specific attention not covered by the existing standards.

In situations where standards do not exist or where the standards may not address all of a facility's or an organization's concerns, product selection criterion and use should be based on the application of the basic definition of "green" as well as a careful consideration of facility goals, priorities, occupant populations, and available resources. More information on green product attributes can be found in Appendix 1.

It is important to emphasize that the lack of a specific green standard does not mean that there is no opportunity to green the products in that category. Ecolabels, certification systems, and standards in themselves do not make a product or service "green." Rather, these are tools to make identification, standardization, and purchasing easier especially in very complex product categories. And while they are very important tools, they are the means to an end, and not the end or goal.

Pacific Northwest Laboratory used these tools as the starting point in creating a comprehensive set of procurement guidelines as outlined below.

The Pacific Northwest National Laboratory developed a comprehensive set of procurement guidelines for products and supplies to be used in its facilities. These guidelines, along with the procedures to be followed to submit products for testing, were provided to all potential suppliers.

The general instructions provided were:

Battelle is establishing a procurement process for custodial/maintenance products to allow

Battelle to better evaluate the overall worker health and environmental impacts associated with their use. This process is consistent with and integral to Battelle's Pollution Prevention Program.

For each product submitted for consideration, the vendor must complete a Product Reporting Form (see below) with appropriate back-up documentation attached by staple in the upper left corner. Documentation for training can be submitted as a separate attachment. Please find enclosed the following materials:

General Guidelines

- A. Product categories requested in the bid
- **B.** Product performance testing program
- C. Product specification description

Reporting Form Instructions

- A. Minimum Requirements
- **B.** Relative Ranking Specifications

Reporting Forms

- A. Custodial Product Reporting Form
- B. Product Testing/Employee Training and Technical Assistance Form

Battelle encourages you to participate in this innovative opportunity to help safeguard the health of our employees, the community, and the environment. (Case Studies - Pacific Northwest National Laboratory – Green Custodial Product Specifications)

F. Product Supplier Considerations

The final component in selecting products is consideration of the supplier. Consideration should be given to suppliers' ability to train cleaning personnel, expertise with green janitorial products and cleaning, and proximity to the facility to reduce transportation impacts, in addition to price and other traditional considerations. In some cases the differences between suppliers may be a more important consideration than between the products themselves.

G. The Importance of the Cleaning Process

Even though this chapter focused on the selection criteria for a variety of products and equipment commonly utilized in facility cleaning programs, it is necessary to point out the importance of the process itself. While it can be of value to simply replace conventional cleaning products and equipment with greener alternatives, but if the products are used incorrectly the potential benefits can be lost or even lead to an increase in negative health and environmental impacts. Some examples include:

Improper Chemical Dilution

If a highly concentrated "green" chemical cleaning product is used to replace its conventional and less concentrated counterpart but is incorrectly diluted, it can increase the potential exposure of the concentrated product to cleaning personnel and increase resource consumption.

Improper Application

If a "green" disinfectant is used to replace its conventional counterpart but is not allowed to remain on the surface the required amount of time before removing, the ability of the active ingredients to kill pathogenic bacteria and other harmful organisms could be compromised increasing the risk of harm to occupants.

Lack of Maintenance

If a "green" automatic scrubber is used to replace its conventional counterpart but is incorrectly maintained, it could use more cleaning chemicals and water than necessary, increase the potential for slip/fall accidents harming occupant health, and the lack of maintenance could result in premature replace of the equipment itself.
Improper Maintenance

If a "green" alternative to paper wipes or cotton string mops (e.g. microfiber products) is used but are incorrectly laundered (e.g. fabric softener used in the rinse cycle or too high of heat used when drying) the performance of the microfiber products could decline significantly reducing the performance and environmental benefits and leading to premature replacement.

Poor Performance

If "green" paper hand towels with a high percentage of post-consumer recycled content is used to replace a conventional product made completely from virgin fiber but the quality is poor, more paper could be used due to the lack of the recycled products ability to absorb water and dry hands leading to an increase in environmental impacts and the potential to discourage handwashing which could negatively affect occupant health.

Poor Planning

If an entire program of "green" products are used to replace their conventional counterparts but the cleaning personnel are poorly managed so that time and resources are wasted cleaning areas and surfaces of lower importance from a health perspective, occupant health could be jeopardized.

Improper Focus

When developing a green floor care program a focus on scheduling interim or restorative maintenance procedures while neglecting or minimizing the daily and routine work will lead to high labor costs, inconsistent results and over-use of cleaning products, finishes and other resources unnecessarily increasing environmental impacts. On the other hand, a focus on the routine and daily procedures will extend the life of the floor finishes and minimize the need to employ more aggressive and resource intensive procedures.

Reliance on Wet Carpet Cleaning Procedures

Similarly to the hard floor care example above, a reliance on wet carpet cleaning procedures is

less green than routine and interim dry processes. Regular vacuuming (beyond traffic lanes) will minimize the need for interim cleaning. When interim cleaning is required, the use of dry, encapsulation processes offers many advantages over the traditional "bonnet buffing" method. Dry processes minimize the potential for development of mold or mildew (especially in areas of high humidity) and allow traffic on the carpet with minimal risk of slip fall accidents.

More information on procedures can be found in Chapter 12 and Appendix 4.

CHAPTER SIX 🗵

PROCESSES AND PROCEDURES

The fundamentals of greening the process and procedure components of facility cleaning are no different than those required of any successful program: time and energy given to careful planning, the development of fully-articulated procedures for implementation, and training of all relevant staff in the goals, methods, and desired outcomes of the program. Where Green Cleaning is set apart, however, is in the emphasis on the integration of sustainability principles into each of these steps.

A common question about Green Cleaning is its compatibility with cleaning systems such as team cleaning, day time cleaning, zone cleaning, cooperative cleaning and others. Green Cleaning is a concept and can be applied to any system. The goal is to create healthy indoor environments with often limited resources. Choices between cleaning systems should be based on the specific requirements of the facility being maintained. The same is true of day versus night versus blended cleaning (some cleaning is done during both the night when the building is unoccupied and other cleaning is done during the day when the building is occupied). Once those choices are made, the concepts of Green Cleaning can be applied to the system employed.

At all stages, Green Cleaning processes and procedures emphasize the prevention of waste and health impacts, the minimization of use of products or materials that can result in human health or environmental impacts, and finally an increased emphasis on 'cleaning for health' rather than 'cleaning for appearance'. In addition, Green Cleaning processes and procedures rely on a willingness to undertake regular incremental efforts to generate long-term benefits.

PLANNING

When it comes to going green, planning is an essential first step. Far too often the word comes down from ownership or senior management that the facility is going to "go green" or pursue LEED certification. The property manager or facility manager is instructed to "make sure our cleaning operations or services are green as well." If a facility services provider is used in the facility, the contractor is informed that they must be green. Without a plan or process, the service provider and property manager are likely to have very different opinions as to what "going green" means. This can lead to wasted time, money, and even an inconvenient and expensive change in service providers.

Time invested in the planning phase can help avoid much of this potential waste of time and resources and ensure a smoother and more successful implementation.

While planning to implement a Green Cleaning program, consider the advice of author Stephen Covey, to begin with the end in mind.⁵⁵ While the initial phases of the plan may not be far-reaching, it is important that all parties (facility ownership, management, and facility service providers) agree on the final goal. Having a shared goal in mind and clearly articulated will ensure that steps taken by each of the parties are consistent with the desired final outcome. While the nature and makeup of the facility and management organization may dictate the exact planning process used, the following steps tend to be found in Green Cleaning program successful implementations.

Understand and articulate the reason(s) for implementing a Green Cleaning program.

It may be as simple as meeting the requirements for LEED-EBOM certification. Perhaps a tenant in a multitenant facility is requesting or demanding that Green Cleaning procedures be implemented in his or her space. This may be one facet of an overall sustainability initiative. Many organizations have recognized the value of a green building in attracting and retaining tenants, employees, and even customers. Along the same lines, being perceived as a green organization may be a critical part of how a company presents itself to the public. Consider the experience of Great River Energy as they pursued a LEED Platinum designation.

In 2007 Great River Energy began construction on a new headquarters facility in Maple Grove, Minnesota, a four-story, 166,000 square-foot building located on a 12.5 acre site in Maple Grove's Arbor Lakes development. The building, at a total cost of approximately \$45 million (land and construction) was designed to house approximately 350 employees. As part of the corporation's commitment to the environment, it was determined that the building would be constructed and maintained in accordance with recommendations from the LEED (Leadership in Energy and Environmental Design) council, and would commit to obtaining the LEED Platinum rating, the highest rating available. Great River Energy opened on Earth Day, April 22, 2008 as one of the most energy-efficient and sustainable buildings in the country and one of only a small number of such buildings in the

⁵⁵ The 7 Habits of Highly Effective People, Stephen Covey, 1990

world certified LEED Platinum from the US Green Building Council.

As an electric utility, Great River Energy is aware of its role in protecting the environment, while providing the reliable and affordable electricity required to maintain our economy. "We are seeking LEED certification as a way to measurably demonstrate our commitment to the environment and sustainability. Our plan is to showcase our new headquarters' energy efficiency measures," says Gary Connett, Great River Energy's manager, member services. (Case Studies – Harvard Maintenance / Great River Energy.)

Set realistic and measurable goals

The reasons or aspirations driving the Green Cleaning program can then be transformed into goals for the new program. Setting realistic and measurable goals is important to developing action steps that take the program in the desired direction. For example, a goal like "improve the safety of the building" is unclear. It is difficult to determine what actions one might take to meet that goal. It's even more difficult to determine if the goal was achieved and if it was truly beneficial for the facility.

In contrast, a goal that says "reduce the opportunity for harmful impacts on building occupants, janitorial staff, and the environment by removing potentially dangerous cleaning products from the premises" allows for the creation of active steps that lead to measurable and reportable results.

Goals can and should be built around protecting building occupants, protecting the people who perform the cleaning tasks, protecting building structures, furnishings and equipment, reducing the impact on the environment, implementing or improving recycling programs, improving cleaning results, and so on. The goals articulated should reflect the opportunities in the facility and reflect the reasons or aspirations motivating the implementation of the Green Cleaning program. The University of Alberta created a program called "Cleaning for a Healthy U". Their planning process and goal setting serve as excellent examples for any facility – educational or otherwise. Consider the goals described here.

Cleaning for a Healthy U is designed to lessen the impact that cleaning has on the 13.9 million square feet of buildings looked after by the staff of the U of A's Buildings & Grounds Services Division. The program has two major objectives:

Reduce the amount of volatile organic compounds (VOCs) going into the air. Concentrations of many VOCs are consistently higher indoors – as much as 10 times – than outdoors. VOCs are emitted by a wide array of products including paints, paint strippers, cleaning supplies, pesticides, carpets, furnishings, and office equipment

Trap and remove airborne particulates from the air. Windblown dust, pollen from plants and sea salt are natural sources of particles in the atmosphere. Bush, agricultural, and forest fires also release smoke particles into the air. (Case Studies – University of Alberta.)

Form a planning and implementation team.

Depending on the facility's management organization and goals, planning and implementation may be conducted by a single team or separate teams. When two teams are formed, one—the planning team—is typically comprised of upper management individuals who are responsible for:

- (a) Setting overall goals
- (b) Clearing organizational obstacles to facilitate implementation
- (c) Ensuring that the implementation team is meeting milestones
- (d)Communicating top management's commitment to the program

The second group, or implementation team, works from the goals set by the management team and is responsible for:

- (a) Creating action steps
- (b) Assigning resources
- (c) Defining milestones and timing
- (d) Developing and implementing communication plans
- (e) Ensuring that responsible parties complete their tasks

In many cases, an organization will be better off proceeding with one team, which is responsible for all the activities. In this case, it is important to ensure that the reasons for implementation are clearly understood and appropriate goals are developed and communicated not only within the team but also up and down throughout the organization.

Choose a team leader

Choosing a team leader is an important next step. In a professionally managed building, the most obvious choice is the property manager. In an owner-occupied facility, it may be the operations or maintenance manager. In schools, the leader is often the principal or assistant principal. University teams are often led by the director of facilities or operations.

In many cases, the obvious choice is the right choice. However, just as Green Cleaning means looking cleaning and maintenance in a new way, it may be useful to look at the "obvious choice" in a new way as well. While this section is not meant to be a primer on team building or leadership skills, there are a few key qualifications that tend to be the most important:

(a) Strong organizational skills – This program will impact every part of the facility and organization as well as all vendors, visitors, and other people involved in the building, whether those people are related to cleaning operations or not. The ability to juggle competing demands for time and resources will be critical for a good Green Cleaning leader.

- (b) Strong communications skills Far too many Green Cleaning programs are implemented with no regard for communicating the changes or benefits throughout the facility. After some time, senior management may come to the conclusion that "Green Cleaning really isn't perceived by building occupants as important." In reality, the occupants weren't even aware of the changes or the reasons for making changes.
- (c) An understanding or, better, a passion for green and Green Cleaning – Realistically, many of the benefits of Green Cleaning are not readily noticeable. Building occupants may be feeling better than they have in the past, productivity may be increasing, absenteeism may be reduced, and so on, but these changes will happen over time and, unless brought to someone's attention, may not be consciously perceived at all. Even when the occupants are made aware of the program, it is unlikely that they will automatically connect these benefits to changes in the cleaning practices.

Involve the facility services provider or cleaning staff supervisors

Facility service providers must be involved from the beginning. An unfortunate and common approach in the past has been an extensive internal process and planning phase that ends with a call to the facility service provider ordering them to "go green." In that scenario, the chances for misunderstanding and perceived failure increase dramatically. The opportunity to maximize the benefits of the Green Cleaning program may be lost. Consider Adobe's experience as they continued the expansion of their LEED-EB certification process.



However, a few months later, we went to bid on the janitorial contract for Adobe's San Francisco properties. We sent Request for Proposals (RFPs) to five contractors including the same company that cleans our San Jose property. They were the low bidder. In fact, their bid was 20% below the next closest vendor and 30% below the next closest vendor and 30% below the then current contractor. They were so low, that I thought they might have made a mistake, so I asked them. I told them their bid was unusually low, and did they want to take another look at it and make sure they hadn't made a mistake.

Their answer was interesting. They said they were quite comfortable with their bid. They had learned in converting to green cleaning on our San Jose property that green cleaning was so much more efficient, they could do the San Francisco property with two fewer people. In my 30 years of property management, I have never major contract change without some "hiccups". But this was the exception. We made the changeover almost three years ago, and it was seamless. There were no significant problems that I am aware of. (Case Studies – Adobe.)

In self-cleaned facilities, it is equally important that the operations managers, and perhaps lead supervisors, are involved at the beginning. Their ability to effectively and efficiently implement and optimize the Green Cleaning program is directly tied to their understanding and buy-in. This early input and "buy-in" was a key to the success of the University of Alberta's implementation of a Green Cleaning Program. Here is an excerpt from their case study.

The success of Cleaning for a Healthy U is due to the acceptance and participation of cleaning staff. All staff attends training and orientation sessions on sustainable cleaning. All new products and procedures are tested with staff. We have found that early input from cleaning staff is critical to ensuring successful implementation. The program is integrating into the delivery of our services. . . Sustainable Cleaning is not an add on but an integrated part of our service delivery model. (Case Studies - University of Alberta)

Establishing Action Steps and Milestones

As with any significant project, clearly setting out action steps and milestones is an important key to success. As goals and milestones are developed, it is important to follow project management procedures that are familiar and accepted within the organization. While the specific action steps and milestones will vary by facility, green goals and management priorities, it's important to highlight two points that are critical to implementing a Green Cleaning plan. One of these is to be realistic about what it takes to properly clean a facility.

In the United States, as well as many other countries, cleaning is not viewed as an essential service. Rather than explore the reasons and societal implications of this situation here, (see chapter 16 for more about this issue) the focus here is on the implications to the development of a Green Cleaning program. Certainly there are tools and procedures that allow cleaning production rates approaching 7500 square feet per hour or greater. A careful examination of these processes and tools will quickly demonstrate that for the most part, dirt and soil is simply being re-distributed throughout the facility. Very little is actually removed on a daily basis. Quite clearly, if a plan is built with these expectations, the benefits of Green Cleaning will not be maximized.

Secondly, as mentioned earlier, it is very important that the facility service provider or cleaning manager be involved in the development of action steps, milestones, and specifications to ensure that everyone involved understands exactly what is being requested and how it will be delivered. An example of a very simple distinction in how dusting will be performed highlights how the development of specifications can impact both the costs and results of a new cleaning program.

For example, feather dusters or wool dusters are inexpensive and easy to run quickly over a horizontal surface. In the space of a few minutes, one can "dust" several hundred square feet of cubicles. However, the feather duster picks up less than 40 percent of the dust it encounters. The rest of the dust goes back into the indoor environment.

Microfiber cloths can pick up closer to 90 percent of the dust, retaining it and effectively removing it from the indoor environment the first time. However, the cloths cost more than typical dusters and must be laundered. The benefits of changing to microfibers include the improvement of the indoor environment through removal of dust and the potential reduction in cleaning time by reducing the need to dust as it is removed rather than being re-distributed.

There are real costs that must be considered in the development of the Green Cleaning program. Involving the facility service provider during development will ensure these costs are properly captured, and importantly, that the benefits and potential savings from the new procedures are also understood and captured.

🛛 PROCEDURES

This overview section highlights why and how Green Cleaning procedures may differ from the traditional cleaning procedures. Again, this is not to suggest that conventional procedures are placing health or the environment at imminent risk There are very good reasons for what has been historically done. However, times, technologies, and our understanding of the impacts of cleaning have changed. It's time for us to change as well.

Developing Procedures

Green cleaning is more than changing a few

chemicals; to be effective, we have to look at how we clean as well as what we use to clean. In fact, when we think about procedures, we need to take another step back and think about why we clean.

Traditionally, cleaning has been done for appearance — to make the facility look better. As far as it goes, that's certainly a good idea. The appearance of the facility impacts occupants', tenants', and visitors' impressions of the building and, by extension, the owner or organization. Creating a good impression is important.

However, in the past several years, many scientific studies and anecdotal evidence has demonstrated that how a facility is cleaned impacts much more than people's impressions. How the facility is maintained can impact the health and productivity of the occupants, the people who clean the building and the overall environment as well. Clearly, it's time to reevaluate how buildings are cleaned.

Assuming that cleaning is meant to reduce potential negative impacts on people and the environment, the focus must be on preventing dirt and contaminants from entering the building as well as collecting and removing the dirt and contaminants that have made their way into the building.

Some of the procedures that need to be examined are:

Above-Ground Dusting

Focus on removing the dust versus kicking it back into the air. This may include introducing microfiber cloths to replace traditional feather or wool dusters.

Entryway Systems

Installing effective matting in front of and behind all points of entry – This matting must be matched to the weather conditions, types of soils, and traffic in the building's environment. Proper maintenance of these mats is equally important.

Disinfection

Too many specifications still call for disinfecting far too many surfaces. Some of these surfaces

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are simply impossible to disinfect, for example, carpets. In other cases, disinfection is much less important than actually cleaning the surface, for example, hallway tile floors, walls, conference tables, or break room tables and chairs. In fact, when following these specifications for disinfection, while attempting to meet budget and productivity requirements, we often leave a surface that is neither disinfected nor clean!

Many disinfectants are poor cleaners due to the fact that they are designed to kill living organisms as opposed to being designed to remove soils, dust and dirt. Often, the instructions call for pre-cleaning the surface (which due to productivity requirements is frequently not done) and often requiring five to ten minutes of dwell time after application for the disinfectant to work before wiping dry. Again, given the time constraints, this rarely happens. The end result is a surface that is neither clean nor disinfected.

Hard Floor Maintenance

Dust Mopping

The goal should be to collect and remove more soil than traditional, treated dust mops can collect and remove. This may include using microfiber dust mops or a vacuum cleaner.

Applying Floor Finish

By changing to a microfiber flat mop, the operator can apply more uniform, thinner coats of finish than can be applied with a traditional string mop. One advantage of this change is minimizing waste of product. Equally important are the uniform, thin coats of finish. Modern finishes are designed to be most durable with multiple thin coats versus more traditional thicker but fewer coats. Thin coats also dry much more quickly than thick coats of finish. Quickly building six to eight thin coats of finish creates a more durable (and typically glossier) film than two or three thicker coats. This film will withstand the traffic better, clean easier, and make re-coating easier as well.

Daily Floor Maintenance

Focus on removing dust and soil to prolong the coating's life and minimize the need for burnishing or re-coating. Remove dry soils with a microfiber flat mop; this collects and removes much more dust than a treated dust mop can. Alternatively, a vacuum cleaner with a hard surface tool may be used for daily maintenance. The dry soil is very abrasive, scratching and dulling the finish. This creates the need to buff, burnish, or re-coat. Removing the soils before they can damage the film extends the life of the coating.

Cleaners

Use a properly diluted neutral cleaner designed to remove soil from the coating. Manufacturers design their floor care systems to work together to optimize results. The potential disadvantage to typical floor cleaners is the slight film they can leave behind. An alternative to consider is the new, electrolyzed water technology that uses no chemicals to clean the floor. Instead, water is split into positive and negative ions, which can effectively clean the floor with no residue.

Paying attention to removing dry soils and properly mopping or auto scrubbing the floor can help minimize the need for buffing or burnishing. Just like sanding a piece of wood, buffing or burnishing a floor is an abrasive process. It removes floor finish to "smooth" the surface of the film. This better reflects light, making the floor look glossier.

However, burnishing also generates a significant amount of very fine dust. This dust is, at best, more to be cleaned as it lands on various horizontal surfaces. The small dust particles are also easily breathed in by the cleaning personnel or anyone else in the vicinity. Employing an active vacuum system on the burnisher will potentially reduce the amount of time required for dusting and dust mopping on a regular basis. (See Chapter 5 and Appendix 3 for more detailed information about powered equipment choices.)

Carpet Care

Carpet care procedures also provide a variety of options for reducing potentially negative impacts on people and the environment. Just as in considering hard floor care, the first goal is to prevent the introduction of dirt and contaminants. A good walkoff mat system, properly maintained, is the first line of defense.

Vacuuming

A vacuuming program that effectively removes loose dirt will help minimize more aggressive cleaning operations later. The old adage that "an ounce of prevention is worth a pound of cure" is certainly true in floor and carpet care. In fact, it is true for all cleaning operations. Commercial carpet is designed to hide soil. From the weave to the color, it was made to disguise dirt and make us think the carpet is clean.

In fact, a typical commercial carpet can hold many times its weight in soil before it appears dirty. Unfortunately, this means it is essentially acting as a "sink" for dirt and contaminants that are kicked up into the air as people walk across the floor. At the same time, these small dirt particles are wearing against the carpet fibers, cutting them and degrading the structure of the carpet. It should be no surprise that most carpet appears to be worn out long before it actually wears out.

Replacing carpets before the end of their expected life cycle has a negative impact on the building materials' ROI (Return on Investment) and management's bottom line. Prematurely replacing carpets has a significant environmental impact as well. A regular and effective vacuuming program helps manage both of these issues. Unfortunately, most specifications call for much less frequent vacuuming than would be required to accomplish these goals. As discussed previously (Chapter 5) attention paid to daily and routine maintenance is the greener approach to carpet care.

Spotting

Carpet spotting should be occurring on a daily/ nightly basis. In fact, if the facility employs a day porter, a procedure should be established to notify the porter(s) in the event of a spill—before it becomes spot and later a stain. The earlier a spill is addressed, the less effort and aggression is required to remove it. It is very important to recognize that spill, spot, and stain removal is a process that takes time. Proper budgeting for this time is an important part of protecting the investment in floor coverings, minimizing the impacts of more aggressive maintenance procedures, and also helps ensure a more consistent and attractive appearance level throughout the facility.

Interim Maintenance

Traditionally, interim maintenance has been done accomplished with bonnet buffing and light extraction cleaning. Bonnet buffing involves the use of a slow speed floor machine equipped with a cotton or microfiber pad that is saturated with a cleaning solution. While this system does remove some soil, it tends to move most of the soil across the carpet creating a more uniform appearance.

Light extraction also depends on the application of moisture to the carpet, using a cleaner to emulsify the soils and a vacuum to recover the wet, dirty solution. Unfortunately, even the very best extractors cannot remove all of the moisture that was applied. The carpets must dry before being safe for traffic (walking from a damp carpet to a hard floor can result in a slip fall accident) and during the drying process, the potential for growth of mold and mildew is a concern. In areas or times of high humidity this is an even larger issue.

An alternative method for interim maintenance is the "dry" encapsulation process. While some moisture is still employed by these processes, it is significantly less than the previous methods, thus carpets dry much more quickly, even in high humidity.

Frequency Specifications

In the case of floor care, as well as carpet care, effective routine maintenance reduces the need for more aggressive interim restorative maintenance. Typical specifications are not written with this in mind.

There are two significant problems with typical specifications:

- The focus is on interim and restorative maintenance versus good daily or routine maintenance. By definition, this will increase the frequency of the more aggressive maintenance procedures. This will result in increased chemical usage, increased labor usage, increased potential of someone slipping and falling (due to damp or wet carpets), and increased total costs.
- Interim and restorative procedures are set to a schedule (for example, every three months) whether needed or not. Again, this can lead to potential waste of product and labor. Building occupants and the environment are unnecessarily exposed to potentially harmful or aggressive products.

The best and simplest solution to this problem is to work with the cleaning personnel (whether in-house or facility service provider) to create a more realistic guideline for these procedures and recognize that it must be flexible. This allows the cleaning operation to react to changing weather and traffic conditions, as well as to focus on routine maintenance and minimize the interim and restorative procedures.

Managing Expectations Honestly and Realistically

This is one of the most important and difficult issues encountered during the development of a set of specifications. When developing specifications and budgets, which will directly impact the procedures employed to meet them, it is critical for the facility manager to be realistic and honest in their expectations. Calling for carpet spotting to be done on a quarterly basis, while reducing costs, will likely not satisfy appearance expectations. It will certainly not satisfy Green Cleaning expectations, and may often result in the excessive use of bonnet buffing procedures and the use of aggressive cleaning products.



The Business Of Green Cleaning

4 FINDING A GREEN CLEANING SERVICE PROVIDER

CHAPTER SEVEN

Qualifying a Green Contractor – The RFI Process

The fundamentals for contracting for Green Cleaning services are similar to any contract negotiation that the facility manager would undertaken. However there are some specifics that are important to insure the best value or best outcome is achieved both in terms of its green components, as well as to insure that the service provider is capable of meeting the requirements over the term of the contract. This is especially important when considering that in the U.S. alone there are over 100,000 cleaning services providers that vary in size, capabilities, financial wherewithal and knowledge of Green Cleaning among other important issues that will drive the decision that is appropriate for a specific building.

In this and the following Chapter, along with Appendixes 5 and 6, information is presented that will assist in qualifying and ultimately contracting for cleaning services that will provide the appropriate level of cleaning and green attributes, and the best value for the services provided.

One approach to finding a facility service provider is to use a two-step process to make certain that the Green Cleaning program is free from providers who are not equipped to perform the operations necessary and to guarantee the best "value engineered" operation possible. These two steps are:

- Developing, Distributing and Evaluating a Request for Information (RFI) from potential service providers (this Chapter.) along with a sample RFI can be found in Appendix 5. Details regarding North American specifications of Green Cleaning Products, Equipment, and other supplies may be found in Appendices 1 and 12. Additional information will be found in the case studies referenced in this section.
- Developing and Evaluating a Request for Proposal (RFP) from the prequalified field of service suppliers (next Chapter.) along with a sample RFP can be found in Appendix 6. Sample language (North America) for Green Cleaning product, equipment, and other supplies can be found in Appendix 3.

It is common for facility and property managers to believe that this added prequalification step is unnecessary or that the information is simply not available from the potential service providers and thus do not engage in the RFI process. Without going through a process the manager is potentially engaging in a bid process with suppliers who may not be capable of providing adequate green services. While the RFI may add a few weeks to the process, the net result may add years to a successful contract relationship and in the end save the facility money by reducing the overall cost of contracting, and reduce complaints and other problems which results from a poor performing cleaning program.

This is the facility manager's opportunity to ensure that the potential contractors understand and are aligned with the goals and expectations of the facility. Great Rivers Energy was concerned that the facility service provider they chose would be as committed to meeting their green requirements as they were themselves, as evidenced in the case study excerpt below.

Once the building was opened, it was important that the continuing focus be on sustainability. It was critical that the company providing janitorial service utilize techniques and products in the day to day maintenance that comply with the highest standards of sustainability and environmental protection. Based on recommendations from the architects, interviews with building service providers were scheduled. They were chosen for interviews based on their previous green experience, and their ability and willingness to train the staff members of Great River Energy.

The chosen supplier had to provide their own equipment for cleaning, green paper products and chemicals, and their own written procedures for proper cleaning techniques.

The choice of supplier was based on experience and a willingness to provide leadership in the area of sustainability to the staff of Great River Energy. Harvard Maintenance exhibited all of the characteristics that Great River Energy needed and was awarded the janitorial contract. (Case Studies – Harvard Maintenance / Great River Energy.)

When developing the RFI the facility manager should keep in mind that they are trying to understand the depth and breadth of the skill and services to be provided. In order to gather the information needed, the type of questions that are asked should be carefully crafted to ensure honest and clear answers.

The following are some of the most important areas to cover in the RFI document.

Mission or Vision Statement

This is an excellent indicator of the purpose of the

facility services provider, why it exists and where they are going as an organization. Reviewing a company's mission statement provides a general perspective on their core values and to the priority to which Green Cleaning and sustainability play in their organization compared to other agendas. The facility manager will gain insight on what is guiding the management and the employees in making critical decisions such as embracing new and innovative Green programs for the health of their clients.

Corporate Environmental Policy or Sustainability Statement

This will describe how a facility services provider will demonstrate environmentally responsible services while ensuring sustainable business practices from their suppliers and for their employees. This policy or statement should be simple and correlate to the organization's size and services. This policy or statement may include their knowledge of LEED for Existing Buildings: Operations and Maintenance (EBOM)⁵⁶ or other Green Building and Green Cleaning initiatives.

Company Strategic and Succession Plans

As stated earlier, the U.S. cleaning industry is comprised of over 100,000 companies, many of which are small, family-owned or start-up ventures. And globally, while there are some extremely large facility services providers, many, if not the majority of providers are similarly small and family-owned. Thus it is important especially in working with these types of organizations to understand how they are planning for the future and the path by which they achieve their prescribed goals to ensure that these issues do not inadvertently become a problem for the facility during the performance period.

Organizational Charts

An overall organizational chart for the facility service provider combined with one for the specific building are important tools for understanding the depth and breadth of the supplier's organization. These charts demonstrate the flow of communication that

⁵⁶LEED is a registered trademark of the US Green Building Council.

supports site specific requirements and whether or not they will have adequate management supervision to ensure a consistently acceptable level of cleaning.

Evidence of Corporate Compliance

It is important to request evidence of compliance with all state, federal and country jurisdiction and regulatory requirements. These documents are readily available to the facility service providers and should be presented in their response to the RFI. Corporate compliance documents include documents that demonstrate proper insurance which include but are not limited to worker's compensation insurance, employer's liability insurance, auto insurance, general liability insurance and possibly immigrations compliance. When requesting evidence of these documents it recommended that the facility services providers be informed that the winning provider will be required to name the facility and facility management as additionally insured on their various insurance policies.

 Compliance documentation extends to the safety arena. Frequently facility and property managers are unaware whether or not a company has a Hazardous Communication Plan as required by OSHA (29 CFR 1910.122)⁵⁷. This document is not only designed to keep the facility service provider safe in the work environment, but to keep facility management, tenants and occupants free from any hazardous materials. In the RFI request a copy of the plan, a brief description of the plan as it would pertain to the facility and samples of the training logs. If the occupants of the facility may be exposed to Blood Borne Pathogens⁵⁸ require that the supplier provide evidence of their compliance to the OSHA requirement for a Blood Borne Pathogen Standard.

The Service Delivery Model

While Green Cleaning products are important in a Green Cleaning program, the real key to long-term success in the people. Thus, the RFI should request details about the staffing components of the project including the proposed corporate management support, account management support and operational staffing for the specific building. When asking for this information it is reasonable to request brief background information on those individuals dedicated to managing or supervising this project.

Administrative Systems

These systems can significantly impact the success of the ultimate cleaning operation. In the RFI include questions that provide information on the supplier's policies for recruiting, retaining and training the future staff of the account. Responses to this request for information typically can separate those facility services providers who are "flying by the seat of their pants" or crisis managers from ones who have an established and functioning program for addressing these critical people issues.

- Recruiting practices of the facility services provider are essential to building a strong program. It is important to know how the crews are selected for the site. In some states, such as California, there are laws that require a new contractor to offer employment to the incumbent cleaning staff. (2001 Janitorial Displacement Opportunity Act – California Senate)⁵⁹
 - ▼ In North America and other regions throughout the world, immigration compliance is a very delicate issue in the cleaning industry. Many service providers are reluctant to share their procedures for adhering to regulations regarding immigration. The facility manager has the right to know that the prospective supplier is using appropriate hiring practices so as

⁵⁷For more information OSHA (29 CFR 1910.122) go to http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9772&p_table=STANDARDS ⁵⁸ For more information on OSHA's Blood Borne Pathogen Standard go to http://www.osha.gov/pls/oshaweb/owadisp show_document?p_table= STANDARDS&p_id=10051

⁵⁹ For more information on the 2001 Janitorial Displacement Opportunity Act go to http://www.maplight.org/map/ca/bill/3002/default/history/action-25413

to never engage in a disruption in service due to unethical business practices. As mentioned earlier "people" and their just treatment is at the core of a Green Cleaning program.

- Background checks may be required by the facility services provider, and the RFI should advise any prospective bidders of the criteria for background checks as well as identify who will be paying for this information to be researched.
- ▼ Frequently when an RFI is distributed there may be prospective suppliers who will be subcontracting part or the entire contract once it is awarded. It is imperative that this is disclosed, and that the facility, its owners and management is indemnified against improper management of these subcontractors.
- Retention of employees is vital in an industry that has high turnover rates. Along with providing their corporate turnover rates the prospective facility service provider should discuss its retention plan. Retention plans may include training programs, recognition events, rates of pay and benefits in comparison to the industry as a whole
- Training is another essential component to a successful Green Cleaning program. The RFI should require a discussion of the facility service provider's training program. In a Green Cleaning program the entire staff will need more than an initial introduction to the products and processes; they will need regular and ongoing training on the green systems, supplies and equipment to ensure their proper use. Documentation of this training can be used a metric for gauging the green compliance of the staff.
- Regulations within various states, provinces, or countries may require licensing or certification of the service or products used

in Green Cleaning programs. Therefore requesting this information is based upon regional mandates and will vary around the world. Evidence of the appropriate certifications should be incorporated in the RFI. (For more information about the various ecolabelling organizations around the world, please see Chapter 3 and Appendix 2.)

 Responsible purchasing is a key component in a properly designed and managed Green Cleaning program - the prospective facility service provider should provide verification of these procurement practices. Responsible purchasing may be defined as: buying supplies or equipment that are accepted as environmentally friendly and recognized by recognized ecolabelling or other standards setting organizations. (For more information about the various ecolabelling organizations around the world, please see Chapter 3 and Appendix 2.)

References

Reference provide an important opportunity to evaluate whether the facility services provider has experience similar to the type of project being proposed, especially as it applies to Green Cleaning. When seeking references in the RFI ask for specific names and phone numbers, as well as the square footage, staffing, length of service and performance metrics used. Placing a quick call to their customer can provide important insights that can help the facility manager assess what they might expect at their building. Furthermore, an unscheduled site visit is an excellent method for validating the reference.

Quality Control Program (QCP)

It is not uncommon for the QCP to vary greatly between facility services providers, which also differ due to the scope of work or specifications. When evaluating a supplier's QCP consider the feasibility, the continuous manageability and the performance metrics outlined in the program. The QCP will

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A communication plan

The service communication plan is important to understanding how the contractor will remedy issues that arise and ensure that they are precluded from reoccurring, it will also provide metrics that should indicate the current versus desired service levels. Samples of metrics may include tenant surveys, visual site inspection documentation and compilation, chemical inventory and usage rates, recycling percentages as a measure of total waste of the facility and other innovative methods of capturing the effectiveness of the Green Cleaning program. The experienced green supplier will be accustomed to providing a thorough communication plan and should be skilled at the maintenance of such a plan.

A training plan. The next component of the QCP is the training programs that the supplier provides to all levels of employees. This is essential in the green cleaning business as:

- a) The cleaning industry has established techniques that are resistant to change
- b) The technology in the business of green cleaning is evolving at increasing rate. Thus, suppliers need to keep their employees abreast of the appropriate cost effective and performance efficient products and processes

Measurement tools to determine the ongoing success of the operation. Quality of performance is not a subjective issue. With clear specifications and goals the prospective facility service provider should be able to provide performance metrics that ensure operational compliance to the scope of work. Regular documented measurements through processes such as surveys, site tours, sign off forms and other communication loops can be incorporated into routine tasks for the supplier. These metrics create a historical file of the work performance over time. They can help to explain abnormalities and will illustrate improvement where needed.

Specific Green Components

Information should be requested on the Green components of their program and what makes their Green Cleaning program different from a traditional program. Additionally, if the building is going for LEED or other green certification or mandates, it would be valuable to understand the provider's specific experience with the specific program. In addition, request information on specific Green Cleaning products including chemicals, janitorial paper (if supplied by the provider), powered equipment, etc. and by what standards (i.e. Green Seal and Environmental Choice) or if the products are "self-certified" by what means they use to validate that their products are in fact green. Appendix 12 provides excellent detail that may be used in developing the Green Cleaning products requirements of the RFI (or RFP) as well as assistance in evaluating responses from potential service providers.

The following are recommended specifications that can be added for product purchasing that is consistent with the recommended green cleaning policy provided for Indiana University.

These recommended specifications are based off of various "roadmaps" such as: US Green Building Council's LEED for Existing Buildings Rating System (LEED-EBOM), Healthy Schools Campaign's Quick & Easy Guide to Green Cleaning in Schools, and Hospitals for a Healthy Environment's 10 Step Guide to Implement Green Cleaning in Healthcare.

CHEMICAL CLEANING PRODUCTS:

1. All Purpose Cleaners

⁵⁹ For more information on ISSA's CIMS Standard go to http://www.issa.com/?id=cleaning_industry_management_standard_cims

All Purpose Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

- 2. Glass Cleaners Glass Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.
- 3. General Purpose Cleaners General Purpose Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.
- 4. Washroom Cleaners (non-disinfecting) Washroom Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.
- 5. Floor Care Products (Finishes and Sealers) Floor Care Products (Finishes) shall be durable and slip resistant. In addition, the finish shall be free of zinc (metal-free) OR shall meet the requirements of Green Seal's GS-40 and/or Environmental Choice's CCD-147.
- 6. Floor Care Products (Strippers) Floor Care Products (Strippers) shall meet the requirements of Green Seal's GS-40 and/or Environmental Choice's CCD-147.
- 7. Carpet Care Products (Shampoo and Extraction) Carpet Care Products shall meet the requirements of Green Seal's GS-37 and/or

Environmental Choice's CCD-148

From Appendix 12 – Indiana University Sustainability Task Force Recommendations on Green Purchasing / Green Cleaning.

Additional information should cover how data is collected on an ongoing basis to insure that they will be using these products over the life of the contract.

Weighting

Information should be provided to the potential facility services providers on how each of the various components will be "weighed" as part

of the ultimate decision-making process. In many traditional contracting processes the only determining factor is often cost. In contracting for Green Cleaning services, while cost is a very important factor, but it may represent just 30 percent to 50 percent of the decision, while the combination of experience, systems, background, etc., may represent the remaining weight. It is important to point out that there is no right or wrong to the weighting system, but it is recommended that this be made clear in the initial RFI so that the respondents clearly understand the priorities, which will help them develop their most appropriate response.

A great deal of the discussion to this point has been about how a facility service provider manages their company and operations. A recently introduced certification program from the International Sanitary Supply Association (ISSA) called the Cleaning Industry Management Standard (CIMS)⁶⁰ seeks to reduce the need for a facility manager to evaluate all of these various organizational attributes. A CIMS certified contractor has demonstrated an organizational and management expertise meeting specific standards. The excerpt below demonstrates how one facility services provider uses CIMS to demonstrate their management commitment as well as to continually upgrade their operations.

So, having just gone through an extensive internal review of the organization's processes and procedures, CIMS came along at the perfect time. While the Vonachen team was pleased with their own internal scrutiny, they immediately identified CIMS as a key way to prove, via an outside, independent assessment, that they were raising the bar and doing the right things.

"We decided to use CIMS as a way to audit what we were doing," says company owner Jay Vonachen.

For more information on ISSA's CIMS Standard go to http://www.issa.com/?id=cleaning_industry_management_standard_cims

And the CIMS process certainly taught them that there was much to learn and additional improvements that needed to be made. In preparing for CIMS, Vonachen discovered that the facility worksheets were not as effective as they could be and some documentation was either incomplete, inaccurate or missing altogether. "We require a workloading plan for each job somewhere on the job site," Vonachen says. "Through CIMS, we found cases where we didn't have one, or they were outdated or the people didn't know where they were."

"We also found that our environmental policy needed documentation and updating," says Austin. "We found that we didn't have it solidly in place, so we spent time putting it together."

Austin further believes the CIMS process has helped remedy problems the organization had in the past in terms of ensuring the delivery of consistent customer service. "Now when a customer calls and says, 'Hey, my floors don't look good,' we can go back to the facility worksheet and see exactly when the floors were done. If the customer thinks the floors don't look good despite us keeping to our plans, we can increase our floor cleaning schedule. Or we can see that the floors weren't done when they should've been, and fix that problem. It's a good way to keep us on track."

Just because CIMS certification has been achieved, it is certainly not the end of the process, Vonachen notes. He intends to use CIMS to continuously improve his organization. "CIMS will help us conduct annual reviews of our organization," he says. "Running through the CIMS checklist internally on a yearly basis will serve as a way to make sure the changes we've made will stick. CIMS will help us make sure we're still doing what we're supposed to be doing." (Case Studies – CIMS - Vonachen.) Keep in mind that this is a new journey—toward an effective Green Cleaning program. Not only will there be new types of products and equipment being used in the facility, there will be new processes and procedures as well. These are not limited to cleaning. The entire RFI and RFP process will be different than just a few years ago. As with any process change, there will be some associated difficulties. It is important to be aware of them and prepare for them. Consider the experience of Pacific Northwest National Laboratory as they inventoried their custodial cleaning products across over 40 facilities.

Pacific Northwest emphasizes healthy working conditions for its staff. In addition as of January 1, 2001, Pacific Northwest's Chemical Management System showed an inventory of over 3000 custodial cleaning products stored in 109 locations in 46 facilities for an average of 33 chemical products per location.

Process

To reduce the number of products and to maximize worker and environmental protection, Pacific Northwest established a process to purchase "green" custodial products:

 Formed a team consisting of specialists in the areas of contracts, custodial work, environmental preferability, industrial hygiene, liquid effluents, waste management,

 Adapted the city of Santa Monica specifications for green custodial products to adequately address Washington State regulatory requirements and to fit the Pacific Northwest's situation and needs

and environmental releases and reporting

- Sent out the resulting Request for Proposal
- Evaluated the over 70 ingredients in the roughly 50 products proposed by 8 vendors to ensure they met the 20 criteria specified in the Request for Proposal

- Invited the vendors who met the criteria to demonstrate the effectiveness of their products
- Had Pacific Northwest custodians test the products
- Selected 2 vendors

Lessons Learned

- Information required of vendors is demanding. A longer than normal response time should be allowed.
- Many vendors did not submit all the required information. To encourage vendors to submit the information requested, hold teleconferences with the interested vendors prior to the submittal date.
- Evaluation process was very time consuming- over 70 ingredients times 20 criteria. Pacific Northwest hopes others can piggy back on our evaluations and thereby save time and money.
- Proprietary information about the ingredients often was not contained in the standard product material safety data sheets nor available from the vendor. Pacific Northwest had to contact the manufacturer and sign non-disclosure agreements to obtain this information.
- Each state defines differently what is regulated, sewerable, and how certain materials may be diluted and dispensed. Anyone using the Pacific Northwest specifications needs to ensure the specifications meet their state's regulations.
- Some of the selected products required different dispensers. We donated our replaced paper towel and toilet paper dispensers to community organizations, saving them over \$11,000. Finding a reuse source for replaced dispensers should be included in the planning process.
- Some of the new dispensers were a different size from the previous dispensers.
 Planning ahead for the space requirements

of the new dispensers is important.

Results

From the Custodial Manager's viewpoint, the biobased product is exceeding expectations both in its performance and ability to prevent cleaning problems, such as calcium deposits. By switching to environmentally preferable products, Pacific Northwest:

- Maximizes worker protection. This includes the janitorial staff using the products as well as those in the facilities being cleaned.
- Protects the environment
- Reduces the number of cleaning products used by staff from over 30 to 7 and thereby the time needed to load the carts and select the right product for the job
- Reduces the chemical inventories of cleaning products and time required to order, manage, store, and track them
- Reduces waste handling, shipping, and disposal costs
- Offers other U.S. Department of Energy sites the opportunity to piggy back on our results, saving them implementation time and costs
- Greatly lowers purchasing costs and saves the Lab untold dollars in reduced staff time. An example is if we tally the cost of purchasing one container of each cleaning product, the green cleaning products cost roughly \$1500 less. Multiply that times the number of purchases of each product throughout the year and the product cost avoidance alone is considerable.
- Contributed to the community by donating approximately \$11,000 worth of replaced towel and toilet paper dispensers.
 (Case Studies -Pacific Northwest National Laboratory – Process)

In the end the RFI process is designed to weed-out facility service providers who are not in a position to meet the Green Cleaning requirements, which will save time and money during the evaluation process. And again, it is important to point out that there are no right or wrong answers to any of these questions. Rather, facility management will have to use its judgment as to what will best meet its specific needs.

It is also a judgment of the facility manager as to how many bidders should move on to Step 2. For example, if the RFI process results in thirty responses, ten of which are at one extreme that clearly cannot meet the needs, ten of which at the other end of the extreme that clearly has demonstrated an ability to execute a Green Cleaning program, and ten somewhere in the middle where some doubts or questions still remain. In this case, the facility manager might simply decide to move forward with only the ten respondents who clearly demonstrated their ability because this is a sizable pool from which to select a provider and will make the bidding process more efficient from a time and cost perspective.

CHAPTER EIGHT

CHOOSING A GREEN CONTRACTOR -THE RFP PROCESS

After receiving the responses from the RFI and pre-qualifying a group of potential facility service providers, it is time to create and publish the Request for Proposals (RFP). The responses to the RFP, if structured correctly, will allow an informed operational and financial decision.

The RFP should be customized to that specific facility. Every facility has its own cleaning nuances due to facility management and occupant expectations, the mission of the organization, size and age of the building, finishes, geographical location which can effect the intrusion of contaminants, occupant density and vulnerabilities, and other issues which should be taken into consideration when developing a comprehensive Green Cleaning strategy.

Many property management companies have operations spread across regions or even in different countries. While it is important to respect local laws and guidelines, it is equally important to keep internal policies as consistent as possible. Bentall Capital makes this a priority as described in this excerpt from their case study.

We also addressed the concerns of our local property managers by defining a program that would be evolutionary. In this way they would understand the reasons for the changes and it would be easy for them to incorporate and enforce the green cleaning specifications. Consequently, in-house education was a major part of the process for us.

The approach we adopted was designed to be as simple as possible for everyone involved. Our objective was to implement green cleaning – not to create special rules that would be confusing for our property managers and suppliers and be costly to implement. We developed a rollout strategy for green cleaning with the following elements:

- Create a separate addendum for ease of use with existing specifications
- Create tiered specifications to
 accommodate various property profiles]
- Test each market tender one or two properties
- Analyze costs challenge service providers
- Monitor with field
- Be flexible allow for staged implementation

The separate addendum proved to be key for us. It gathered all of our green cleaning requirements into one section of the tender that clearly detailed our expectations. It is designed for all of our markets and relies heavily on industry-approved standards and associations. In this way, we are also instructing our vendors on how they can obtain additional information and directing them to the sources they need for approved chemicals and equipment.

The addendum is divided into six categories:

- Chemicals
- Paper
- Liners
- Equipment
- Standard Operating Procedures & Training

Communications (to inform and educate occupants on the benefits of green cleaning)

The addendum itself directs FACILITY SERVICE PROVIDERs to Environmental Choice in Canada and the U.S. Green Building Council and Green Seal in the U.S. It also cites the Canadian National Office of Pollution Prevention, California Code of Regulations, and the Carpet and Rug Institute (CRI) -organizations that have issued certifications and guidelines. (Case Studies – Bentall Real Estate Services.)



The following are some of the most important areas of information that should be requested in the RFP:

Administrative and Contract Requirements

This information will ensure that the prequalified group of facility service providers will be able to conform to the contract once it is awarded. This will identify requirements which may be unique to a specific facility and which may require additional costs to the supplier that otherwise might not included. Hence supplying this information and requesting responses regarding this data will ensure that the selected group of facility service providers will be able to conform to the contract once it is awarded. This may include:

- Specific types of insurance such as a waiver of subrogation, or to be named as an additional insured party from the supplier and or the subcontractors
- Audit rights to review payroll or procurement of supplies for the facility
- Contract selection, award and start dates
- Specific certifications and licenses that may require time to obtain from various official entities
- Tax information for the facility service provider and all of their subcontractors
- Representations and Warranties as prescribed by facility management
- Environmental conditions for the performance of work such as drain and runoff requirements

Accurate Operational Data

The more information that can be provided to the prospective facility service providers will result in a greater level of precision relative to the costs in their proposals. The facility service providers will need the square footage of the facility, which should be defined in terms appropriate for the specific geographical region. Terms such as leasable and rentable are common in the United States. Colloquial terms can be vague, which can lead to confusion and make comparisons between providers difficult. Thus a clear definition of the terms used in the RFP will prevent confusion and ensure all proposals are measured evenly.

The facility service providers will use this data along with a breakdown of the types of space to design their operation, because at the core of their operation is the number of labor hours required to perform the tasks. Labor in a facility is typically based on pace or the rate per square foot at which certain tasks may be completed. Without proper square footage and space types, responses may vary significantly and may not even conform to the specifications. Given that labor is often the largest portion of the cleaning cost, accurate square footage information is critical.

Detailed Set of Specifications

Having established the square footage, the development of clear specifications such as cleaning restrooms, removing trash and recyclables, floor and carpet maintenance, office cleaning, etc. and the frequency of the tasks becomes the next crucial element in building the RFP.

Without clear directions, accurate proposals are virtually impossible. Too often the term "as needed" is provided as a frequency rate. However, "as needed" can range from never to multiple times per day. Carpet spotting is common case in point. The specified frequency allows the facility service providers to calculate the cost of labor in the facility. See Appendix 7 for an RFP Cleaning Cost Model.

The specifications must be clear and concise. A glossary of cleaning terms may be added to the specifications for further clarification. These specifications and glossary set the operational stage for the success of the Green Cleaning program.

While the RFP will set out the original expectations, specifications, and frequencies envisioned in the facility, it is important to recognize that those specifications are a living, breathing document. New green products, equipment, paper and other supplies are finding their way to market at an increasing rate. Facility service providers are constantly learning and modifying processes and procedures to better serve their clients. As a facility service provider gains experience in a facility, they are often able to improve their operations and work with facility management to modify the specifications to reflect the new situation.

Service Plan

The prospective facility service providers will provide a service plan that will address the cost and staffing model. This will be done in a line-by-line breakdown of all costs involved with the operations in the facility. The model should include the planned number of hours worked by crew member type (janitor, utility, supervisor, etc.), the respective rates of pay for these members, benefits (medical, vacation, sick time), tax and insurance burdens, supply costs and markup (gross and net profit) for the entire operation. Any other infrequent tasks such as carpet cleaning, window washing may also be provided in a separate cost model. The service plan may also require a site specific quality control plan, as well as a site specific communication plan which should demonstrate and communicate the success metrics of the Green Cleaning program.

Green Cleaning Product Requirements

The RFP should specify the standards for the various cleaning products to be used including cleaning chemicals, janitorial paper products, powered equipment, plastic trash can liners and others as the facility manager may feel is appropriate. These specifications frequently follow established "roadmaps" such as those found in LEED-EBOM and should address tracking of product usage and how products that have been "self-certified" by the manufacturer can be approved for use.

Additional information on product specifications can be found in Chapter 3: Global Ecolabelling Systems

and Standard Setting Organizations, Chapter 5: Products and Equipment, Appendixes 3 and 12, and several Case Studies including Case Study 3.

Quality Control Plan

The prospective facility services providers should be required to include their quality control plan. Just as in the section above for the cost model a more customized QCP prepared uniquely for the facility is be essential in the RFP.

- General Green Cleaning quality operations
 - The quality of the facility services provider's operations is dependant on their recruitment, retention, training and management in the specific building.
- Measurement
 - The prospective facility services provider's will have measurement programs as demonstrated in their original RFI. At this stage they will explain the programs they will use to measure and document their program within the context of the environmental and operational factors identified by the RFP.
 - In this section it is appropriate to incorporate some preexisting surveys already in place in the facility.
 - Include standard operating procedures (SOP's) for the training of cleaning personnel and corresponding documentation required by facility management or specific tenants.
 - Objective and measurable programs will make the eventual contract management much easier, reliable, and consistent.

Communication Plan

The Communication plan that the supplier uses for their employees, building occupants, and staff will help sell the success of the Green Cleaning operations. The following are some of the key issues that should comprise the communications plan and for more information on the basic components of a written set of standard operating procedures, green site plan and communications plan can be found in Chapter 12.

- Communication procedures will likely vary among facility services providers and can affect the perceived outcome of the Green Cleaning program. There are five key components of a strong communication plan, and the prospective facility services providers should be able to include all in their plan. In addition to the information below, see Chapter 13 for more information.
 - With the Facility Manager
 - ▼ Whether via log book, email or telephone message the facility manager needs to be the first to know about any critical information. Regular meetings between facility management and the facility services provider to evaluate progress as well as to review and modify specifications or frequencies as required is important to continual improvement of the Green Cleaning program.
 - With building occupants
 - Engaging building occupants in brief regular communication regarding housekeeping can improve the success factor of the Green Cleaning program.
 Engaging them in better understanding of the Green Cleaning program will augment their buy-in and ownership of the operation.
 - With the staff of the custodial firm.
 - Regardless of where they live, people generally want to feel they are doing a good job and performing a useful service. Engaging the cleaning operations staff, helping them understand why the Green Cleaning program is being implemented and how they contribute to its success will help speed implementation and improve compliance.
 - With other types of facility service providers

(e.g. pest management, parking lot maintenance, etc.)

- There are many services provided to a building that can impact the cleaning operations. Impacts can range from increased cleaning intensities, rescheduling operations, and cooperation for common objectives. A plan that fosters communication and cooperation between these various suppliers will reduce confusion, conflicts and potential impacts on occupant health and productivity.
- With the senior management of the management company, building owner(s) and the general public.
 - As mentioned earlier, the "results" of a Green Cleaning program may be difficult if not impossible, for the average person to see or appreciate. It is important that the measurable results (chemicals removed, recycling results, and so on) be communicated upwards and outwards. This, at the least, helps keep the Green Cleaning program "sold" to those who originally approved the project.

Weighting

As discussed in the previous chapter (Chapter 7) once all of the information has been collected from the prequalified cleaning services providers it is time to assess which respondent is best suited for the specific facility. While cost is a very important factor, it may represent just 30 percent to 50 percent of the decision, while the combination of green and overall experience, systems, products, training, background, etc., may represent the remaining weight. It is also important to point out that there is no right or wrong to the weighting system, but it is recommended that this be made clear in the initial RFI, as well as in the RFP so that the respondents clearly understand the priorities and to avoid disputes.

"Living Wage" and Social Equity

One of the emerging issues in the global sustainability and green building movement is to address the issue of how the workers in the building are being paid. Many believe that liability exists for "green" organizations that are not providing appropriate working environments for their own employees and contractors, whether they are making athletic shoes in Indonesia or cleaning a green building in the U.S. State of Indiana.

This is an important consideration because addressing issues such as a "living wage", health benefits and similar social issues may have implications for the service providers because their most significant cost is labor (e.g. salary and benefits). Thus if this is an important issue when contracting for Green Cleaning services, this should be addressed in the RFP so that all perspective providers are prepared to respond appropriately.

For more information on this topic see page 97: Green Collar Jobs and the "Living Wage"

Performance-Based Contracting

Another approach to building an RFP is to employ a performance-based outsourcing model. While traditional RFPs have typically focused on measuring hours, productivity and production rates, the performance-based model focuses on results or outcomes. As with the various methods for organizing a cleaning operation (e.g. Team vs. route cleaning) Green Cleaning does not require any one particular approach to soliciting proposals. The method employs should match the experience, goals and expectations of the facility manager or management company.

A comprehensive review of performance-based outsourcing as it applies to Green Cleaning is found in Appendix 4. An excerpt is provided below.

Performance-Based Contracting

Another approach to building an RFP is to employ a performance-based outsourcing model. While traditional RFPs have typically focused on measuring hours, productivity and production rates, the performance-based model focuses on results or outcomes. However if a performance-based approach is utilized it is even more important that the provider be properly prequalified during the RFI process and that the recommendations made throughout this chapter be considered to insure that the appropriate provider is selected. Furthermore, if a performance-based approach is to be utilized it becomes even more essential to clearly detail how the contract will be audited to insure compliance and how deficiencies will be addressed.

A comprehensive review of performance-based outsourcing as it applies to Green Cleaning is found in Appendix 4. An excerpt is provided below.

Performance-based outsourcing is a buying strategy that focuses on specifically defined outcomes and the working relationship. This structure creates a linkage of shared consequences for economic and market benefits. Performance-based outsourcing specifies the results needed by the buyer to create competitive value. It supports their Green Cleaning mission to serve a specific customer/market. The performancebased relationship is founded on the idea of mutually shared green consequences and accountability. The measurement of performance and constant improvement of both buyer and contractor green systems is the common focus. This results-relationship model captures the essential elements of successful performance-based, green-focused outsourcing. (Appendix 4 – Establishing a Performance-Based Green Cleaning System.)

The Business Of Green Cleaning

5 IMPLEMENTING A GREEN CLEANING PROGRAM

CHAPTER NINE

Selling Green Cleaning Internally

In the United States, some facility managers find it necessary to "sell" Green Cleaning to others. The process for selling Green Cleaning includes a number of basic components to help senior management and other key stakeholders understand the value and benefits. While the following are examples from the United States, similarities exist in many other countries.

Green is the Trend

There are numerous examples to illustrate the timeliness of Sustainability, Green, Green Buildings and Green Cleaning. These include:

- Accelerating growth of the US Green Building Council (USGBC) in terms of its membership and use of its various LEED Rating Systems. As of mid-2008, the USGBC has over 16,700 organizational members and over 15,500 buildings certified and registered in its various Rating Systems and its growth is predicted to continue.
- The development of similar programs Green programs in other market segments including Green Globes for commercial buildings, Green Guide for Health Care, the Quick & Easy Guide to Green Cleaning in Schools, the Collaborative for High Performance Schools, and others. These programs will contribute to the acceptance and demand for Green Buildings and Green Cleaning.

- Professional organizations such as the I nternational Facility Management Association (IFMA), Building Owners and Managers Association (BOMA), International Council of Shopping Centers, Green Cleaning Network and others are developing and promoting green issues which will serve to increase future demand for Green Cleaning.
- Legislation on Green Buildings and Green Cleaning is accelerating. As of mid-2008, LEED had been adopted by 12 Federal Agencies, 28 States, more than 120 Cities and 36 Universities. And legislation specifically requiring Green Cleaning is now in 4 states with many more expected to follow.

The reason that these indicators are important to facility managers and other stakeholders is to recognize that the acceptance of Green is undeniable. Thus, the only real choice that facilities have is to either wait until it is mandated, or to implement Green Cleaning in a manner, time and sequence that is most efficient and effective within the context of how the building is currently being managed.

Sustainability Reporting. Many organizations are beginning to report their sustainability efforts and participate in efforts relating to Corporate Responsibility and international efforts such as ISO 14000⁶⁰. The benefits of Green Cleaning and the conversion from traditional products to greener alternatives can be quantified and contribute directly to improving an organization's performance and scorecards.

LEED Certification. For buildings in the USGBC's LEED Rating System, Green Cleaning can make a significant contribution. For example, in its LEED for Existing Buildings: Operations & Maintenance



Rating System, Green Cleaning is a prerequisite meaning that it is required of all buildings in the program, and in addition offers a significant number of additional points to achieve a higher rating level.

Cost Neutrality. When selling Green Cleaning it is important to directly address cost related issues. Fortunately in the United States and in many other countries, Green Cleaning chemicals, janitorial paper, powered equipment and other tools, supplies and equipment have become "cost neutral" compared to their traditional counterparts. This means that the cost for Green products is similar to their traditional counterparts. While there may be some cost differences but typically those differences are a result of product performance and quality, and not due to their being Green. Thus, the cost of a Green versus a traditional product of equal quality and performance will be similar in cost.

In researching this book a survey was taken to determine the cost implications of Green products and services. The over 300 respondents represented Asia, Central America, Middle East, Oceania (Australia and New Zealand) North America and South America. The results were as follows:

- 49% reported that Green Cleaning products either were the same or lower in cost compared to traditional products, while another 28% reported an increase between 0% and 10% compared to traditional products.
- 44% reported that Green Cleaning chemicals either were the same or lower in cost compared to traditional chemicals, while another 34% reported an increase between 0% and 10% compared to traditional chemicals.
- 45% reported that Green janitorial paper products either were the same or lower in cost compared to traditional products, while another 31% reported an increase between 0% and 10% compared to traditional products.
- 41% reported that Green powered equipment such as vacuum cleaners either were the same

or lower in cost compared to traditional products, while 33% reported an increase between 0% and 10% compared to traditional products.

- 26% reported that Green plastic trashcan liners either were the same or lower in cost compared to traditional products, while 30% reported an increase between 0% and 10% compared to traditional products, and another 42% reported an increase greater than 10%.
- 51% responded that Green Cleaning either resulted in no additional labor or actually reduced the amount of labor necessary to keep the building clean, while another 29% reported in increase between 0% and 10% compared to traditional cleaning services.
- For those contracting for out-sourced cleaning services, 51% responded that Green Cleaning either resulted in no additional costs, while another 29% reported in increase between 0% and 10% compared to traditional cleaning services.
- For those cleaning with in-house cleaning personnel, 75% responded that the labor requirements for Green Cleaning was the same or lower in cost compared to traditional cleaning programs, while another 15% reported a labor increase between 0% and 10% compared to traditional cleaning programs.

The question of labor costs is very important as cleaning is a very labor intensive process. As the results quoted above indicate, the difference in labor costs between a traditional and a Green Cleaning program may be neutral or even reflect a labor savings with Green Cleaning. For an example of how and why this may occur, consider the experience of FBG, a facility services provider in Omaha, NE.

As an example of the results of our efforts: A building that typically demanded 1,200 hours/ year for stripping and recoating its hardsurface floor areas. With the adoption of a

⁶⁰ For more information on ISO 14000 go to http://www.iso14000-iso14001-environmental-management.com/

mechanical hardwood floor polishing system, FBG has reduced chemical usage significantly (stripper and finish); cut overall labor costs by 58% and achieved better results for our customer. The floors now retain a higher gloss, protect against scuffmarks and prevent soil buildup. All of which contributes to the longevity of the floor, the building and the relationship with the customer. (Case Studies – FBG)

Based on experiences with traditional product introductions and the market forces of the cleaning industry, it is reasonable to expect that competition between manufacturers as well as distributors will continue to drive green product costs down over time.

Benefits

Green Cleaning chemicals can reduce risks to cleaning personnel and building occupants due to being more benign compared to traditional counterparts. For example, reducing volatile organic compounds (VOCs) which evaporate into the air and may be inhaled by both cleaning personnel and building occupants can cause respiratory irritation, trigger asthmatic episodes, cause nausea, dizziness and other health problems. Green powered equipment due to superior design can reduce ergonomic injuries. Thus reducing there risks can result in decreased lost work days, decreased workman's compensation costs, decreased absenteeism including that among building occupants, as well as increased occupant productivity, performance and quality.

While studies of productivity benefits attributed to Green Buildings document improvements of up to 18%, generally productivity improvements are placed in the 2% range, which is still significant when considering the costs that are paid for occupant salary and other employee benefits as compared to other building or organizational costs. While Green Cleaning cannot be said to be totally responsible for these productivity improvements, they do contribute to them as the main purpose of cleaning is to decrease or eliminate harmful exposures and to create healthy indoor environments.

And like all business decisions, the real issue of benefits from Green Cleaning is the very handsome return on investment (ROI). Because many components of Green Cleaning are cost neutral, which means that no additional financial investment is required to implement it, any benefit is extremely valuable.

Easy

It is also important to recognize that while Green Cleaning may be cost neutral, it is also relatively easy to implement. Just a few years ago, identifying the appropriate products in a multitude of categories, designing appropriate training programs and processes for cleaning personnel, developing communications strategies for a variety of stakeholders and other issues would have required a significant investment in terms of time, research and dollars - resources that many facility managers just did not have due to the other requirements of their jobs. But today, there are numerous programs available that make identifying the requirements easy. These programs, often called "roadmaps" have been discussed in length in other parts of this book.

Furthermore, today the cleaning industry has fully embraced Green Cleaning. As a result, whether a facility is using its own in-house cleaning personnel or an out-sourced service provider, Green products and services are readily available often from existing suppliers. Thus the barrier to change is minimal and often does not require changing suppliers, building new relationships or other activities that could consume additional time and effort.

Recognition

Another selling point for senior management is that while Green Cleaning is clearly an issue whose time has come, it still represents a reasonably small part of the industry. Thus this creates opportunities for recognition which some organizations find of value. For example, the Green Cleaning Network in partnership with the Healthy Schools Campaign and American Schools & Universities Magazine promote the *Green Cleaning Awards for Schools & Universities* to recognize outstanding programs in these institutions.

Going beyond external recognition, there are also important and valuable opportunities to demonstrate to building occupants and other stakeholders that the organization cares about them. This can easily and cost effectively be carried out through the organization's internal newsletters, signage and other means of communication.

One final note on "selling" Green Cleaning to senior management and other key stakeholders and that is to keep it positive. While reducing health risks is an important opportunity, use care not to suggest that the building is currently placing cleaning personnel, occupants or the environment at imminent risk of harm, unless of course this is factual.

Green Cleaning typically creates a greater margin of safety and should be promoted from a positive position based on a commitment to continual improvement, the use of newer green technologies, the organizations commitment to its people and the environment, and other positive messages.

CHAPTER TEN

Common Challenges

Before discussing how to implement a Green Cleaning program, it would be useful to consider some of the challenges that may encountered along the way. Most of the challenges and perceived obstacles will revolve around the natural resistance to change. From "if it isn't broken, don't fix it" to "that's not how we usually do things," resistance may be active, or it may be passive, but will be encountered in some form. Some of the manifestations of that resistance might include:

The water cooler expert

This is the individual who other occupants seem to listen to whenever something new is proposed. This person is typically negative about the new idea or program, regardless of what it is or who promotes it. The general theme of the water cooler expert's argument is, "We've never done things that way before, and everything has worked just fine. They aren't telling us the real reason for the changes, and until they do we should just keep doing what we've been doing."

The "old-timer"

This individual has been cleaning for more than twenty years, has his or her own homemade formulas for cleaning products, and sees no reason to try anything new. "After all, I've been using this combination for twenty years, and I'm as healthy as a horse."

The well-intentioned cleaner

This individual "knows" that powerful cleaning products have dark colors and strong fragrances. He or she will say that the new product with no added dyes or fragrances (many "greener" products have reduced fragrances and colors) simply can't and won't clean. Unfortunately, the well-intentioned cleaner is convinced he or she can "prove it."

The skeptic (cleaning worker)

The skeptic just doesn't buy all this "environmental nonsense." In his or her mind, this is a lot of wasted time and effort for no measurable payoff. As far as the skeptic is concerned, there's no good reason to change, so he or she resists it. The worst part is, the skeptic's resistance is often passive; it often looks like skeptics are complying, but often they're just going through the motions.

The skeptic (building occupant)

In this case, the skeptic doesn't "see" a distinct and direct benefit arising from the changes that have been made. This just reinforces the assumption that the changes are all some sort of marketing nonsense, which can be safely scoffed at or ignored.

While there are many more forms of resistance, these are some of the most common and prevalent seen in many implementations. In virtually all cases, the root problem is poor communication and misunderstanding of the issues. Too often, the tendency is to treat the people who perform the cleaning tasks as people who should just do as they are told and get their jobs done. They need to know how to clean, not why they are cleaning a certain way. Normally, this is simply a misguided attitude. However, when trying to implement change, it is a self-defeating attitude.

Like anyone else, the people who do the cleaning want to do a good job. And, like anyone else, their chances of succeeding go up dramatically when they understand why they are asked to do things in a certain way.

Consider the experience of Adobe as they implemented a Green Cleaning program as part of their journey to LEED Certification. As the cleaning personnel began to understand why they were asked to work in new ways, they resisted the opportunity to return to more traditional cleaning procedures, products and equipment.

Suddenly, however, I heard someone say, "She doesn't want to!" I looked up, and one of the janitors who had been testing our new cleaning methods was looking down shyly and shaking her head "no." I asked her what she meant. She didn't speak English very well, but the janitor next to her said, "She likes her new vacuum cleaner and Green Cleaning. She doesn't want to give them up."

At that point, I said, "OK, based on that testimonial, how many would like to stop testing and just change over to Green Cleaning right now?" Everyone raised their hands; it was unanimous. We ordered the equipment required, provided full training in Green Cleaning to all of the janitors, and transitioned to Green Cleaning.

We did one other thing, too. Since we were putting all of our janitors through a training program, we created certificates of completion for them: one for using the green chemicals and one for using the vacuum cleaners and microfiber wipes and dust mops.

At the end of the training, we held a graduation, janitors invited their families to attend, we presented the certificates, served refreshments afterward, and it was a very successful program. (Case Studies – Adobe.)

It is equally important that building occupants be aware of the changes being made and why they are being made. Lack of understanding, combined with the fact that the benefits are not obviously or immediately realized or easily associated with cleaning, makes it all too easy for occupants to assume nothing has happened.

Harvard Medical School made a specific point to address this issue during the implementation of their Green Cleaning program, as explained below.

Tenant notification: As part of the transition, tenants were made aware of what the Medical School was doing. This was accomplished by use of various campus newsletters. The Harvard Green Campus Initiative included information in its quarterly "Green Campus Report" and "The Green Tip of the Month" newsletter. A notice entitled "Green Cleaning at HMS" was sent out by human resources to the tenants notifying them of the switch to Green Cleaning products. The acceptance and feedback from the tenants was very positive. Throughout the transition, the dayto-day impact to the tenants was negligible. **Everyone understood the positive health and** environmental impacts of the new program. Note: There was total buv-in for this effort from all levels of management. Everyone had

a positive attitude. (Case Studies - Harvard Medical School.

Following are some methods that may be used to address these various types of resistance.

Attempting to publicly counter the water cooler experts could just make them more entrenched. The most successful responses have been to work with them individually, providing the information they need to "convince themselves" and appealing to their "expert" status. This is not a game; these people are respected by their peers for a reason, they speak their mind with authority and have been right often enough to be seen as being "in the know." By getting them aligned with the facility's goals they can become powerful supporters and evangelists for the program.

As with the water cooler expert, a confrontation with the old-timers is counterproductive. Instead, find a way to relate the new product, equipment, or procedure to something they are familiar with and let them discover the advantage; as in the case above, this will make them an allies rather than obstacles.

The *well-intentioned employee* is an especially difficult challenge. Because it is so difficult to show objective differences in what is clean, the decision that a product has cleaned better than another can be fairly subjective. Combine that with television commercials that constantly tout the "smell of clean" or the idea that glass cleaners are blue and aggressive cleaners are dark green or red, it is no wonder that many people distrust products with minimal dyes or fragrances.

The important message here is to communicate the reasons that dyes and fragrances have been reduced: decreasing potential impacts to people with various chemical sensitivities, as well as the environment, after the products are used. On top of that, demonstrate; and as the products are used, be sure to point out the efficacy and compliment the cleaners on their work.

Note that dyes and fragrances are not bad per se. In fact as this example illustrates, they have been used as cues to identify which product is used for what. However, in the United States (and other countries) many localities have recently required the reduction of dyes and fragrances in products used in governmental facilities out of concern for individuals with various chemical and fragrance sensitivities.

Beware a commonly employed diversion. Inevitably, someone will "prove" that the new green general purpose cleaner is not as effective as what they've been using. The employee points out a particularly nasty spot on the floor or wall. Typically the spot is a synthetic oil or grease. They'll spray the green cleaner on it, and after scrubbing several minutes, the spot remains. Then, they'll bring out the traditional butyl-based cleaner, spray, wipe, and the spot is gone.

The spot that was chosen likely represents about 1/10 of 1 percent of all potential spots in the facility. It is important to explain that the choice of a general purpose cleaner is not based on that type of frequency. The choice of a general purpose cleaner is based on the typical types of soil found in the facility—in fact the "green" general purpose cleaner works fine on those types of soils. Furthermore, the more aggressive cleaner can and should be used if required. After all, the objective is to clean the facility. If it isn't clean, it certainly isn't green.

Again, the key is communication—making certain everyone understands what is happening and why it's happening and helping them see results. We'll discuss this in even more detail later in the implementation and management sections – See chapters 12 and 13.

CHAPTER ELEVEN

Start-up versus Transition

As we move toward implementing the Green Cleaning program, it is worthwhile to take a brief look at some of the differences between a "new" start-up and transitioning from an existing program. While the question of start-up vs. transition may seem to apply to a new facility vs. existing facility, it could also apply to transitioning a current cleaning service (in-house or external provider) or bringing on a new facility services provider.

The general differences between a start-up and a transitional program include:

Start-up

Most commonly involves new construction or major renovation. In this case, the specifications will have to be created or re-created to reflect the new facility or area. The facility service provider is essentially starting from ground zero, bringing in new products, equipment, processes, etc.

Another type of start-up situation is when a facility moves from an in-house maintenance program to facility service provider or changes from one facility service provider to another. Again, the facility service provider is essentially starting from ground zero.

Transition

In this scenario an existing facility is moving from a traditional cleaning program to a Green Cleaning program. If an in-house staff is maintaining the facility, they continue and if maintained by a facility service provider, they remain in place as well. In most cases, the facility service provider or maintenance staff develops a plan for the phasing out of current cleaning chemicals, products and equipment in favor of the greener alternatives.

A more detailed examination of the key issues and differences between start-ups and transitions follows below.

Chemicals and Equipment

When transitioning an existing program to a Green Cleaning program, the service provider (may be in-house or a facility services provider) is faced with deciding what to do with the chemicals, equipment, and other supplies in the facility. In some cases, these products may fit into the new program, while in others they may no longer be appropriate.

However, in most cases, the products and equipment will have some or a great deal of serviceable life remaining. Simply disposing of these products would represent a significant waste of materials and money—hardly a "green" response. In these cases, it is important to have a plan in place that phases out the existing materials and equipment, identifying the planned replacements.

In a new program start-up, this step is more straight-forward. The facility manager specifies the Green Cleaning compliant products, equipment, and materials that will be brought into and used in the facility. The program is operating with green compliant materials from the beginning.

Procedures

There may be a variety of procedures or systems in an existing program that need to be modified or replaced in the Green Cleaning program. It is important to note that most cleaning procedures will not change dramatically in a Green Cleaning program; however, there may be a different order of various tasks, as well as the use of different tools (for example microfiber cloths instead of wool dusters). The new organization of procedures may also impact schedules and hours.

During a transition, all of these changes, as simple as any one of them may be, create potential resistance as well as confusion and increase the amount of supervisory time required to ensure compliance with the new program.

In a new start-up or with a new facility services provider, many of these difficulties may be alleviated. As with supplies and equipment, this



situation offers the opportunity for a fresh start with fewer habits and expectations to overcome. An example of this start-up approach is included in the Appendix of case studies—the Vive Verde project.

The first decision was to find a janitorial company that could clean the building in an environmentally friendly way without using harsh chemicals or anything considered toxic to the ozone, animals, or plants. It was important to management that different microfibers would be used for each specific surface (glass, walking surfaces, countertops) so there is no cross-contamination. Doing so also maintains the chemical integrity of each material and maintained the LEED credits for what EcoCentre has invested in the building.

All of the cleaners used in Vive Verde will be from concentrate, which reduces packaging, and will be both Green Seal certified and (meet the requirements of the USGBC LEED-EB Rating System[™]). Management knows that it may cost a bit more in the long run to care about the environment by purchasing these products but it's worth the investment to protect the people and wildlife in Vive Verde's building.

Looking for a LEED appropriate janitorial service was difficult. Vive Verde received proposals from "Green Cleaning companies" who claimed to use green product but could not substantiate their proposals. Vive Verde declined to work with them.

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The janitorial service will send Mr. Wilson's proposal and records to Vive Verde's architect, who will in turn submit it to the USGBC for LEED certification points. The documents will detail the amount of product used in every visit and why, and a detailed checks and balances system will be maintained. (Case Studies - Vive Verde) And Adobe's experience demonstrated that, even when the ultimate contract goes to the current service provider, the idea of publishing an RFP that specifies Green Cleaning can be advantageous.

I have heard of buildings transitioning to Green Cleaning and being told that it would cost more. I can see that occurring if you go to your current vendor and ask them to change their methods. There is training for staff, new equipment to be purchased, and a period of transition requiring closer supervision. On the other hand, based on our experience, I surmise that if you go out to bid and specify Green Cleaning in your RFP, you are likely to find that Green Cleaning is cheaper. At least that has been our experience. (Case Studies - Adobe)

People

At the heart of any cleaning program are the people who perform the work. It is not uncommon to minimize the importance or impact these people have. This is demonstrated most dramatically by considering the low wages paid to these workers. However, no Green Cleaning program can succeed without the commitment and efforts of these individuals. Whether discussing a new start-up, or transitioning an existing program, effective and ongoing communication is critical to the program's success.

This issue has been discussed in relation to implementing procedures above; "soft" issues will be discussed in this section. The cleaning workers are often the most visible part of a cleaning program—these are the people who the building occupants see on a regular basis. Beyond following the proper procedures, it is important that these people become part of the communication program to the rest of the facility. The cleaning staff's understanding of and enthusiasm for, the Green Cleaning program will reinforce the efforts to "sell" the program internally. Consider Adobe's experience in engaging the cleaning staff. When we began, we met with our janitors—not just their management but with the janitors themselves. We brought in a third-party expert to explain what Green Cleaning is, why we would like to employ it, and how it improves the janitors' own work environment as well as that of the other building occupants. We then asked for two volunteers to receive further training and then try Green Cleaning as a test. Two janitors stepped forward, we provided additional training, and they then tried Green Cleaning for two weeks.

At the end of two weeks, we came back together. We asked our two volunteers how they liked their new microfiber wipes; their high-filtration, ergonomic backpack vacuum cleaners; and their Green Cleaning chemicals. They indicated they liked them a lot. We thanked them, and I then explained that we would now like to have those two volunteers go back to their former methods, and we would like to have two new volunteers try Green Cleaning for two weeks. I had expected to do this testing several times with different janitors before attempting to switch.

Suddenly, however, I heard someone say, "She doesn't want to!" I looked up and one of the janitors who had been testing our new cleaning methods was looking down shyly and shaking her head "no." I asked her what she meant. She didn't speak English very well, but he janitor next to her said, "She likes her new vacuum cleaner and Green Cleaning. She doesn't want to give them up." (Case Studies – Adobe.)

While it may appear from the discussion above that changing to a new facility services provider would simplify the implementation of the Green Cleaning program; that is not always the case. There may be reasons for changing providers that have nothing to do with the new program—that is part of the normal decision making process. However, changing service providers is almost always an expensive and time-consuming process.

If a good working relationship between facility management and the facility service provider already exists, and assuming the facility service provider is willing and capable of implementing the Green Cleaning program, the transition to Green Cleaning may well be easier and less costly than making a change in providers. Consider the experience of the Massachusetts Environmentally Preferred Purchasing program as they began a Green Cleaning pilot project in four of the primary state-owned buildings.

A year after the issuance of the contract, the Massachusetts EPP Program approached the Massachusetts Bureau of State Office Buildings (BSB), the commonwealth agency responsible for managing the four primary state-owned buildings in Boston, to pilot the use of Green Cleaning products. As is common for many large office buildings, BSB administered such operations through a general cleaning contractor, in this case UGL Unicco. This relationship had been in place for several years, and conventional cleaners had always been used.

In order to obtain buy-in from both the agency and the contractor, the EPP Program brought all parties to the table to discuss the reasons for the pilot as well as the potential benefits that could be gained. They explained the process for issuing the state contract, provided pricing information that compared the cost of these products to those currently being used, and discussed the performance measures in place for both the new products and the suppliers. As a result of the initial meeting, both organizations expressed their interest in giving green cleaners a try, provided the products worked as well as the currently used chemicals and were costcompetitive.

The success of the BSB/UGL Unicco pilot project in Massachusetts provided the much needed credibility to jump-start the switch to Green Cleaning products among agencies, municipal departments, and schools throughout the commonwealth. Prior to the project, the state was purchasing just over three hundred thousand dollars in green cleaners and related products. In Fiscal Year 2007, this number has doubled and the suppliers on contract are noticing a much greater willingness among purchasers to embrace the change. (Case Studies -Green Cleaning Massachusetts State Office Buildings)

CHAPTER TWELVE Anatomy of a Green Cleaning Program

Beginning with the end in mind, let's take a brief look at what an implemented Green Cleaning program might look like; then we'll look at the key segments in more detail. In this hypothetical implementation, a facility services provider is providing the service. However, the structure and components are equally valid for in-house or selfmaintained operations. Key features of the program include:

A Green Cleaning Standard Operations Manual (SOP)

This document is the foundation of the program. Like a business plan for a company or operation, it is meant to be used. For the service provider, the document lays the groundwork for why, how, and what they will be doing; it covers products and equipment policies, training programs, and communication programs and details processes and procedures for all major tasks to be performed. For the facility manager, this document provides an in-depth understanding and way to evaluate a facility service provider's commitment and ability to deliver a Green Cleaning program.

The CIMS ⁶¹ Certification Program

This program, recently introduced by ISSA, can be a tool for facility service providers to demonstrate their commitment to effective management of their operations and service policies.

A Green Cleaning Site Plan

This document ties the principles of the green SOP with the unique needs and goals of one facility. The policies expressed in the SOP manual are applied to the specifications of the facility.

Records of cleaning chemicals, supplies, and equipment that are brought into the facility

Examination of these records will demonstrate compliance with the Green Cleaning plan in these areas. In North America, these records also provide the data for key submittals in the LEED-EBOM or GS-42 certification processes.

Equipment maintenance logs

As with purchasing records, these document the equipment in the facility and that is kept in good repair or replaced when no longer effective. And, as above, in North America, these records are an important part of LEED and GS-42 submittals.

Training records

Unfortunately, while it is all too easy to create an impressive training policy, implementing and maintaining it in the face of turnover and daily issues is much more difficult. A simple record of the training activities in the facility will keep things on track. In North America, these records are also important for Green Seal GS-42 submittals.

Regular reviews of the cleaning activities in the facility

These should be conducted by a representative of the cleaning service provider with the facility manager or another designated individual. It is important to guard against falling into patterns for these reviews. Vary the areas that are reviewed, vary the day of the week and time of day, and vary

⁶¹ For more information on ISSA's CIMS Standard go to http://www.issa.com/?id=cleaning_industry_management_standard_

the building occupants who are interviewed along the way. Whether called an inspection, audit or review, ideally this is a cooperative effort between the facility manager and the facility services provider. The goal is to ensure that the activities outlined in the green site plan are being carried out in the facility.

A periodic evaluation of the cleaning operations

Ideally this would be carried out by an independent third party. The newest LEED-EBOM standards call for the use of the APPA (www.appa.org) evaluation methodology. Use of this system helps meet submittal requirements for as many as two points toward LEED-EBOM certification.

A comprehensive communication program

The best in class programs are five-pronged, ensuring communication:

With the Facility Manager

 Whether via log book, email or telephone message the facility manager needs to be the first to know about any critical information.
 Regular meetings between facility management and the facility service provider to evaluate progress as well as to review and modify specifications or frequencies as required is important to continual improvement of the Green Cleaning program.

With building occupants

• Engaging building occupants in brief regular communication regarding housekeeping can improve the success factor of the Green Cleaning program. Engaging them in better understanding of the Green Cleaning program will augment their buy-in and ownership of the operation.

With the staff of the custodial firm.

• Regardless of where they live, people generally want to feel they are doing a good job and performing a useful service. Engaging

the cleaning operations staff, helping them understand why the Green Cleaning program is being implemented and how they contribute to its success will help speed implementation and improve compliance.

With other types of facility service providers (e.g. pest management, parking lot maintenance, etc.)

 There are many services provided to a building that can impact the cleaning operations. Impacts can range from increased cleaning intensities, rescheduling operations, and cooperation for common objectives. A plan that fosters communication and cooperation between these various suppliers will reduce confusion, conflicts and potential impacts on occupant health and productivity. See Chapter 13 for additional information.)

With the senior management of the management company, building owner(s) and the general public.

 As mentioned earlier, the "results" of a Green Cleaning program may be difficult if not impossible, for the average person to see or appreciate. It is important that the measurable results (chemicals removed, recycling results, and so on) be communicated upwards and outwards. This, at the least, helps keep the Green Cleaning program "sold" to those who originally approved the project. (See Chapter Nine for more detail about selling a Green Cleaning program.)

Let's consider these program features in more detail, as we look at what to expect from a Green Cleaning service provider.

I. The Green Cleaning Standard Operations Manual

Let's first look at the Green Cleaning Standard Operations Manual. As we've said, this lays the foundation for every part of the program. It is a tool for implementing and managing the program, much



like a business plan helps manage a company or operation. The key components of the manual include:

1. Statement of Commitment

In this section, the facility service provider (or in-house operation) owner/manager makes clear his or her understanding of and commitment to a Green Cleaning policy. While the statement of commitment may appear to be marketing "fluff," in reality it should set the tone for the organization's operations. One simple way to gauge commitment is to compare the expression of this commitment (policies and procedures) to the words in this section.

2. Green Program Overview

This section provides a brief overview or "executive summary" of the program. This section, in conjunction with the Commitment Section should clarify what the Green Cleaning program is and why it is being implemented.

3. Cleaning Chemical Strategy Rationale for Green Chemicals

This is a discussion of how the various cleaning chemicals to be used are being chosen. It should be clear to whoever reads or uses this manual exactly what considerations have gone into the choice of cleaning chemicals. This should not be an endorsement of a particular chemical manufacturer. Instead, we are looking for an understanding of and commitment to following the standards of independent ecolabeling organizations. (See Appendix 2 for a list of ecolabeling organizations worldwide.)

While it is not essential that the products be certified by one of these organizations (and in some parts of the world not even possible), these standards do offer an excellent starting point for decision making. In cases where product categories are not covered by an ecolabel, it is important that this section discuss the methods to be employed in evaluating and choosing products that minimize impacts on human health and the environment. (See Appendix 1 Cleaning Products for more detailed discussion on eco-labels and chemical choices.)

Finally, it is important that the policy consider the differences between new, start-up operations and transitioning, existing facilities. A start-up offers the opportunity to bring in the appropriate products from day one. However, in an existing facility, there will be a supply of product that may not fit the policy. One option would be to move this product to an operation being maintained in a traditional fashion and replace it with the new product. Another would be to consume the current products and, as they are exhausted, replace them with the new products. There isn't a universal right or wrong answer; what is important here is that there is an articulated plan.

List of Approved Chemicals

While the previous section discussed how and why chemicals and chemical systems were chosen, this section simply lists those products that are available for use throughout the organization. Note that not all of these chemicals will necessarily be used in the facility—that will be discussed when considering the green site manual.

Product Specification Sheets

Manufacturers provide "cut sheets" or technical specification sheets for each of their products. These sheets usually include a list of the products features and benefits, as well as general use instructions and precautions. Including these sheets will help the facility manager understand what is coming into the building.

Material Safety Data Sheets (MSDS)

In the United States, OSHA (Occupational Safety and Health Administration) requires that an MSDS (Material Safety Data Sheet) be maintained on site for every chemical used in a facility. Similar
programs can be found in other countries. The MSDS not only provides the facility manager with important information about what is being brought into the building, it is a vital tool should a worker or building occupant be exposed to a cleaning chemical. While the service provider will maintain a set of these sheets in an area accessible to supervisors and staff, having another set available to the facility manager in this manual provides easy access should a building occupant be exposed to a product and concerned about potential negative impacts.

4. Powered Cleaning Equipment Strategy

This is a rationale for Green Cleaning equipment. As with cleaning chemicals, this section should explain the decision making process employed in choosing powered cleaning equipment. Unlike cleaning chemicals, there are few independent standards setting organizations for powered cleaning equipment. In North America, the Carpet and Rug Institute (CRI)⁶² evaluates vacuum cleaners and carpet cleaning systems. CRI's rating system is referenced in the LEED-EBOM and Green Seal GS-42 certification standards. As with chemical standards, these provide a good starting point when evaluating and choosing powered cleaning equipment.

This section should include plans for implementing the policy in new start-ups as well as a plan for phasing in replacement equipment in transition situations. As with the chemical policy, there are alternative ways to accomplish the transition. However, moving equipment between facilities is more difficult and more expensive than swapping a few cases of all purpose cleaner. But, as with the chemical policy, the key issue here is that there is a plan.

List of Approved Equipment

Insert a list of equipment that is approved for purchases under the green powered cleaning equipment policy.

Equipment Specification Sheets

As with the cleaning chemicals, provide the specification sheets for all approved equipment. The cleaning industry may appear to be fairly static; however, there are innovations and changes to powered equipment on a regular basis. If facility management is maintaining the specification sheets for currently approved equipment, the task of comparing them to newer options as they become available will be much easier if the documentation is readily available. (Refer to Appendix 3 for more details.)

5. Janitorial Paper and Plastic Liner Strategy

This is a rationale for the choice of green janitorial paper and plastic trash can liners. In some cases, the service provider will be responsible for choosing (or recommending) these products to be used in a facility. In other cases, the facility manager will specify the products. The green SOP manual should include a policy for guiding the paper and plastic choices for when the service provider brings them in as well as a way of assisting a property manager in choosing the products they may specify.

Considerations may include the amount of recycled content (especially postconsumer, recycled content), paper that has been made in a chlorine-free fashion, as well as paper created from nontraditional resources, such as bamboo or various grasses.

List of Recommended Paper Products and Trash Can Liners

Include a list of products that are authorized for use in the facility in which the Green Cleaning program is being implemented.

Paper and Liner Specification Sheets

Insert the specification sheets for the approved paper products. It is important that these sheets (or an Appendix that is created) indicate the key parameter involved in making the choice. Just

⁶² Information on the Carpet & Rug Institute's Green Label and Seal of Approval programs can be found at http://www.carpet-rug.org/

as with equipment, paper manufacturers are experimenting with new materials and processes to protect natural resources. Having the detailed and readily available information about current products makes comparison with new products easier. (Refer to Appendix 1 for more details.)

6. Strategy for Additional Supplies and Tools

A variety of tools, small equipment, and other supplies are required to properly maintain a building. This section is meant to capture the policy employed in choosing these products. As with the other sections, it is important that the policy be realistic and that it reflects the actual plans. This document is not being created to be a sales or marketing tool; it is a management tool. Anyone involved in evaluating, choosing, or purchasing chemicals, equipment, paper, or other supplies should be able to refer to the manual for guidance in carrying out their tasks.

Rationale for Green Janitorial Supplies

Include also a rationale for green janitorial supplies. As Green Cleaning has gained traction over the past several years, manufacturers have stepped up and begun offering equipment and supplies made with recycled content or materials that are less impactful in their extraction, manufacture, and disposal.

Items such as buckets, mop handles, and other supplies and tools may be chosen based not only on potential recycled content but for durability as well. It is important that we get beyond the disposable mentality and look for products that will provide years of service. This is not only an issue of congested landfills, but we need to consider the sourcing of raw materials and the impacts of manufacturing and transportation as well as disposal issues for these types of products.

For example, when comparing two mop buckets of the same size one may cost twice as much while lasting twice as long. It would appear they have the same total or life cycle cost; however the bucket that lasts twice as long actually has one half the total environmental impact.

Another area of consideration is finding tools that perform more efficiently than current tools or replace potentially hazardous cleaning chemicals. Two examples are:

- Microfiber cloths, which can replace the traditional feather or wool duster. The microfiber cloth captures as much as twice the dust captured by wool dusters (even more than feather dusters). Over time, the impact on the indoor environment is dramatic.
- A drain snake or an enzyme drain opener, which can replace the traditional acid-based product.

List of Recommended Supplies

As above, in this section provide a list of the approved Green Cleaning products and supplies to be used in the facilities cleaned under this program.

Supply Specification Sheets

Again, provide any specifications sheets or other materials to identify the products.

7. Green Cleaning Procedures

Now that the policies for cleaning chemicals, powered equipment, paper, and other supplies to be used in a Green Cleaning Program have been laid out, it's time to examine how the tasks are to be performed.

As mentioned earlier (Chapter 6) Green Cleaning is separate from Day Cleaning, Team Cleaning or other organizational systems. The procedures and examples presented here should be modified to fit the organizational model as needed. What is important is that the procedures be described in a uniform and understandable way. This will make training easier, as well as follow-up and evaluation of the program after implementation.

A facility manager can use this section to compare alternative service providers and better understand

how marketing and sales claims may be translated into cleaning services.

Introduction

In the introduction, the stage is set for how the procedures will be described, the format to be used, and any other points that will help the reader understand what is to follow.

- The first part of this section will consider collections of procedures organized by area to be cleaned. These are:
 - Entryway and Lobby Cleanings
 - Escalators
 - Elevators
 - General Office Space Cleaning
 - Restroom Cleaning
 - **D** Food Preparation and Serving Areas
- The second part considers individual tasks. These are:
 - Vacuum Cleaning and Carpet Spotting
 - Hard Floor Dry Cleaning
 - Damp Mopping
 - Wet Mopping
- The final part of this section discusses the appropriate processes for measuring and diluting cleaning chemicals.

Green Procedures by Area

In this section, it is important to include descriptions of how the major areas of a building will be cleaned following the Green Cleaning SOP manual. Typical areas include restrooms, entryways, lobbies, stairwells, elevators and landings, conference rooms, general office areas, break rooms, and so on. There are many ways to organize the descriptions. Below is one example used successfully in many operations. The key sections are:

- Area to be Cleaned
- Purpose what is the objective in this area
- Equipment list provide a list of all equipment to be used
- Cleaning chemicals list the chemicals used to

clean this area

- Tasks a general list of tasks required to properly clean the area
- Detailed procedures
- Preparation
- Step-by-step procedures

Sample Procedure Description by Area

Area to be Cleaned - Entryway and Lobby

Purpose

The entrance and lobby provide the best opportunity to capture dust, dirt, and potentially harmful particles before they make their way deeper into the building. Proper and effective cleaning at this stage can dramatically improve the overall indoor environmental quality.

Equipment List

- Microfiber dust mop, broom and/or vacuum cleaner for hard floors (choice of tool will depend on size and type of hard floor material).
- Lobby broom and dust pan
- Vacuum cleaner for carpets and walk-off mats
- Putty knife
- Wet floor warning signs or cones
- Microfiber cloths for dusting (dry)
- Microfiber cloths for damp or wet cleaning (no chemicals added)
- Pail for cloths
- Microfiber cloth lightly sprayed with general purpose cleaner
- Microfiber mop and bucket w/wringer for wet floor cleaning
- Cart for equipment transport
- Spray bottle (set to coarse spray pattern)
- Scoop for cigarette urns (if needed)

Cleaning Chemicals

- Clean water (cool)
- Neutral floor cleaner
- General purpose surface cleaner
- Waterless hand sanitizers
- Disinfectant solution (if required)
- Sand for cigarette urn (if required)

Tasks

- Sift cigarette urns and replace sand as required
- Dust all surfaces that can be reached while standing on floor
- Spot clean glass surfaces
- Remove fingerprints, spots, smudges, etc. from wall surfaces, water fountains, counter tops, and other touch points
- Disinfect touch points
- Refill waterless hand sanitizer stands
- Polish metal and wood surfaces per schedule
- Vacuum walk-off mats
- Vacuum, sweep, or dry mop hard floor surfaces and collect and dispose of debris
- Empty trash receptacles
- Damp mop, wet mop, or scrub hard floor per scheduled services
- Clean and store equipment properly

Detailed Procedures

Preparation

- Gather required equipment, tools, and supplies.
- Move to assigned work area.

Step 1 – Start high and dry

Using a microfiber cloth or tool equipped with microfiber cloth, begin dusting at the highest point reachable while standing on the floor. (Note: use appropriate stool or ladder to reach high dust points per building schedule.) Proceed to mid level and lower surfaces until all surfaces have been dusted. Fold and refold cloth to expose clean surfaces as required.

Step 2 – Apply Disinfectant

Per building specifications, apply disinfectant to public touch points.

Allow sufficient dwell time (based on product usage instructions) If directed to wipe dry or polish after dwell time, include that in the next step.

Step 3 – Spot clean and polish

Use the dry microfiber cloth to remove fingerprints, smudges, and other marks from doors, glass, walls, and other surfaces. For stubborn marks, use the microfiber cloth dampened with water or general purpose cleaner.

Per building schedule, clean and polish metal, glass, and wood surfaces using a microfiber cloth and approved cleaner/polishing agent.

Clean and disinfect water fountains using disinfectant spray cleaner and damp microfiber cloth. Limit use of disinfectant to the bowl, mouthpiece and handle of the water fountain and follow manufacturer's instructions for use. Wipe down the rest of the fountain with microfiber cloth and general purpose cleaner.

Wipe or polish disinfected surfaces per usage instructions.

Step 4 – Clean floors and mats

Sweep exterior sidewalk and vestibule. Collect and dispose of debris.

Vacuum clean all walk-off mats and entryway grills (or sweep as required). Follow building specific green operations manual for periodic cleaning of walk-off mats.

Vacuum lobby carpets (see vacuum cleaning specific task in the next section).

Vacuum, sweep, or dust mop lobby hard floors (see dry cleaning hard floors in the next section). Use putty knife to remove gum, tar, or other materials stuck to hard floors. Pay special attention to corners, edges and hard to reach areas of the entry and lobby floors.

Step 5 – Collect trash and recycling

Empty all trash containers and replace plastic liners with proper size liner. Wipe down containers with microfiber cloth and general purpose cleaner.

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Empty all recycling containers into proper receptacles. Replace in proper location.

Sift cigarette urns, removing debris, and replace sand as required.

Step 5 – Wet cleaning of entryway and lobby

Place "Wet Floor" warning signs in appropriate locations to help prevent slip and fall accidents.

Damp mop the entry and lobby hard floors (see hard floor damp mopping or wet mopping).

Perform any periodic hard floor maintenance items per building specific green operations manual.

Step 6 – Pack up and go

Collect all tools, equipment, and cleaning supplies used in performing the tasks above. Put them on the equipment transport device and return them to the storage area.

Clean and properly store all tools and equipment. Make note of any repairs required.

Collect all microfiber cloths and place in designated area for laundry.

Return all cleaning chemicals and supplies to proper locations.

Record any irregularities in communication log and notify supervisor.

It is important that, as these procedures are documented, they reflect how the facility service provider or in-house staff will actually complete the task. It is also important to look at all of the procedures in a new way—a green way. That means considering that how a procedure is performed might impact the people who do the work, the building occupants and visitors, as well as the general environment.

Consideration of many of those impacts is part of the decision making process for which chemicals, equipment, and other supplies used. But these choices can and will impact how the tasks are performed. A simple example involves moving from wool dusters to microfiber cloths. The cloths' efficiency is dramatically improved when cleaners follow the proper method of folding and replacement rather than using them as a simple rag.

Another example is the order of various tasks in the flow of operations; for example, starting "high and dry" and working down toward the floor keeps any stray soil or dust moving in a downward direction. Following with vacuum cleaning picks up the majority and removes the contaminants from the area.

Reevaluating how cleaning tasks are performed is more difficult and time-consuming than it appears at first glance. After going through the operation, it may seem that many procedures have not changed substantially. What is important is that current procedures and operations have been validated from a Green Cleaning perspective.

This re-evaluation should be conducted on a periodic basis, perhaps semi-annually or in some cases quarterly. Not only will this help ensure the best service possible, it may uncover opportunities to improve cleaning effectiveness and efficiencies.

Sample Task Description

As with green procedures by area, we'll organize task procedures as follows:

- Task to be performed
- Purpose what is the objective of this task
- Equipment list provide a list of all equipment to be used
- Cleaning chemicals list the chemicals used to clean this area
- Steps a general list of steps required to perform the task
- Detailed procedures
- Preparation
- Step-by-step procedures

Task to be Performed - Vacuum Cleaning (Note: this example considers wall to wall vacuuming with an upright vacuum cleaner.)

Purpose

- Using a powered vacuum cleaner, the operator removes dirt, dust, and other debris from carpeted surfaces and rugs. With the proper tools and accessories, the operator may use this tool for dry cleaning hard floors as well as carpets. The operator will also pay attention to edges, corners, and hard to access areas per the established schedule of activities.
- Normal day-to-day spotting will be accomplished as part of the vacuum cleaning procedure.

Equipment List

- Approved vacuum cleaner The exact style and model will depend on the specific area to be cleaned. This may be a backpack, tank, or upright vacuum. All vacuums will be equipped with approved filters and disposable collection bags. If a cyclonic vacuum cleaner is employed, it will be equipped with approved post-motor filters and emissions shall meet or exceed CRI standards in North America.
- Lobby broom
- Extension cord (if required)
- Microfiber wiping cloths

Cleaning Chemicals

• Approved carpet spotter or spotting kit

Preparation

- Gather required equipment in storage area.
- Inspect vacuum cleaner and ensure:
- Collection bag is empty and properly installed
- Filters are clean and in place
- Brush rolls freely and bristles are not worn out
- Cord has no breaks, nicks, or cuts
- Plug is properly attached and ground pin is in place
- Hoses are in place and in good operating condition
- Belts are in place and not nicked or worn.

• Move to work area.

Steps

- Collect tools and equipment from storage area.
- Ensure powered equipment is in proper working order and ready to use.
- Vacuum all accessible areas of carpet (follow building specific schedule for unique requirements and frequencies).
- Use lobby broom as needed to reach areas not accessible to the vacuum cleaner.
- Move in established pattern to create proper appearance.
- Use approved products to remove spots as they are encountered.
- Always operate powered equipment in a safe and appropriate fashion.
- Replace furnishings and other items in proper location.
- Inspect work, turn off lights, and secure doors.
- Return to storage area and inspect, clean, and store equipment.

Detailed Procedures Step 1 – Prepare the area to be vacuumed

- Move furniture to allow effective vacuuming
- Make note of any damaged furniture or other irregularities and report to supervisor.
- Place vacuum in farthest corner from entry point and run cord back to entry point.
- Attach extension cord if needed and lay cord to facilitate vacuum pattern plug into outlet.

Step 2 – Begin vacuuming

- Begin vacuuming in a V pattern, moving from the corner across the floor and back the other direction. Hold the cord in one hand to prevent tangling or tripping over it.
- Use the lobby broom to remove debris from edges, corners, and other inaccessible areas.
- Move backward toward the entry point, maintaining the V or wave pattern. Hold the cord in one hand to prevent tangling or tripping over it.



• Empty or replace collection bag (or bin) as required during the shift.

Step 3 – Spot clean carpet (This may not be appropriate in all operations)

- Use the approved spotting solution or kit to remove spots as they are encountered. Use the microfiber cloths to blot excess cleaner and the spot.
- Re-vacuum as needed.

Step 4 – Inspect and finish up

- Check the area to be sure all carpets have been vacuumed properly.
- Ensure all furniture has been properly replaced.
- Check for missed spots and remove as needed.
- Turn off lights and close doors per building specifications.

Step 5 – Pack up and go

- Collect all tools, equipment, and cleaning supplies used in performing the tasks above. Return to storage area.
- Empty or replace vacuum cleaner collection bag. Clean or replace filters as required. Make note of any repairs required.
- Collect all microfiber cloths and place in designated area for laundry.
- Return all cleaning chemicals and supplies to proper locations.
- Record any irregularities in communication log and notify supervisor.

8. Recycling Programs

As with choosing or supplying paper products, the facility service provider may or may not be asked to design, implement, or support a recycling program. In this section, the manual should explain the company's commitment to recycling programs. Obviously, this should be consistent with local or other relevant regulations. Because the recycling program will likely be unique to each facility being cleaned, this section is really about statements of intent and commitment.

Corporate Commitment

This is the statement of commitment to the concepts and principles of recycling by the facility service provider. It could and should provide examples of how this commitment is being carried out within the facility service provider's own organization and their offices.

Site Level Implementation

This is likewise a statement of commitment, in this case, a commitment to carry out the facility manager's direction at the site level. The site level implementation section may provide references to sites where a program has been implemented.

Communication

Because of various regional and local regulations, differing options from trash haulers and facility service providers, there can be a great deal of confusion by building occupants surrounding recycling programs. For example, trash may be separated in a central facility away from the sight of building occupants. In this case, the facility service provider will collect all trash in common containers, to be sorted later. To the building occupant, it may appear that the recycling program is not being followed by the facility service provider. It is important that occupants and visitors be made aware of how the program has been implemented through the communications program.

Another issue that requires communication is how the building occupants and visitors fit into the recycling program. In a common "blue bin" scheme, occupants are expected to use a designated container for recyclable materials and traditional bins for regular and wet trash. However, if some wet trash is thrown into the blue bin, it "contaminates" the recyclable content, which must now be collected with the normal trash. This again leads to confusion and potential complaints to facility management.

9. Training Programs

As mentioned earlier, training is a topic that is often discussed by facility managers as well as service providers, and the importance of good training is acknowledged by all, but in reality training of line level cleaning employees is often neglected or poorly documented. This section of the manual should detail the realistic training programs, systems, and facilities that the service provider employs.

While some training may be labeled Green Cleaning, it's important to evaluate the total program. In other words, if the general cleaning is not understood or properly completed, there will be no Green Cleaning regardless of program titles. Some of the topics of a solid training program will include:

- Company orientation
- Expectations (both the company's expectations of the employee and the employee's expectation of the company)
- Why we clean the way we do
- What Green Cleaning is
- Safety
- What the chemicals are and how they are used
- What the equipment is and how is it used
- How to perform assigned tasks

This section should also reference the ongoing nature of training. Whether a person cleans buildings, operates a cash register, or manages a building, the fact is everyone needs to hear and see things many times to learn. They also need to practice and be coached to improve and master a task.

A key part of this section is a description of how this ongoing coaching and training will be documented. Not only will this aid in the development of better performing employees, it is a part of the data required for various certification programs.

Corporate Commitment

This section will describe the service provider's understanding and commitment to a solid training program.

Site Level Implementation

Here the manual will describe how the vision of a training program will be translated to a site level. This will be fairly generic in this manual; the details will be developed in the green site manual.

10. Vulnerable Populations

Almost every building will have some part of its population that may be defined as "vulnerable." In this book the term is used to describe people who may be more susceptible to being impacted by cleaning operations (or the lack of cleaning) than the average building occupant. Some obvious candidates are people with compromised health or immune systems, pregnant women, elderly occupants or visitors, and people with chemical or fragrance sensitivities.

It is not unusual to find building occupants who are, or perceive they are, negatively impacted by other building operations. A walk-through of a typical building may turn up some cardboard taped over a diffuser (the individual who put the cardboard up is not comfortable with the airflow in their area), a personal air filter or heater by a desk, or a collection of household cleaning products by a desk or in a coat closet.

All of these people are indicating their discomfort in the building. Key components of a green operation are increasing occupant protection, reducing negative impacts, and improving productivity. The signals identified above are excellent starting points for initiating a discussion about vulnerable populations and beginning to identify them.

This section of the manual should again describe the facility service provider's commitment to supporting facility management's efforts in minimizing impacts to vulnerable populations. The facility service provider may describe options such as modifying procedures, timing of operations such as dusting or vacuuming to minimize potential impacts from these activities, and other ideas. Again, more detailed information will be in the Green Cleaning Site Manual.

11. Communications

In this section of the Green SOP Manual, the facility service providers should describe how they plan to communicate the implementation of their Green Cleaning program, as well as how they plan to maintain contact and communicate with the facility manager, building occupants, and their own personnel.

Once again, the information will be fairly generic. The section may include some examples of previous communication tools (newsletters, door hangers, flyers, etc.). Details for a specific facility will be covered in the Green Cleaning Site Manual.

II. THE GREEN CLEANING SITE MANUAL

The Green Standard Operation Policy Manual is the foundation of the Green Cleaning program. The policies and principles described in that manual are married with the specifications and unique features in the facility. This becomes the working document for Green Cleaning in the building. This is the Green Cleaning Site Manual. The typical layout (although there are other ways these can be organized) for this manual is:

- Introductory Material
 - Contents
 - About ABC Maintenance
 - About XYZ Site
 - Intent of this Document
- Schedule of Routine Cleaning Operations
 - Base Building
 - Tenant 1
 - Tenant 2
 - Etc.

- Green Floor Care Plan
 - Floor Care Periodic Schedule
 - Green Carpet Care Plan
 - Carpet Care Periodic Schedule
- Schedule of Other Periodic Cleaning Operations
 - Base Building
 - Tenant 1
 - Tenant 2
 - Etc.
- Green Cleaning Plans for Special Situations
 - Food Preparation and Service Areas
 - Janitorial Storage Areas
 - Vulnerable Populations
 - Unique Sources of Indoor Contaminants
 - Potentially Hazardous Materials
 - Areas with Special Engineering Concerns
 - Seasonal Use Areas
- Recycling Program
- Green Chemical Policy
 - Approved Chemicals
 - MSDS, WHMIS or other programs for Approved Chemicals
- Green Equipment Policy
 - Equipment Logs
 - Training Program
 - Training Logs
- Communication Plan
 - Sample Communication Pieces

When considering each of these sections in more detail, keep in mind that the intent of this document is to describe the Green Cleaning program for a specific facility. At every opportunity, ensure that specific examples are used. Ideally, someone who is basically familiar with the building could pick this document up and understand what is happening from a Green Cleaning perspective.

Note that this document will be prepared in part by the facility service provider but should ultimately be a collaborative effort between facility management and the facility service provider. It is important that the Green Cleaning Site Manual accurately reflect management's expectations and is clear about what is to be done as part of the Green Cleaning program at this site.

1. Introductory Materials

About ABC Maintenance

This should be a fairly short, straightforward description of the service provider's company. It is not a marketing piece. This section should include an organizational chart that demonstrates how the line employee is supported.

About the Site

This is a brief description of the property to be maintained. It should accurately describe the building, tenants, uses of the facility, and the image that the facility would like to project.

Intent of this Document

This is a simple statement of why this document has been put together. It may seem redundant; however, this document will be seen by others in various organizations, and parts will likely be shared with tenant representatives. This document is part of the overall communications program.

2. Schedule of Routine Cleaning Operations

Here is where we start getting into the heart of the program—the specifications. The single most important issue here is to be realistic. The unfortunate reality is that many traditional cleaning specifications are virtually worthless.

As many facility service providers can attest, "There are the specifications, and there is what we do. We clean to expectations, not specifications." The specifications are used often used only to create a proposal and to justify costs; they often are not used for much else.

To be successful in implementing a Green Cleaning program, it is important to create, validate, and use the cleaning specifications. That does not mean they should be an inflexible formula that doesn't recognize change or exceptions. To the contrary, a good set of specifications helps manage change and exceptions in a way that respects both the facility manager and the facility service provider.

The specifications should be broken out in a logical fashion that reflects the nature of the building. One example would be:

- Base Building
- Tenant 1
- Tenant 2
- Etc.

Please refer to Appendix 4 for an in depth discussion of Green Cleaning Performance-Based Contracts.

3. Green Floor Care Plan

The next major section is the plan for maintaining hard floors. This section would describe the goals of the plan at the specific facility (e.g., to protect floor covering investment; to provide an ultrahigh gloss; to create slip-free surfaces; to maintain a lowluster, clean appearance; reduce potentially harmful exposures to occupants and cleaning personnel during floor maintenance; reduce environmental impacts; and so on).

Next, outline the ways those goals will be met (e.g. by using finishes designed to deliver high gloss with minimal maintenance, by use of finishes with no heavy metals, by choosing powered equipment that collects dust, by employing low-impact maintenance procedures, focusing on daily and interim cleaning to reduce the frequency of stripping and recoating, and so on).

It is important to recognize that frequency of interim maintenance tasks will be flexible in order to respond to demands created by traffic and weather conditions. For example, although the specifications may call for scrubbing and re-coating on a semiannual basis, it may be necessary to perform the task more frequently in some areas at certain times of the year, while in others an annual performance may be sufficient.

4. Floor Care Periodic Schedule

Here we insert the actual schedule for this facility. This schedule should be reviewed at least annually, preferably semiannually, and adjusted to reflect the real needs and experiences in the building. And, again, these schedules should be organized in a logical way to facilitate understanding of the operations as they occur in the facility.

5. Green Carpet Care Plan

As with the hard floor care plan, the green carpet care plan should begin with a clear statement of the goals of the plan. How does this plan reflect the Green Cleaning goals? Some considerations might include protecting the investment in floor coverings, minimizing the potential impact on building occupants and workers as a result of carpet cleaning activities, preventing slip fall accidents, reduce potentially harmful exposures to occupants and cleaning personnel during carpet maintenance; reduce environmental impacts; and so on.

The next step is to explain how the green carpet care plan will deliver against these goals. Here, consider how cleaning chemicals are chosen to maximize results while minimizing potential health or environmental impacts, how water will be conserved, scheduling of cleaning tasks to maximize the life of the carpet, choice of equipment that meets Green Cleaning goals, and so on. There is no one correct list of goals or methods—these will vary from facility to facility.

6. Carpet Care Periodic Schedule

As with the hard floor program, this is where the schedule of carpet care tasks is inserted. And, like the hard floor program, being realistic and flexible is critical. Be sure to reevaluate these procedures and frequencies on a regular basis, updating the manual as needed to match the new schedules.

7. Schedule of Other Periodic Cleaning Operations

In the two previous sections, we've detailed the hard floor and carpet care plans to be performed in this facility. In this section, we want to consider the various other periodic tasks that must be performed. These might include (among others) high dusting, window cleaning, and escalator cleaning, other detail cleaning, and so on.

These should be organized in a way that makes it easy to schedule and refer to the required operations in a logical way. One method is to break them out by major building area, for example:

- Base Building
- Tenant 1
- Tenant 2
- Etc.

As with the major periodic tasks, these schedules should be reevaluated on a regular basis.

8. Green Cleaning Plans for Special Situations

Every facility has some unique features. This section of the Green Cleaning Site Manual addresses those unique situations and should ensure that there is a plan to deal with them. Not every building will have all of these issues, but various buildings will have one or more of them. Most are fairly obvious and need little or no discussion. The following are some examples of how these issues could be dealt with in this section of the document.

Food Preparation & Service Areas (Sample)

- Purpose To keep food preparation areas clean, hygienic, and safe for preparing, serving, and consuming meals and snacks while reducing environmental impacts.
- Cleaning Chemicals
 - Approved general purpose cleaner (see "Green Chemical Policy").
 - Approved sanitizer (see "Green Chemical Policy").



• Other Supplies

- Dry microfiber cloth for dusting
- Pretreated (or damp) microfiber cloth for cleaning product
- Spray bottles (set for coarse spray) for cleaning solution and sanitizing solution
 Appropriate trash bags

• Key Actions

- Separate recyclables from trash. Collect trash in appropriate containers. Collect recyclables in appropriate containers. Wipe down and sanitize trash and recycle containers with approved general purpose and sanitizing solutions.
- Clean all horizontal and vertical surfaces within reach per normal standards (see ABC Green Standard Operations Manual).
- Sanitize all surfaces within reach with approved sanitizing solution and following manufacturer's instructions (see "Green Chemical Policy").
- Clean hard floor surfaces in conformance with ABC Green Cleaning Standard Operations Manual).
- Sanitize hard floors per unique specifications at XYZ Site (see "Green Chemical Policy").
- Vacuum carpeted floors per building specifications (see "Routine Cleaning Specifications").
- Sanitize or deep clean carpets per unique periodic specifications (see "Periodic Carpet Care Procedures").

Janitorial Storage Areas Green Cleaning Plan (Sample)

- In a Green Cleaning program such as the Green Cleaning plan instituted in this facility by ABC Maintenance, the place and manner that janitorial cleaning chemicals are stored and mixed is very important.
- Automatic dilution control equipment will be placed in janitorial closets that have proper

access to water (with appropriate backflow prevention devices) and drainage systems. These "closets" will be properly lit and ventilated to protect the safety and health of the individuals assigned to using the equipment as well as other building occupants and visitors.

- If, in ABC Maintenance's opinion, the health or safety of the individuals involved in working with the cleaning products, building occupants, or visitors is in any way compromised by the location or design of the areas used to mix and dilute products, ABC will immediately notify building management of the deficiency and stop using this area until the deficiency is corrected.
- All janitorial storage areas will be maintained in a clean, hygienic, and safe manner by ABC employees.

9. Vulnerable Populations

One of the most important goals of a Green Cleaning plan is to protect the health of building occupants. This is accomplished in a number of ways—from preventing the introduction of harmful particulates such as molds, bacteria, and viruses to their removal and disposal. While cleaning procedures can reduce the exposure of individuals to these contaminants, the process of cleaning and the products used in cleaning can unintentionally cause adverse health and productivity impacts among building occupants.

This impact is especially significant for individuals who are sensitive to odors and fragrances, those with preexisting conditions such as asthma or allergies, occupants with reduced immune systems, and pregnant women.

An effective Green Cleaning Site Manual recognizes the needs of these individuals and will accommodate their needs through selection of cleaning chemicals, frequencies of cleaning operations, and changing the timing of various cleaning operations as needed. The actual identification of these individuals is the responsibility of property management, and that information should be integrated into a plan to address these unique needs.

10. Unique Sources of Indoor Contaminants

This section should consider and reflect the situation in the building. Some examples of these sources include print shops or copy centers, nurse's station(s) or treatment areas, and areas adjacent to parking decks or garages or chemical storage facilities.

11. Potentially Hazardous Materials

If cleaning employees or building occupants may be exposed to hazardous or potentially hazardous materials as a result of the facilities operations, there must be a plan for reacting to such exposure. That plan would be detailed in this section.

12. Areas with Special Engineering Concerns

In this section, capture architectural features such as raised flooring, unique floor coverings requiring special cleaning products or procedures, other coverings (e.g. wall paper) that require special cleaning procedures, and so on.

13. Seasonal Use Areas

Are there areas of the facility that are only used on a seasonal or occasional basis? They should be captured here, and the frequencies of cleaning operations or special cleaning requirements should be detailed here as well.

14. Facility Recycling Program

Recycling is an incredibly important pollution prevention tool as we seek to minimize our impact on the environment. Recycling helps minimize impacts as a result of disposal as well as extraction of new raw materials to create new products. Recycling efforts are guided by the EPA Comprehensive Procurement Guidelines (Appendix – Additional Reference Materials.) It is important to understand the local regulations and how to meet the specific recycling guidelines.

Key actions:

- Ensure that the building collection meets with the guidelines from the local recycling hauler and recycling facility
- Ensure that building occupants understand what is to be recycled and how recyclables need to be separated
- To avoid attracting pests, food containers such as soda cans should be rinsed by occupants before they're placed in recycling containers

One of the best ways to make the recycling effort work with building occupants is to establish clear goals and procedures. To accomplish this, the Green Cleaning Site Manual should detail the communications plan to be implemented.

15. Green Chemical Policy

This is a restatement of the green chemical policy described in the Green Cleaning Standard Operations Manual.

Approved Chemicals for XYZ Site - This is the subset of the complete list of approved chemicals that will actually be used in this facility. It should include the "cut sheets" for those chemicals as well.

MSDS for Approved Chemicals - Again, include the MSDS that are applicable for this site.

16. Green Equipment Policy

This is a restatement of the green powered equipment policy presented in Green Cleaning Standard Operations Manual. This section would include the list of approved equipment for this site and associated specification sheets.

Equipment Logs

These are the actual inventory and maintenance logs for the equipment assigned to this site. They should be updated whenever any maintenance

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is performed on the equipment. If equipment is removed or brought to the site, it should be logged out or in as appropriate.

17. Training Program

In this section, the Training Policy described in the Green Cleaning Standard Operations Manual is translated into the specific programs that will be used in this site.

Training Logs

These logs are used to document all of the training that is accomplished in this facility. They should be easily sorted by employee and should include the date, the training topic covered, the approximate time involved, and the name of the instructor or supervisor who conducted the training.

18. Communication Plan

Although the communications program is the last section in this manual, it is certainly not the least important. In fact without a strong level of communications between the service provider, facility management, staff, building occupants, and line employees, the Green Cleaning program will be less effective. An example of how that might be articulated is provided below. Of course, this should be modified to fit the situation in the specific facility.

SAMPLE COMMUNICATION PLAN

ABC is committed to maintaining a level of communications with our clients that exceeds their expectations. Our Green Cleaning communications program consists of three levels:

Basic communications regarding our cleaning activities and their potential impacts on building occupants. This includes providing information about the products we use (including copies of the MSDS), equipment, paper, and other supplies. We help our clients understand the positive impacts their building makes simply by working with ABC and our Green Cleaning program. At this level, we also communicate any special activities that are planned such as major floor work, carpet cleaning, and so on. We can coordinate with the other contractors or vendors in the facility to ensure a uniform communication of key events is carried out. Key events might include parking lot maintenance, HVAC work, elevator work, and so on.

At the next level of communication, we work with our clients to help communicate the program to building occupants. In doing so, we position the property owner or manager in a positive light for making the decision to embark on a Green Cleaning program.

We can develop special mailings, newsletters, eLetters, door hangers, and other communications tools that help communicate the importance and value of Green Cleaning. We help property management communicate the benefits the occupants accrue by being a tenant in their building.

At the ultimate level of communication, we participate in our clients' stewardship programs. We are proud to sit on the stewardship committee charged with the responsibility of ensuring the sustainability of the company and facility.

Property management at XYZ Site has elected to participate at level X of the ABC Green Cleaning Program. Examples of the types of communication tools are attached in the following pages.

This section should also include examples of communication tools or pieces to be used in the facility. Nichols Supply, a Michigan-based janitorial products distributor has worked with a number of customers to help design and implement Green Cleaning programs. Some of the company's experiences in developing communications plans are highlighted in the case study excerpted below.

Early on in this pursuit Marie Zeman, Facilities Project Manager, along with the help of Nichols, the supplier of custodial supplies, formed a facilities green team. Invited to this team were all outsourced services such as their building service contractor, foodservice, landscaping, electrical, pest management, and waste hauler.

At first, meetings were held monthly to keep the process on track. "Cascade's goals and expectations were shared upfront," says Zeman. She added, "I do believe this was very helpful when it came time to work on documenting our processes for LEED. Setting the expectations early and encouraging our suppliers to start the research and learning on their own if they had not already been exposed to these type of requirements shortened the process." Other benefits of meeting periodically as a team were realized also. These people typically do not interface with each other, but yet everything they do within a facility affects others. What foodservice does affects custodial and possibly pest management; what landscaping does can affect custodial. "Bringing their issues to the table for all to work through and make suggestions made my life much easier, and I was able to push some of that burden to my suppliers, making them more valuable to Cascade," says Zeman. "So it was a win-win for all of us," she added. (Case Studies - Nichols -Communication Programs)



The Business Of Green Cleaning

6 MANAGING A GREEN CLEANING PROGRAM

🔀 CHAPTER THIRTEEN

Managing the Green Cleaning Program

Whether a building is cleaned by a facility services provider or an in-house staff, or some combination, the facility manager, is ultimately responsible for the results. This does not mean supervising cleaning staff or becoming an expert in refinishing floors. However, the facility manager is responsible for the process of implementing and maintaining a Green Cleaning program.

That means understanding what the cleaning staff is doing in the building and why. It means knowing the frequencies of the various tasks and ensuring that the provider is complying with its own green policies as well as meeting facility management's expectations. The facility manager is also responsible for managing and meeting the expectations of the building occupants and visitors as well as senior management, and property owners. There are several tools and methods available for accomplishing this task. And as should be no surprise, the most effective and important tools are proper training and communication.

In fact, as explained in the Establishing a Performance Based Contract article this communication is a key to the success of the contract.

A key to successful performance-based Green Cleaning management is the creation of linkage in a relationship that allows each side to achieve its goals. Both parties have clear, though different, goals that each considers fundamental to its success. This linkage is the best expression of the performance-based model. The discussion that follows examines both the results that are important to achieving Green Cleaning success in performance-based outsourcing and the nature of the relationship that will be needed. (Appendix 4 Establishing a Performance-Based Green Cleaning System)

TRAINING 🗹

Traditionally, the cleaning industry has not done well in training its line employees. Whether the result of high turnover, tight budgets, or other reasons; training has not been a high priority in the industry. At the same time, there has been little demand from the facility service providers' clients to demonstrate or document effective training programs. However, that attitude is changing. Standards setting organizations and certification granting organizations are making the documentation of training programs a priority.

Green Seal's GS-42 Standard for Green Cleaning Services and ISSA's Cleaning Industry Management Standard (CIMS) both have specific requirements for training line employees as well as supervisory and management staff. These are recognized as leadership standards—that is, standards that the majority of operations will not meet. However, striving to approximate this level of training will have positive impacts on performance and turnover.

As with implementing more effective cleaning operations or some of the new tools (microfibers, for example) there is a cost associated with effective training. As a facility manager, it is very important to recognize this cost and allow room



in the budget for the implementation of a Green Cleaning training program.

At a minimum, Green Cleaning training programs need to:

- Explain what Green Cleaning is and why it is being implemented in the facility. This should address the benefits to the building occupants, the building owners and managers, the environment, and, importantly, the people being trained--the cleaning personnel.
- Clarify that the Green Cleaning program is not a thinly disguised attempt to cut hours or improve efficiency.
- Demonstrate that the new products the cleaning personnel will be using which may have reduced color and fragrance but work as well or better than the conventional products being replaced.
- Introduce new tools the cleaning crew may be using—microfiber cloth or mops, backpack vacuums, and other equipment or tools that may be changed.
- Introduce the new procedures and why these are being implemented.

There are a lot of whys in this list. These are very important. The people who clean the building are people just like anyone else. Most individuals perform their jobs more effectively when they understand why they are asked to perform certain tasks and why their job is important. The easiest way to overcome the very real resistance to change is to make the changes relevant and important to a larger picture.

An additional benefit to explaining the "what's and why's" of the new program is simple marketing. The cleaning staff often has more contact with individual building occupants than facility management. Imagine a major tenant approaching one of the cleaning staff and asking "What's this I hear about your new Green Cleaning program?" Now imagine that time was not taken to ensure that the cleaning personnel understood what the facility was doing or why it was being done. The results could potentially be very problematic and result in the facility manager spending significant time with tenants correcting misconceptions and solving complaints.

Again, the goal in this document is not to create a training manual. Rather, it is to stress the importance of training, some of the key issues that must be addressed, and then identify additional resources for more support. See Chapter 4 for many additional resources.

COMMUNICATION 🔀

There are several levels of communication to be concerned with. The first is within the implementation team and with senior management where applicable. It is critical that at each and every stage of the planning process, as well as during implementation and follow-up that the members of the team understand the goals, expectations, and progress being made. See Chapter 9 for more about selling the program internally.

Communication with those cleaning the facility is critical. Whether an in-house or an out-sourced facility service provider, these people need to clearly understand the organization's goals and expectations. It is a common mistake to assume the cleaning personnel and their management is there only to carry out directions or specifications. However, their ability to do this is directly related to their understanding of the goals and expectations. Furthermore, they may have some very good suggestions for improvement or streamlining the operations if they are part of the overall picture.

It is important to remember that there are potentially many other service providers beyond the cleaning company that will be working in or around the facility. While it is far beyond the scope of this book to detail the communications and interaction between the various service providers, we will mention a few of the most important.

If an outside service is providing pest control (and ideally this will be an Integrated Pest Management

system – see Chapter 1 Green Definitions) the coordination with the facility service provider or in-house staff is very important. The elimination of food and water sources as well as potential hiding or bedding areas through an effective cleaning program will help the overall control of pests in the facility. It is also important that if any chemicals (sprays, baits, etc.) are to be used by the pest management service, all building occupants are notified well in advance. They should be provided with information about the products to be used and potential health or comfort issues.

Communication and coordination between the parking lot or other outdoor maintenance companies and the facility service provider or in-house staff is also very important. Major work done outside the building will often result in significant increase in contaminants being tracked into the building. Advance knowledge of these plans allows the cleaning crew to lay down additional walk-off mats, plan for additional day time cleaning or adding staff in the regular cleaning services to accommodate the additional load.

Other seemingly routine building maintenance operations whether provided by in-house staff or outside contractors can have significant impacts on cleaning requirements. These range from escalator or elevator maintenance, green plant replacements or major maintenance, roofing repairs and so on. Part of a good communication plan anticipates these potential issues and details how notifications and responses will be handled.

Communication with building occupants seems to be the touchiest topic in this whole process. Property managers are understandably reluctant to initiate conversations that may lead to complaints. We all know there are people who just complain to hear themselves talking. Why open Pandora's Box if we don't have to?

Going back to the beginning of this process—why is a Green Cleaning program being implemented

in the facility? One of the key issues was to protect health and improve the comfort and productivity of building occupants. Only by exploring the opinions of the occupants, especially those identified as vulnerable or potentially impacted by cleaning operations, can the program be properly assessed and improved.

As mentioned previously, most people are unlikely to attribute the benefits of the Green Cleaning program; this is an opportunity to help them see the connection.

Typical complaints about the cleaning service include:

- Poor restroom cleaning (usually missing paper or soap)
- Missed item trash can or detail vacuuming
- Something was stolen usually turns out to have been misplaced
- Too many different people on cleaning crew high turnover
- Cleaning is generally poor

The first four are pretty straight forward and, for the most part, resolve themselves rather quickly. For this discussion, the last one is the most interesting. Usually, there is little detail provided in the complaint; it just expresses a general dissatisfaction with the service. After several years of following up on and analyzing these complaints, it has become apparent that most are simply a result of poor communication. The occupants are not aware of what the cleaning service has been told to do.

For example, in an effort to contain costs, management may decide to cut desk side trash collection from daily to three times per week. The new specification is communicated to the cleaning staff but not to the building occupants (or not effectively). Complaints skyrocket as it seems the cleaning staff has been neglecting their duties. The task might be dusting, traffic lane or detail vacuuming, or any of a number of tasks. The point is, the new expectations were not clearly communicated to the occupants, who start reporting dissatisfaction with the cleaning service.

If the complaints are communicated to the cleaning staff, they may respond by increasing frequencies in various areas without speaking to facility management (fire fighting). Complaints may slow down, building management feels better, but now the facility service provider is spending too much—cleaning more than they contracted for. So, they cut back on the "extra" services, resulting in a new wave of complaints, and the cycle repeats. Ultimately, the building management decides this service provider (or in-house manager) is too inconsistent and looks for a replacement.

Certainly, this example is extreme. But the reality is not as far from the example as one might like to believe. The breakdowns in communication are obvious when looking at the example. It's all too easy to let little things like communications slip. Making sure communication is flowing in all directions is one of the key responsibilities in managing the Green Cleaning program in the facility.

GREEN CLEANING EVALUATION

Managing the Green Cleaning Program in the facility involves ensuring that the facility services provider or in-house staff is meeting its obligations under the contract or agreement. There are a number of areas in the contract that should be evaluated on a regular basis. These include:

Product Usage

The contract (and Green Cleaning Site Manual) will list the products that are approved to be used in the building. During the start-up or transition phase, the facility service provider should document the products that are being removed from the building and their replacements. This is good information to record and report on. As time goes on, periodic checks of the products being brought into the building will ensure that the contract is being properly executed.

Equipment Usage

Again, the contract and Green Cleaning Site Manual will list the approved equipment for this facility. If this is a transition vs. new start-up, there will likely be a period of time before all the equipment is changed to the new, specified models. This is usually accomplished through attrition - as one vacuum cleaner (for example) is replaced due to wear or age, it is replaced with the model that meets the agreed upon specifications. Part of the review process should check to ensure these changes are happening. At the same time, it is important to review the equipment maintenance log on a periodic basis to ensure that the equipment used in the facility is working at proper levels. Broken equipment cannot perform as specified and Green Cleaning results will suffer.

Paper and Plastic Liners

During the periodic review, check to be certain that the paper and liner supplies meet the agreed specifications and are reflected in the Green Cleaning Site Manual.

Other Materials and Supplies

Again during the periodic review, it is good to check with the facility services provider to be sure they are looking for opportunities to use tools, and other supplies that move the facility's sustainability goals forward whenever possible. This might include using carts and buckets made of recycled content, non-chemical alternatives for special projects (e.g. drain snakes versus chemical drain openers) and so on.

Training Logs

The Green Cleaning Site Manual will specify the training program for the line cleaners in the facility. A review of the log will help ensure that this agreement is being met.

Specifications and Frequencies

It is critically important that the specifications and frequencies be reviewed on a regular basis. Far too many facilities never review these and this leads to the building being cleaned based on complaints rather than a plan. That is, the facility services provider adds extra manpower to resolve complaints then reduces manpower to recover costs. This creates an inconsistent cleaning program and is certainly not Green Cleaning. A regular review of the specifications and frequencies will allow the facility manager and cleaning manager to modify the plan to fit the needs of the building and respond to increased or decreased cleaning needs in an organized and cost-effective way.

Occupant Satisfaction Surveys

A goal of Green Cleaning is to improve the indoor environment and contribute to the comfort, health and well-being of building occupants. While it is not likely that most people will associate a sense of well-being with changes to the cleaning plan, we can help them understand and make that association. As was discussed in the section on communication, informing the occupants of what changes are being made is an important part of the Green Cleaning process. Following up with occupant surveys will deliver two key results:

- The survey will remind the occupants of and reinforce the positive benefits of the change to Green Cleaning.
- 2. The survey should also highlight potential areas for process improvement.

Walk-Through and Inspections

In some ways it would seem that the walk-through or inspection for a Green Cleaning program would be the same as for any other cleaning program. That is, did the things get done that were supposed to get done? And, since this is essentially a visual inspection, it would seem we are simply looking at appearances. To some degree, this is true. However, we do have other tools at our disposal, specifically our nose and ears. How might a Green Cleaning inspection differ from a more traditional walk-through?

Start with a plan for the inspection. Instead of walking the same areas every time, develop a set

of areas to be toured and vary the timing of when each area is inspected. We've provided a Walk Through Guide (Appendix8) that may be used as a starting point for a more specific site plan.

Make a point at looking for details. While general cleaning can look good, the real story is in the details. Look in corners, along edges, high and low dusting, and so on. In the restroom, go into a stall and turn around – look at the stall from the view point of someone using the facility.

Use your nose, not just in the restroom. Be

aware of odors that don't belong (may be an indication of decomposing organic material – food for pests) there may be a chemical odor that indicates use of non-approved products.

Listen - talk with the contractor's

representative. As questions about how tasks are being accomplished. There may be no sign of dust on a ledge, but if the area is being cleaned with a feather duster the Green Cleaning criteria is not being met – dust is just being moved around.

Listen – talk with building occupants. What are their perceptions (beyond the occasional missed trash can)? Are there odors that are only noticeable early in the morning? Are spaces being cleaned before occupants leave for the evening? Are there other issues that make occupants more or less comfortable than previously?

As mentioned earlier, moving to a performancebased vs. "effort" based contract can help keep the evaluation of cleaning results an objective vs. subjective process. In fact this appears to be a growing trend, as pointed out in the case study below.

More and more, facility owners and managers are measuring maintenance, operations, and improvements to their buildings on a consistent scale. Cleanliness also needs to be defined from the customer's point of view, measuring results of the cleaning program, not the efforts. That's the only way to know whether green initiatives have any effect on operations – good or bad. Purchasing "green" vacuums isn't the only thing that makes an organization green. Making sure the vacuums are actually being used, being used properly, and keeping buildings as clean or cleaner than before is being green.(Case Studies – Green Cleaning – Can You Afford Not To?)

The Green Cleaning Site Manual should reflect a clear set of expectations from a facility management perspective and a solid understanding of those expectations by the service provider. Assuming that the specifications accurately reflect management expectations and that the service provider accurately identified his or her costs, the walk-through should focus on making minor corrections to how tasks are being performed and the frequencies at which they are performed to achieve the desired results.

So, break out of old patterns—choose different parts of the facility to visit, on different days, and at different times. The object is not to catch someone doing something wrong. Rather it is to maintain an accurate overall picture of the building. For the same reason, talk with a variety of the building occupants. Reexamine the specifications and frequencies based on what is seen and heard. Update the Green Cleaning Site Manual to ensure that plans accurately reflect reality in the building.

Moving beyond the regular walk-through, it is useful to engage an independent party to conduct an annual evaluation of the Green Cleaning program. In North America, consider using the evaluation tool developed by APPA . Using a five-point scale (with lower numbers reflecting a better score), the evaluator carefully inspects a representative portion of the building. If the building is pursuing LEED-EBOM certification, a score of one or two can deliver up to two points toward the final tally. Even if not pursuing certification, this can be an extremely useful tool for ensuring that the facility service provider is maintaining the facility to meet management's expectations. (Appendix 9 – Introduction to APPA's Custodial Guidelines.)



CHAPTER FOURTEEN

THE HARD AND SOFT COSTS OF GREEN CLEANING

Ultimately, the question has to be asked: "What's this going to cost?"

Consider two types of cost hard costs and soft costs.

Hard Costs

Hard costs are those costs associated with actually paying for a product, piece of equipment, or service. These are fairly easy to capture, quantify, and compare. Green cleaning has made great strides in the past several years. As a result, many of the products and tools needed to perform these tasks have become more common and perform better than they did only five years ago.

Virtually every manufacturer of chemicals or equipment has a green line. Most of these were developed n the past several years, representing the best and newest technology and development efforts. Because every manufacturer has been working in this area, the competition has helped keep prices competitive with traditional products. The net result is that we have product and equipment choices that rival or exceed the performance of traditional products while costing little or no more than the traditional alternative.

In fact, AbilityOne (a nonprofit agency that provides cleaning services) felt cost and budget management would be one of the major hurdles it would face when changing to a Green Cleaning program at the Department of the Interior (DOI). However, they found the reality to be quite different.

The agency faced two major hurdles in making the switch to agency-wide green janitorial services. First, proponents of the switch had to convince onsite managers and frontline employees that the new system would meet performance requirements. Next, the organization had to be certain contracts would stay within budget.

The first hurdle was accomplished by having its supplier demonstrate products to managers and onsite cleaning staff. By doing so, the supplier and the building manager could address any special cleaning issues specific to the building.

To everyone's surprise, meeting budgetary constraints turned out to be a relatively easy task. Using environmentally preferable cleaning products was actually no more expensive—and in some cases, less expensive—than the products previously used. Also, the organization kept costs down during the transition by phasing in the new products and returning some of the old products back to distributors. (Case Studies - CRP)

The same is true of most of the services employed in providing Green Cleaning programs. It may be argued that this should not be the case as in many cases the actual level of cleaning needs to be increased before even considering a Green Cleaning program. While evaluating a Green Cleaning initiative, it's important to be realistic regarding comparisons between the new specifications and the existing specs and the associated costs of providing these services.

Recently, The Ashkin Group conducted a survey regarding perceived costs of Green Cleaning products, equipment, supplies, and services. Respondents around the world indicated that most costs for green versus traditional products and services were comparable (Appendix 10 – Ashkin Group Green Cleaning Survey Results)

The majority of respondents have reported that the hard, measurable costs associated with implementing a Green Cleaning program are relatively neutral. Where they are more (for example, with microfiber cloths), it is important to work with the facility service provider to understand the payback period in increased productivity versus the cost of materials. In fact, during their transition to Green Cleaning, Adobe's service provider found many opportunities to reduce hard costs and therefore their cost to Adobe (full case study in the Appendix).

However, a few months later, we went to bid on the janitorial contract for Adobe's San Francisco properties. We sent Request for Proposals (RFPs) to five contractors including the same company that cleans our San Jose property. They were the low bidder. In fact, their bid was 20 percent below the next closest vendor and 30 percent below the then current contractor. They were so low that I thought they might have made a mistake, so I asked them. I told them their bid was unusually low and asked if they wanted to take another look at it and make sure they hadn't made a mistake.

Their answer was interesting. They said they were quite comfortable with their bid. They had learned in converting to Green Cleaning on our San Jose property that Green Cleaning was so much more efficient, they could do the San Francisco property with two fewer people. In my thirty years of property management, I have never seen a major contract change without some "hiccups." But this was the exception. We made the changeover almost three years ago, and it was seamless. There were no significant problems that I am aware of. (Case Studies - Adobe)

Soft Costs

Soft costs are harder to identify, quantify, or compare. Some of the most significant will be include training costs, communication costs, and transition costs. Whether this is a new start-up or a transition from traditional cleaning and whether the service is provided by a facility service provider or self-performed, there is a significant training component. Consider the time spent in actual, formal training sessions as well as increased supervisory costs associated with coaching and follow-up. There are material costs associated with creating and duplicating training materials, especially if required in different languages. Many of these materials may be sourced from vendors and manufacturers—this can help control direct costs.

Soft costs associated with communication involve facility management's time and staff time. This will involve the creation (or approval) of communication materials, ensuring they are disbursed according to plan, and simply talking with building occupants as well as others in the organization. This is time that is not spent on "regular" tasks and represents a significant investment of time. Certainly, the amount of time required will diminish as the program evolves, but it is a cost that must be anticipated.

The last major soft cost to consider is the cost of transition. This is not so much a unique cost in itself, but is more of a "multiplier" on the other costs. If there is an existing cleaning program that has been in place for some time, resistance to change will be more entrenched. The efforts and soft costs associated with training and communication will likely be greater than in a startup situation.

When considering the benefits and advantages associated with Green Cleaning that were discussed in Chapter 9, combined with relatively neutral hard costs, moving to a greener operation, including Green Cleaning can not only be a costeffective transition but can contribute to reducing other costs as well. Let's look at what Troutman Sanders found as the company began to formalize and measure the results of their program.

By July 2008, Troutman Sanders began formalizing and measuring the following events and processes:

- Earth Hour participation in national program
- BOA Recycling participation in building program
- Computer Equipment Recycling
- Toner cartridge recycling/reimbursement
- Staples Green Vendor Fair

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- Wooden coffee stirs
- Rentacrate for office relocation
- MilliCare Carpet Cleaning green products and limited water usage
- RIPAX Paper Use from Unisource
- 36th floor old carpet recycling
- 36th floor chairs and lateral file cabinets refurbished and reused
- Copper recycling from 36th floor
- 45th floor old carpet recycling
- Exit signs replaced with LED signage
- Service centers and copy center two-sided copying
- Zip Car account opened
- Eco Wash at Allen Plaza recommended for staff usage

Even this small measurement process has yielded big results. Troutman is seeing a reduction in the cost of paper purchase due to policy, a reduction in water uses based on MilliCare carpet maintenance, and a reduction in disposal cost as a tradeoff from recycling. Additionally, Troutman uses Williamson restoration to refurbish and refinish all of their many wood furniture pieces. Williamson uses a water-based process so they can come in during the day without employees smelling any chemicals or being exposed to them.

Using vendors such as MilliCare and Williamson allows work to be done with employee-friendly products and processes that can be done, even while employees are in the building. This process reduces overtime work for crews and enables earlier shutdown of the building, which saves overall energy usage. (Case Studies - Troutman Sander LLP)

These types of results are not limited to high-rise office buildings in metro areas of the United States. They are being reported from virtually every type of facility in many regions around the world. Some additional examples include: McMaster University's Green Cleaning program was phased in over a two-year period. Before implementing a new product, the cleaning staff was asked to test the new system to ensure buy-in.

In addition to Green Cleaning, many other measures are being introduced on campus to help reduce the impact of campus activity on the environment. This year, McMaster will develop a rainwater harvesting program by reutilizing a four hundred thousand-gallon underground tank that was once a former storage tank for chilled water and used more than forty years ago. The harvested rainwater will be used to supplement the university's irrigation system, cooling towers, and toilet water. A vertical-access windmill also supplies some energy to the campus.

Results

- 50 percent reduction in days lost to workers' compensation claims
- No complaints regarding exposure to chemicals
- Reduced total number of chemicals used in general cleaning applications from thirtyfive to eight
- Currently have two LEED certified buildings on
 - campus; awaiting a third certification
- A comprehensive energy reduction program resulting in \$1.5 million annual savings (Case Studies - McMaster University)

Or consider the results of a strong vendor/service provider relationship (this same type of relationship could just as easily be developed between the vendor and facility manager):

Maintex was the perfect partner choice for Servicon. Their goal is to be the supplier of choice by offering innovative products, programs, and services, which create a cleaner, healthier environment. The two companies worked together to develop marketing and training materials that support the Green Cleaning initiative. Green cleaning is more than just products. It is about changing attitudes and behavior. It evolves only through a strong partnership between distribution and contract cleaning firms. Servicon relies heavily upon Maintex for training and ongoing training to reinforce the values of their Green Cleaning program.

The results have been added revenue for both organizations and reduced costs for Servicon. Potential new clients are seeking Green Cleaning for their facilities, and they realize that they have an experienced, dedicated green vendor in Servicon. They have recently been named by Inc. magazine and The 5000 Index as one of the fastest growing businesses in 2007. (Case Studies - Green Success Story)

And, in the health care industry, let's look at Metro Health in Grand Rapids, Michigan:

The transition to a Green Cleaning program took place before the move to the new hospital to ensure that the best green practices would already be part of the daily routine. The transition began in 2002, and Nichols Paper and Supply, a Muskegon, Michigan, based distributor of custodial supplies was chosen as a partner in this process. An analysis was conducted in 2007 by a group of sustainability students from Grand Valley State University. The results of this implementation and data have been gathered from interviews and primary data sources provided by Metro Health and Nichols. Specific measurable gains to Metro's bottom line have been achieved including:

- 21 percent decreased cost of cleaning from 2002 to 2007 in the old facility
- 23 percent cleaning cost avoidance in 2008 in the new, larger hospital

• 3 percent reduction in water usage annually

The analysis shows that the majority of this savings results from implementing a different floor maintenance process that included new entry mats, eliminating dust mopping, switching to microfiber mopping system, and using more durable floor finishing products combined with more efficient equipment. (Case Studies – Metro Health)

The key point here is that the facility is making some major improvements to the health and wellbeing of its occupants and minimizing the impact on the environment. There are costs associated with this. Like the rest of the Green Building Plan, the goal is to measure the ROI on the investment and make a good business decision.

WHERE DO WE GO FROM HERE 🔀

In the introduction of this book, Green Cleaning is described as a journey and an enormous amount of progress has been made over the past 30 years. As Green Cleaning has begun to transform the cleaning industry creating opportunities to improve occupant health while reducing environmental impacts, facility managers should feel a great deal of pride. This is because as the ultimate consumer of the services and products offered by the cleaning industry, facility managers are largely responsible for the transformation of this huge global industry.

Yet with all the progress that has been made, there is still a long way to go and many opportunities for further improvement can be achieved. And many opportunities and solutions have yet to even been considered. The marketplace will ultimately prove to be a powerful driver for both health and environmental improvements.

Also as discussed in the introduction of this book, the standards, recommendations, resources and other tools are based on those things that would make Green Cleaning easy for facility managers to implement. Those issues included in this book were screened in a way to make sure that they were doable, readily available, and cost-effective in order to best meet the needs of today's facility managers.

However, there are emerging issues relative to Green Cleaning that are and will be increasingly important for facility managers. While today they may not be readily available or cost-effective in some or all parts of the world, nonetheless they will be issues of importance, especially for those facility managers desire to be on the leading edge. Those issues include:

Green Collar Jobs and the "Living Wage".

Sustainability and the Triple Bottom Line have often been referred to throughout this book and many organizations around the globe are now embracing these concepts. Yet most of the effort to date has been limited to environmental and financial considerations. In the future, the third component of the Triple Bottom Line, the component addressing the social issues of workers and communities will receive greater attention.

Today in the U.S. a collaboratory effort between a number of nonprofit advocacy groups such as the Apollo Alliance and Green for All , along with labor unions such as the Service Employees International Unions are working to insure that opportunities due to a growing green economy will not bypass workers, especially those at the lower end of the wage scale including cleaning personnel.

These organizations are concerned that cleaning personnel are currently being compensated well below what might be considered a "living wage", which is the minimum hourly wage necessary for a person to achieve some specific standard of living. In developed countries this standard generally means that a person working forty hours a week, with no additional income, should be able to afford a specified quality or quantity of housing, food, utilities, transport, health care, and recreation. organizations it may be anticipated that one future issue that facility managers will need to address is how they are providing for all of their workers including cleaning personnel. This is especially likely for those whose organizations that are promoting themselves as being sustainable, green, socially responsible, etc. Furthermore, it is important to point out that this issue will apply both to facilities using their own personnel for cleaning, as well as those using out-sourced facility services providers.

Thus in future revisions of this book it might be anticipated that modifications could include adding specific language in the sections on the Requests for Information (RFI) and Requests for Proposals (RFP) to request specific information from facility service providers as to how they are compensating cleaning personnel to insure that at a minimum they are receiving a "living wage".

Extended Product Responsibility/Take-Back

Programs. Recycling is an important issue in our effort to both reduce solid waste and impacts on landfills, as well as a source of new materials to reduce the consumption of valuable, limited and nonrenewable natural resources.

Today in many parts of Europe, the manufacturers of products are required to take responsibility for their products even after the end of its useful life when consumers are preparing to dispose of them. It is anticipated that this approach will be introduced in other parts of the globe.

This is an important opportunity because for example in the U.S. alone, approximately 1 billion pounds of janitorial powered equipment, tools and supplies are used and disposed in landfills each year. While this has significant impacts on landfills, it is also an opportunity for equipment manufacturers to salvage working components and other materials that can be used in new products. This in turn will reduce impacts on the environment in terms of the landfills, as well as the extraction and manufacturing

Because of the efforts of these and similar

of raw materials that are used in new replacement products.

Thus in future revisions of this book it might be anticipated that modifications could include adding specific language in the sections on the Requests for Information (RFI), Requests for Proposals (RFP) and the Chapter on Selecting Products and Equipment to request specific information from facility services providers, product manufacturers and distributors as to their plans to "take back", reuse and recycle products.

Sustainability. As the Green Movement and specifically Green Cleaning continue to mature, Green Cleaning services and products will become widely available. It is predicted this will lead facility managers to focus on more than just buying a green service or product. In addition to achieving the appropriate level of cleanliness at the most competitive price, facility managers will evolve their purchasing to buy green products and services from green companies.

This is important because facility managers as the ultimate consumer of cleaning services and products have the ability to drive environmental and health improvements beyond just the services and products themselves. Facility managers have the ability to differentiate between suppliers based on the degree to which those companies and their entire supply-chain have greened their entire operations.

For example, in North America it is estimated that the commercial cleaning industry is comprised of 100,000 companies and each operate buildings which use energy and water, purchase office supplies and other products, recycle and produce waste, operate fleets of vehicles, and have millions of employees.

Thus in future revisions of this book it might be anticipated that modifications could include adding specific language in the sections on the Requests for Information (RFI), Requests for Proposals (RFP) and elsewhere to request information from facility service providers and product manufacturers on how they have gone beyond just greening their services and products to becoming a greener, more sustainable company.

The Business Of Green Cleaning

APPENDIXES

- 1. Green Cleaning Products and Supplies: Selection Criterion
- 2. Global Ecolabeling Network Provider List
- 3. Green Cleaning Products, Equipment, and Supplies: Proposed Contract
- 4. Establishing a Performance-based Green Cleaning System
- 5. RFI Prototype Example
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- 8. Walk-Through Audit Management Tool
- 9. Introduction to APPA's Custodial Guidelines
- 10. The Ashkin Group Green Cleaning Survey Results
- 11. Green Outdoor Cleaning
- 12. Indiana University Sustainability Task Force Recommendations on Green Purchasing/Green Cleaning

APPENDIX ONE

Green Cleaning Products and Supplies: Selection Criterion

Identifying and selecting Green Cleaning products, tools, and equipment can be relatively easy in countries that have mature ecolabelling programs. However, in countries where no such programs exist or where the programs are limited in scope of products covered, product selection can be quite a challenge, considering the diversity of products and the numerous ways they can affect health and the environment throughout the life cycle.

However, significant similarities exist within a specific product category, resulting in only a limited number of attributes that might actually differentiate one product from another based on health and environmental impacts over the product life cycle.

The following outline focuses on the exceptions and those specific attributes that will allow purchasers to identify products that may be preferable compared to conventional options. This list is not intended to be complete, but is only intended to serve to identify some of the typical issues for each product type.

CLEANING PRODUCT CONSIDERATIONS

Each category of cleaning products has a limited number of health and environmental attributes that might differentiate one product from another. The following list of product issues is for nineteen individual products that cover the majority of janitorial requirements. This list is not intended to be complete but is only intended to serve to identify some of the typical issues for each product type.

1. ALL PURPOSE CLEANERS

All Purpose Cleaners consist of a broad array of possible formulations. The following are some of the specific issues to compare for this product category:

рΗ

Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)

Biodegradability

Prefer those that are readily biodegradable as compared to those that are slower to degrade. Unfortunately, many older formulations use excellent performing ingredients that have been found to have serious environmental and health concerns (see ingredients to avoid).

Dyes & Fragrances

Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary use those that are approved for foods and cosmetics (F&C).

VOCs

Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.

More Preferable Ingredients

Surfactants containing terms such as lauryl, amides, and glycosides.

Less Preferable Ingredients

Nonyl Phenol Ethoxylates, NTA, EDTA, glycol ethers, sodium hydroxide, potassium hydroxide, sodium metasilicate, phosphates.

2. BATHROOM CLEANERS

Bathroom Cleaners are often acids because of the need to remove mineral deposits from sinks, bowls and urinals. Frequently they are heavily dyed and strongly fragranced. The following are some of the specific issues to compare for this product category:

рΗ

Prefer those with a more neutral pH as compared to those with extreme pH (closer to



 Bathroom cleaners may fall more in the range of pH 4 as compared to traditional products that may have a pH below 1.

Dyes & Fragrances

Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary use those that are approved for foods and cosmetics (F&C).

Biodegradability

Prefer those that are readily biodegradable as compared to those that are slower to degrade. Unfortunately, many older formulations use excellent performing ingredients that have been found to have serious environmental and health concerns (see ingredients to avoid).

More Preferable Ingredients

Surfactants containing terms such as lauryl, amides, glycosides, citric or acetic acid.

Less Preferable Ingredients

Nonyl phenol ethoxylates, NTA, EDTA, hydrochloric acid, phosphoric acid.

3. BATHROOM DISINFECTANTS

Bathroom Disinfectants are similar to general disinfectants, but typically may have an acidic pH (closer to 1) to remove hard water deposits in sinks, bowls and urinals. The selection issues include both those under general disinfectants and bathroom cleaners. Care in selection and use is important. The following are some of the specific issues to compare for this product category:

See Bathroom Cleaners for similar attributes. Antimicrobial Ingredients

Prefer antimicrobial ingredients that have a lower potential for persistence in the environment and to accumulate in living tissue compared to those with a greater potential.

More Preferable Active Ingredients Hydrogen peroxide.

Less Preferable Active Ingredients

Sodium hypochlorite (chlorine bleach), quaternary ammonium compounds, alcohols, phenolic compounds.

4. CARPET CLEANER / SHAMPOO

See All Purpose Cleaners. In addition, select carpet cleaners that when dry are not sticky or tacky. This minimizes resoiling and extends the time between cleaning.

5. CARPET CLEANER / DRY POWDER

Dry Absorbent Compound carpet cleaners are available in several possible formulations. The following are some of the specific issues to compare for this product category:

рΗ

Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)

Fragrances

Prefer those with no or low levels of fragrances compared to those products that are heavily scented.

VOCs

Prefer those that have no or low VOC as compared to alternatives with higher levels.

More Preferable

Water and detergent based products.

Less Preferable

Solvent based products.

6. CHROME CLEANER/POLISH

Chrome Cleaner/Polish frequently use petroleum distillates, which are poisonous and derived from a non-renewable resource. The following are some of the specific issues to compare for this product category:

VOC

Prefer those that have no or low VOC as compared to alternatives with higher levels.

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Bio-Based / Renewable Resources

Prefer products that use oils derived from renewable resources as compared to oils from nonrenewable resources.

More Preferable Ingredients

(examples needed)

Less Preferable Ingredients

Petroleum distillates, ammonia.

7. FLOOR FINISHES

Floor Finishes must be durable and appropriate for the prescribed maintenance method, but they typical contain heavy metals. Importantly, floor finishes must be compatible with the stripping solution. The following are some of the specific issues to compare for this product category

Durability

Prefer finishes that are more durable (require less maintenance such as buffing, restoring and recoating) then less durable finishes that require more frequent maintenance.

Heavy Metals

Prefer non-metal cross-linked polymers as compared to those containing heavy metals. Another significant benefit of non-metal polymer formulas is that frequently they can be removed with less hazardous floor strippers.

More Preferable Ingredients

Metal-free polymers.

Less Preferable Ingredients Metal-crosslinked polymers.

8. FLOOR STRIPPERS

Floor Strippers typically have extreme pH, solvents and ammoniated compounds necessary to remove metal cross-linked floor finishes. Floor strippers must be compatible with the floor finish. The following are some of the specific issues to compare for this product category:

рΗ

Prefer those with a pH closer to neutral (in the range of 10 to 12) as compared to those with extreme pH (closer to 14).

VOC

Prefer those that have no or low VOC as compared to alternatives with higher levels.

Bio-Based / Renewable Resources

Prefer those that containing naturally derived solvents as compared to those containing non renewable derived solvents.

More Preferable Ingredients

d-Limonene (citrus solvent) and methyl esters.

Less Preferable Ingredients

Ethylene glycol mono butyl ether (butyl cellusolve), 2-butoxyethanol, ammonia, and sodium hydroxide.

9. FURNITURE POLISH

Furniture Polishes frequently use petroleum distillates, which are poisonous and derived from a nonrenewable resource. The following are some of the specific issues to compare for this product category:

VOC

Prefer those that have no or low VOC as compared to alternatives with higher levels.

Bio-Based / Renewable Resources

Prefer products that use oils derived from renewable resources as compared to oils from nonrenewable resources.

More Preferable Ingredients

Citrus (lemon and orange) oils.

Less Preferable Ingredients

Petroleum distillates.

10. GENERAL DEGREASER

General Degreasers are typically heavy-duty cleaners that include solvents for removing oilbased soils. Traditional solvents are typically derived from a non-renewable sources (e.g.,

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petroleum), can be flammable, have a high degree of VOCs which can cause respiratory irritation and contribute to environmental pollution and some have severe health impacts. The following are some of the specific issues to compare for this product category:

See All-Purpose Cleaners

VOC

Prefer those that have no or low VOC as compared to alternatives with higher levels.

Bio-Based / Renewable

Prefer products that use oils derived from renewable resources as compared to oils from nonrenewable resources.

Flashpoint

Prefer products that have a high flashpoint compared to those with a low flashpoint.

More Preferable Ingredients

D-Limonene (derived from citrus fruits) and methyl esters from soy and corn.

Less Preferable Ingredients

Glycol ethers in general, ethylene glycol mono butyl ether (butyl cellusolve), and sodium hydroxide.

11. GENERAL DISINFECTANTS

General Disinfectants are similar to cleaners (see allpurpose cleaners) with additional ingredients added to kill bacteria and other unwanted organisms, and bathroom disinfectants. Because disinfectants kill organisms they are toxic by definition. Some are persistent in the environment and accumulate in living tissue. Care in selection and use is important. The following are some of the specific issues to compare for this product category:

See Bathroom Disinfectants for similar attributes. Antimicrobial Ingredients

Prefer antimicrobial ingredients that have a lower potential for persistence in the environment and to accumulate in living tissue compared to those with a greater potential.

More Preferable Active Ingredients

Hydrogen peroxide.

Less Preferable Active Ingredients

Sodium hypochlorite (chlorine bleach), quaternary ammonium compounds and phenolic compounds.

12. GLASS CLEANERS

Glass Cleaners are cleaners that have ingredients added to reduce streaking and to evaporate quickly. Traditional glass cleaners can contain alcohol and other solvents (typically glycol ethers) or ammonia. The following are some of the specific issues to compare for this product category:

VOCs

Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.

Flashpoint

Prefer products that have a high flashpoint compared to those with a low flashpoint.

pН

Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)

Biodegradability

Prefer those that are readily biodegradable as compared to those that are slower to degrade. Unfortunately, many older formulations use excellent performing ingredients that have been found to have serious environmental and health concerns (see ingredients to avoid).

Dyes & Fragrances

Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary use those that are approved for foods and cosmetics (F&C).

More Preferable Ingredients

Surfactants containing terms such as lauryl, amides, and glycosides.

Less Preferable Ingredients

Ammonia, alcohols, propylene glycol, ethylene glycol and other glycol ethers.

13. GRAFFITI REMOVER

Graffiti Remover used to be formulated with chlorinated solvents (e.g., methylene chloride) before they were banned due to their environmental impact. Many graffiti removers are packaged in aerosol contains which often contain hydrocarbon propellants (e.g., propane, butane), which are highly flammable and can contribute to indoor air quality problems.

VOCs

Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.

Flashpoint

Prefer products that have a high flashpoint compared to those with a low flashpoint.

pН

Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)

More Preferable Ingredients

n-Methyl-2-Pyrolidone, d-Limonene.

Less Preferable Ingredients

Methylene chloride, petroleum distillates, propane, butane, isobutene, and sodium hydroxide.

14. GUM REMOVER

Gum Removers used to be formulated with chlorinated solvents (e.g., freon) before they were banned due to their environmental impact. Dry ice and carbon dioxide are preferable replacements. Degreasers can be used in some situations (see section on General Degreasers).

VOCs

Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.

Flashpoint

Prefer products that have a high flashpoint compared to those with a low flashpoint.

рΗ

Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)

More Preferable Ingredients

Dry ice, carbon dioxide.

Less Preferable Ingredients

Freon, dichloro-difluoromethane, trichlorofluoromethane.

15. LIME and SCALE REMOVER

Lime & Scale Removers are acids because of the need to remove mineral deposits from sinks, bowls and urinals.

рΗ

Prefer those with a more neutral pH as compared to those with extreme pH (closer to 1). Environmentally preferable lime and scale removers may fall more in the range of pH 4 as compared to traditional products that may have a pH below 1.

More Preferable Ingredients

Citric or acetic acid.

Less Preferable Ingredients

Hydrochloric or phosphoric acid.

16. SOLVENT SPOT REMOVERS

Solvent Spot Removers are necessary for spot removal particularly on carpets. Use detergent based spotters if possible (must be followed with extraction or other method to remove/absorb the detergent).

See All-Purpose Cleaners VOCs

Prefer products that have no or low VOC compared to those with higher VOC content.

Flashpoint

Prefer products that have a high flashpoint compared to those with a low flashpoint.

More Preferable Ingredients

D-Limonene (derived from citrus fruits) and methyl esters from soy and corn.

Less Preferable Ingredients

Mineral spirits, 2-butoxyethanol

17. URINAL DEODORIZERS

Urinal Deodorizers are traditionally blocks placed in urinals to reduce odors. Preferably these deodorizers should be eliminated altogether through more frequent cleaning and other methods of deodorizing. However, if urinal deodorizers are still required preference should be given to those with the safest ingredients.

Biodegradability

Prefer detergents that are readily biodegradable as compared to those that are slower to degrade. Unfortunately, many older formulations use excellent performing ingredients that have been found to have serious environmental and health concerns (see ingredients to avoid).

More Preferable Ingredients

Surfactants containing terms such as lauryl, amides, glycosides,

Less Preferable Ingredients

Nonyl phenol ethoxylates, paradichlorobenzene

18. WOOD & STONE FLOOR COATINGS

Wood & stone floor coatings have traditionally been solvent-based products. While extremely durable to protect flooring materials that are very expensive to replace, these coatings can be quite hazardous during the drying and curing period. The two primary issues to consider during product selection is the use of zero or low-VOC containing materials which will reduce indoor air quality concerns and the products durability which is important to protect the flooring and due to the product and applications cost. One final note, many janitorial firms lack specific expertise in application for these types of finishes. Thus, supplier support (e.g., training) is very important.

Durability

Prefer durable finishes that require less maintenance (e.g., recoating) then less durable finishes that require more frequent recoating.

Flashpoint

Prefer products that have a high flashpoint compared to those with a low flashpoint.

More Preferable Ingredients Water- or epoxy-based finishes.

Less Preferable Ingredients Xylene, stoddard solvent

B. JANITORIAL PAPER PRODUCTS (E.G. PAPER HAND TOWELS AND TOILET TISSUE)

The issues associated with selecting paper products compared to cleaning products are significantly simpler. The issues of concern for paper are primarily focused at the manufacturing stage of the product. Whereas cleaning chemicals may have more than a dozen individual ingredients which can vary significantly from category to category and even amongst different products within the same category, paper is relatively similar. Paper has less emphasis on health issues during the products use-stage, or environmental impacts as a result of disposal.

Total recovered material

Prefer products with a higher total amount of recycled content compared to those with a lower amount.

Post-consumer recycled content

Prefer products with a high amount of postconsumer recycled content compared to those with a lower amount.

Bleaching process

Prefer products that are bleached and de-inked without the use of chlorine compounds, and products bleach with chlorine dioxide are preferable compared with those bleached with elemental chlorine.

Product performance:

Prefer products with higher quality and performance (e.g. the ability to absorb moisture) which can reduce total paper consumption compared to products of lower quality and performance.

Sustainably managed forests

Prefer products derived from sustainably managed forests.

Products dispensers

Prefer paper hand towels that are dispensed from large rolls as compared to multi-fold towels and toilet tissue on large rolls or dispensers that hold multiple rolls to reduce waste and consumption. Using "touch free" dispensers compared to those with cranks and levers reduce the potential for cross-contamination of bacteria and other potentially harmful pathogens.

🔀 C. ELECTRIC HAND DRYERS

The following are some of the specific issues to compare for this product category:

Energy efficient

Prefer hand dryers that are more energy efficient.

Hand dryers that filter air

Prefer dryers that capture contaminants compared to those that simply spread potential contaminants with high velocity air.

Durable

Prefer dryers that are more durable to reduce repair and frequency of replacement.

D. PLASTIC TRASH BAGS 🔀

Plastic trash bags are typically derived from petroleum and do not degrade in landfills after disposal. The following are some of the specific issues to compare for this product category:

Total recovered material

Prefer products with a higher total amount of recycled content compared to those with a lower amount.

Post-consumer recycled content

Prefer products with a high amount of postconsumer recycled content compared to those with a lower amount.

Size and thickness

Prefer products that are correctly sized to the trashcan as not to waste materials and are the correct thickness based on the weight and type of materials contained within the bag.

Compostable bags

These options may be preferable compared to conventional plastic bags but only where local waste management facilities have to capabilities to properly compost the materials.

E. JANITORIAL EQUIPMENT 🔀

The following are some considerations for selecting janitorial equipment. These considerations include those for specific types of equipment, as well as for specific attributes that may be a consideration when comparing all types of equipment:

Vacuums with high efficiency filters and bags

Prefer vacuum cleaners that effectively capture small particles (under 3 microns) compared to less efficient alternatives.

Carpet extractors

Prefer extractors that reduce water and energy consumption, and minimize or eliminate the use of cleaning chemicals compared to alternatives that use more energy, water and chemicals.

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Floor buffers and burnishers

Prefer floor machines with guards and filters to capture dust generated during floor buffing compared to those that allow dust to escape in which case it can be inhaled by cleaning personnel and building occupants, and which can damage delicate electronic controls and office equipment.

Automatic floor scrubbers

Prefer scrubbers that reduce water and energy consumption, and minimize or eliminate the use of cleaning chemicals compared to alternatives that use more energy, water and chemicals.

"No Touch" cleaning equipment

Prefer equipment that reduce water and energy consumption, and minimize or eliminate the use of cleaning chemicals compared to alternatives that use more energy, water and chemicals.

Durability

Prefer equipment that is more durable which will reduce the frequency of repair and replacement compared to less durable alternatives.

Repairability

Prefer equipment that is easier to repair and repair parts are readily available compared to alternatives that are either difficult to repair or are technically easy to repair but parts are generally unavailable.

Recycled content

Prefer equipment that is made with recycled content, materials and components compared to alternatives using no or a lower quantity of recycled content, materials or components.

Ergonomics

Prefer equipment that with better ergonomics compared to alternatives with poorer ergonomics to reduce the potential of injury to cleaning personnel.

Noise

Prefer equipment that is quieter compared to louder equipment especially if used while the building is occupied.

F. OTHER PRODUCTS 🔀

Selecting other cleaning products, tools and supplies should follow the definition of green "reducing the health and environmental impacts compared to similar products and services used for the same purpose" as with the products described previously. The areas for improvement can include:

- Recycled materials compared to virgin materials can reduce environmental impacts from the extraction of raw materials and typically the manufacturing recycled materials in less
- Durable products such as a more durable mop bucket will reduce environmental impacts compared to less durable bucket as it will less frequent replacement.
- Chemicals and equipment that use cold water compared to those requiring hot water reduces environmental impacts resulting from heating the water.
- Equipment that eliminate the use of cleaning chemicals altogether.
- Products that reduce packaging components such as more highly concentrated chemicals reducing bottles, shipping cartons and transportation impacts.
- Products, tools and equipment that are repairable and where the supplier offers replacement parts will reduce environmental impacts compared to products that cannot be repaired or where replacement parts are | unavailable.
- Products or systems that consume less energy or water.

G. PRODUCT SUPPLIER 🔀 CONSIDERATIONS

The final component in selecting products is consideration of the supplier. Consideration should be given to suppliers' ability to train cleaning personnel, expertise with green janitorial products and cleaning, and proximity to the facility to reduce transportation impacts, in addition to price and other traditional considerations.
2 GLOBAL ECOLABELING NETWORK – MEMBER ORGANIZATIONS AND STANDARDS

Australia

Good Environmental Choice Australia Ltd.

The Australian Ecolabel Program Mr. Edward Warcaba PO Box 4140, Weston Creek, ACT 2611, Australia Tel : +61 (0) 2 6287 3100, Fax: +61 (0) 2 6287 3800 www.geca.org.au E-mail: Edward.Warcaba@interfaceflor.com

Brazil

Associação Brasileira de Normas Tecnicas.

20003-900 - Rio de Janeiro - RJ Tel: +55 21 3974 2303, Fax: +55 21 220 1762 www.abnt.org.br/ E-mail: fcabral@abnt.org.br

Croatia

Ministry of Environmental Protection and Physical Planning Environmental Protection Division

Department for EU Integration and International Projects Environmental Label Program Ms. Nathasha Shakich Ulica Republike Austrije 16, 10000 Zagreb, Croatia Tel: +385 1 3782 158, Fax: +385 1 3717 149 www.mzopu.hr/ E-mail: natasa.sakic@mzopu.hr

Czech Republic

Ministry of the Environment, Czech Republic

Mr. Daniel Hajek Department of Voluntary Tools Vrsovicka 65, 100 10 Prague 10 Tel: +420 267 121 111 Fax: +420 267 126 983 www.ekoznacka.cz/ E-mail: daniel_hajek@env.cz

Czech Ecolabelling Agency.

Czech Environmental Information Agency (CENIA) Mrs. Adela Petrova Litevska 8 100 05 Prague 10 Tel: +420 267 225289, Fax: +420 271 742306 www.ekoznacka.cz/ E-mail: Adela.Petrova@cenia.cz

European Union (EU).

European Commission – DG ENVIRONMENT (G2).

Ms. Nicola Marinucci DG Environment G2 (BU-9.4/172) B-1049 Brussel, Belgium Tel: +32-2-2968075, Fax: +32-2-2955684 www.europa.eu.int/comm/environment/ecolabel/ index.htm E-mail: nicola.marinucci@cec.eu.int

Germany

Federal Environmental Agency; Blue Angel Program.

Mr. Wolfgang Lohrer Worlitzer Platz 1 06844 Dessau Tel: +49 340/2103-3394, Fax: +49 340/2104-3394 www.blauer-engel.de E-mail: wolfgang.lohrer@uba.de

Hong Kong (Special Administrative Region)

Green Council.

Green Label Program Ms. Linda Ho Rm, 710 New World Tower 1 18 Queen's Road Central Tel: (852) 2810-1122, Fax: (852) 2810-1998 www.greencouncil.org/ E-mail: info@greencouncil.org

Hong Kong

Hong Kong Federation of Environmental Protection (HKFEP) Limited Environment label Certification.

Ms Shiao-Fang Chen Hong Kong Federation of Environmental Protection (HKFEP)

Flat 1703, Manley Commercial Building 367 – 365 Quessns Road Central, Sheung Wan



TEL: +852-2750-8567, FAX: +852-2750-4617 www.hkfep.com E-mail: hkfep@hkfep.com

India

Central Pollution Control Board (CPCB)

Dr. B. Sengupta/Dr. M. Q. Ansari Parivesh Bhawan, CBD Cum Office Complex, 2057863 East Arjun Nagar, Dehli – 110 032 Tel: +91 11 223 05972 Ext.221 / +91 11 223 03655 Fax: +91 11 223 01844 / +91 11 223 07078 www.cpcb.delhi.nic.in E-mail: ssmqa.cpcb@nic.in cpcb@alpha.nic.in bsg1951@yahoo.com

Indonesia

Ministry of Environment

Ekolabel Indonesia MsSri Tantri Arundathi Assistant Deputy for Standardization, Technology and Cleaner Production Ministry of Environment Kementerian Negara Lingkungan Hidup, Gedung A, 1t.6 JL.DI.Panjaitan Kav. 24 Kebon Nanas -Jakarta Timur TEL: +62-21-8584638, FAX: +62-21-85906167 www.menlh.go.id E-mail: ekolabel@menlh.go.id

Japan

Eco Mark Office

Japan Environment Association (JEA) Eco Mark Program Mr. Teruo Saito Japan Environment Association daVinci Kamiyacho 2F, 1-11-9 Azabudai, Minato-ku, Tokyo 106-0041 TEL: +81-3-5114-1255, FAX: +81-3-5114-1257 www.ecomark.jp/english E-mail: jea-intercoop@japan.email.ne.jp

Korea

Korea Eco-Products Institute (KOECO) Mr. Sung-Woo "Stanley" Seok 613-2, Bulgwang-dong, Eunpyeong-gu, Seoul, 122-706, Korea Tel: +82-2-2085-0012, Fax: +82-2-2085-0001 www.koeco.or.kr/eng E-mail: mozzi@koeco.or.kr

New Zealand

Environmental Choice New Zealand

Robin Taylor PO Box 56 533, Dominion Rd Mt Eden, Auckland Tel: +64-9-845-3330, Fax: +64-9-845-3331 www.enviro-choice.org.nz E-mail: info@enviro-choice.org.nz

Nordic 5 Countries

Nordic Ecolabelling Board

Nordic Swan Label Bjorn-Erik Lonn c/o Norwegian Foundation for Environmental Labeling Tordenskiolds gate 6 B, NO-0160 Oslo, Tel : +47 2414 4600 Fax: +47 2414 4601 www.svanen.nu/eng E-mail: bjorn.erik.lonn@ecolabel.no

North America (Canada)

TerraChoice Environmental Marketing Inc.,

Environment Canada Environmental ChoiceM Program(Ecologo Program) Mr.John C. Polak 171 Nepean Street, Suite 400 Ottawa,ON K2P 0B4 Canada Tel: +1-613-247-1900 Fax: +1-613-247-2228 www.terrachoice.com E-mail: jpolak@terrachoice.ca

North America (U.S.A)

Green Seal Inc.

Green Seal Program 1001 Connecticut Avenue, NW, Suite 827 Washington DC 20036-5525 Tel: +1-202-872-6400, Fax: +1-202-872-4324 www.greenseal.org E-mail: aweissman@greenseal.org

Philippines

Clean & Green Foundation, Inc.

Green Choice Philippines Mr. June Alvarez Clean & Green Foundation The Orchidarium Valencia Circle, Rizal Park, Manila, Teodoro F. PHILIPPINES Tel: +632 527 6376/78, Fax: +632 527 6379 E-mail: cgfi@itextron.com

Russia

Saint-Petersburg Ecological Union

Ecolabel "Vitality Leaf" Program Mr. Semen Gordyshevsky M£óYulia Gracheva Nekrasova Street, 21 St. Petersburg, 191014 Tel: +7(812)230 9029 or 9697, Fax: +7(812)230 9029 www.ecounion.ru E-mail: project@ecounion.ru

Taiwan, China

Environment and Development Foundation

Green Mark Program Ning Yu Rm. 212, Bldg. 53 #195 Chung-Hsin Rd. Sec.4 Chutung, Hsinchu, TAIWAN 300 Tel: +886-3-591 62 21, Fax: +886-3-582 02 31 www.greenmark.org.tw E-mail: ningyu@edf.org.tw

Singapore

Singapore Environment Council (SEC)

Singapore Green Label Scheme (SGLS) Mr. Howard Shaw 1 Cluny Road Singapore Botanic Gardens House 3 Singapore 259569 Tel: +65 6337 6062, Fax: +65 6337 6035 www.sec.org.sg E-mail: yatin@sec.org.sg

Sweden (SSNC)

The Swedish Society for Nature Conservation

Ms. Eva Eiderstrom PO BOX 7005 40231, GOTEBORG Tel: +46-31-711-6450, Fax: +46-31-711-6430 Home page: http://E-mail: gbg@snf.se

Sweden(TCO)

TCO Development

Mr. Jan Rudling Linne'gatan 14 SE-114 94 Stockholm Tel: +46 8 782 9200, Fax: +46 8 782 9207 Home Page: http://www.tcodevelopment.com/ E-mail: jan.rudling@tco.se

Thailand

Thailand Environment Institute

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Ukraine

Living Planet

The Program for Development of Ecological Marking in Ukraine Ms. Sveltana V. Berzina, Director Living Planet Avenue Otradny, 61, 03061 Kiev, Ukraine TEL: 380-44-332-84-09, FAX: 380-44-497-64-99 www.ecolabel.org.ua E-mail: Berzina@ecolabel.org.ua

United Kingdom

Department for Environment, Food and Rural Affairs (DEFRA)

The UK Ecolabelling Competent Body European Union Ecolabel Award Scheme Mr. Charles Cox Green Labelling Unit, Department for Environment, Food and Rural Affairs



Zone 5D, Ergon House C/o Nobel House 17 Smith Square London SW1P 3JR Tel: +44 20 7238 4404 www.defra.gov.uk/environment/consumerprod/glc/ index.htm

E-mail: charles.cox@defra.gsi.gov.uk

In addition, many governmental agencies, as well as trade industry and professional associations, offer product standards and testing programs for vacuum cleaners and carpet cleaning equipment and pressure washers. These standards and programs may also be valuable in helping consumers to identify appropriate product purchasing standards that meet performance requirements, while at the same time reducing impacts on health and the environment. And some offer certification programs and professional licensing for the users of the products and the company itself.



3 GREEN CLEANING PRODUCTS, EQUIPMENT, AND SUPPLIES: PROPOSED CONTRACT

In Canada and the United States, there are a number of existing "roadmaps" that use wellestablished ecolabels and standards from their governments to help identify the appropriate products for use in a Green Cleaning program. This Appendix is based on the requirements of a number of these roadmaps including the U.S. Green Building Council's LEED for Existing Buildings Rating System (LEED-EBOM), Healthy Schools Campaign's The Quick and Easy Guide to Green Cleaning in Schools, and Hospitals for a Healthy Environment's 10 Step Guide to Green Cleaning Implementation.

The information below is designed to be used to "green" an existing cleaning product or service contract. However, additional information must be added to address product specific requirements and include:

- Packaging requirements (e.g., quart, gallon, and pails)
- Solids for floor finishes
- Performance requirements (e.g., floor finishes must last for a minimum of twelve months before stripping is required)
- Size requirements (for paper and plastic liners)
- Fragrance requirements (or the lack thereof)
- Requirements for dispensers

While this Appendix is specific to Canada and the United States, other countries have similar ecolabelling and related programs that could follow a similar format.

CHEMICAL CLEANING PRODUCTS:

1. All Purpose Cleaners

All purpose cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

2. Glass Cleaners

Glass cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

3. General Purpose Cleaners

General purpose cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

4. Washroom Cleaners (non-disinfecting)

Washroom cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

5. Floor Care Products (finishes and sealers)

Floor care products (finishes) shall be durable and slip resistant. In addition, the finish shall be free of zinc (metal-free) or shall meet the requirements of Green Seal's GS-40 and/or Environmental Choice's CCD-147.

6. Floor Care Products (strippers)

Floor care products (strippers) shall meet the requirements of Green Seal's GS-40 and/or Environmental Choice's CCD-147.

7. Carpet Care Products (shampoo and extraction)

Carpet care products shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-148.

8. Degreasers

Degreasers shall meet the requirements of Green Seal's GS-34 and/or Environmental Choice's CCD-110 for Cleaning and Degreasing Compounds.

9. Hand Soaps

Hand soaps shall be free of antimicrobial ingredients, except as preservatives or where required by code or regulation (i.e., food service

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and healthcare) or shall meet the requirements of Green Seal's GS-41 and/or Environmental Choice's CCD-104. Preference will be given for the use of foaming dispensers to minimize product use.

10. Odor Control Products

Odor control products shall meet the following requirements:

Environmental Choice's CCD-112 Digestion Additives for Cleaning and Odor Control

Environmental Choice's CCD-113 Drain or Grease Traps Additives

Environmental Choice's CCD-115 Odor Control Additives

11. Other Products not Otherwise Addressed

Other products not otherwise addressed (e.g., furniture polish, metal polish, and disinfectants) shall at a minimum meet the requirements of the California Code of Regulations (http://www.arb. ca.gov/consprod/regs/cp.pdf) or the Canadian National Office of Pollution Prevention (http://www. ec.gc.ca/nopp/voc/en/secCP.cfm) for the maximum amount of volatile organic compounds (VOCs) allowed by the specific product category.

12. Reporting on Chemical Purchases

Documentation shall 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 on a quarterly basis.

PAPER PRODUCTS

13. Paper Hand Towels

Paper hand towels shall meet the minimum requirements of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (minimum of 40 percent postconsumer recycled content) or Green Seal's GS-09 and/or Environmental Choice's CCD-086 and/or Chlorine Free Products Association (CFPA) Certification.

14. Toilet Tissue

Toilet tissue shall meet the minimum requirements of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (minimum of 20 percent postconsumer recycled) content or Green Seal's GS-01 and/or Environmental Choice's CCD-082 and/or Chlorine Free Products Association (CFPA) Certification.

15. Reporting on Paper

Documentation shall 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 on a quarterly basis.

PLASTIC TRASH CAN LINERS 🔀

16. Plastic Trash Can Liners

Liners shall meet the minimum requirements of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (minimum of 10 percent postconsumer recycled content). Note: size of liners and thickness must be added.

17. 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) shall be provided on a quarterly basis.

JANITORIAL POWERED EQUIPMENT

18. Vacuum Cleaners

Vacuum cleaners shall meet the requirements of the Carpet & Rug Institute's (CRI) Green Labeled vacuums.

19. Carpet Extraction Equipment

Carpet extraction equipment shall meet the requirements of the Carpet & Rug Institute's (CRI) CRI Bronze Seal of Approval at a minimum. Hot water extraction equipment shall be capable of removing sufficient moisture such that carpets can dry in less than twenty-four hours.

20. Automatic Floor Scrubbing Machines

Automatic floor scrubbing machines shall be equipped with variable-speed chemical feed pumps to minimize the use of cleaning chemicals or shall clean without the use of added cleaning chemicals.

21. Floor Burnishers

Floor burnishers shall contain shrouds and active vacuum attachments to capture particles produced during use. Propane-powered floor equipment shall have high-efficiency, low-emissions engines. Battery-powered equipment shall be equipped with environmentally preferable gel or comparable batteries.

22. Reporting on Janitorial Powered Equipment

Documentation shall be provided to demonstrate compliance with these requirements. A log shall 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.

4 ESTABLISHING A PERFORMANCE-BASED GREEN CLEANING SYSTEM

To establishing a performance-based Green Cleaning system, you'll need comprehensive outsourcing preparation and a best value supplier selection process.

Performance-based outsourcing is a buying strategy that focuses on specifically defined outcomes and the working relationship. This structure creates a linkage of shared consequences for economic and market benefits. Performancebased outsourcing specifies the results the buyer needs to create competitive value. It supports their Green Cleaning mission to serve a specific customer/market. The performance-based relationship is founded on the idea of mutually shared green consequences and accountability. The measurement of performance and constant brought together in the process of outsourcing, a fundamental goal of the performance-based contract is to clearly and accurately document the scope of work (mission-critical outcomes that are important to the buyer-including Green Cleaning). From the buyer's point of view, a performancebased contract should create a competitive advantage. The idea is to link contractor services to the company's mission to serve both the external customer/market and the internal stakeholder. A key to successful performance-based Green Cleaning management is the creation of linkage in a relationship that allows each side to achieve its goals. Both parties have clear, though different, goals that each considers fundamental to its success. This linkage is the best expression of the performance-based model. The discussion that follows examines both the results that are important to achieving Green Cleaning success in performance-based outsourcing and the nature of the relationship that will be needed.



improvement of both buyer and contractor green systems are the common focus. This *resultsrelationship* model captures the essential elements of successful performance-based, green-focused outsourcing.

Performance-based outsourcing is more about value than it is about the price of services or financial resources of contractor. While acknowledging that these elements must be Successful performance-driven partnerships can be formed around Green Cleaning systems that satisfy customer-defined results. A key benefit of the performance-based outsourcing program is that you establish performance goals, results, and expectations for the provider and focus your time on managing the procurement process, rather than on creating unique processes that dictate how the provider will perform their duties. Because the

VALUE 🔽

Creen Performance Management Model.

performance-driven program is client driven, the new contractor will know clearly what green result is expected, the reward for exceeding expectations, and the consequences for not meeting them. The partners who evolve from the process will be unified in their effort to meet goals that will ultimately benefit both parties.

VALUE 🔀

The purpose of the performance-based strategic outsourcing process is to select the supplier who can deliver a superior service product that meets the cleanliness quality and customer satisfaction goals of the buyer at a below market price. The process will also establish the framework of the resulting partnership so that client expectations for results and contractor responsibilities are clarified.

METHODOLOGY

A. Outsourcing Preparation

There are fifteen key activities as part of a successful preparation stage for establishing a world-class Green Cleaning management program. Beyond the normally expected preparation activities, there are a number of unique systems for leveraging performancedriven management success. An important element of the pre-project preparation phase of this work is an on-site baseline profile of the facility. This activity will do much to understand and export the cleaning management systems successes found and offer the opportunity to suggest any possible enhancements. This is the first step in establishing an effective and proven mechanism for defining, aligning, and linking customer-driven, green-focused performance expectations as a basis for documenting contract performance standards and goals. It will be an early step to define and align the respective responsibilities between the various members of the contractor selection team. The goal is to clarify the best balance of experience and responsibilities between team members in supporting the company's performancebased cleaning success. assessing supplier and green process capability, which requires an in-depth understanding of the cleaning industry and best practice cleaning systems. Further, understanding of supplier Green Cleaning systems allows the buyer to conduct a risk

assessment of success-failure of the supplier's recommended cleaning and Green Cleaning programs. The results from the risk assessment

Fifteen Preparation Activities:

- 1. Identify an internal champion.
- 2. Implement a structured change management program.
- 3. Conduct a pre-project baseline audit of the best of the best Green Cleaning management systems.
- 4. Define customer-driven expectations and requirements.
- 5. Collect and validate property profile data.
- 6. Conduct a local market capability analysis to identify qualified suppliers.
- 7. Out-task and include subject matter advice and procurement support.
- 8. Define and validate buyer goals.
- 9. Develop a performance-driven, incentive-linked contract.
- 10. Define the performance measurement system.
- 11. Prepare and license RFP and contract documents
- 12. Build-in a governance structure for meetings and communications.
- 13. Conduct a pre-bid conference to communicate expectations and answer supplier questions.
- 14. Conduct site or paper (blueprint) tours.
- 15. Manage pre-bid questions and communications.

are a founding element for value stream mapping of the supplier's proposal and a core reference for final pricing. Further, a financial analysis is the basis for the evaluation and validation of supplier bids.

B. Supplier Selection: A Best Value Process

A comprehensive, best practice supplier evaluation and selection process will assure a full disclosure and assessment of all material components of supplier proposals. Here are eleven key activities toward this end. While many buyers have some experience in some of these activities, there are several tasks that are most important for project success. This is particularly true in the area on assessing supplier and green process capability, which requires an in-depth understanding of the cleaning industry and best practice cleaning systems. Further, understanding of supplier Green Cleaning systems allows the buyer to conduct a risk assessment of success-failure of the supplier's recommended cleaning and Green Cleaning programs. The results from

the risk assessment are a founding element for value stream mapping of the supplier's proposal and a core reference for final pricing. Further, a financial analysis is the basis for the evaluation and validation of supplier bids.

Eleven Key Evaluation Activities:

- 1. Establish a cross-functional supplier evaluation team.
- 2. Review and clarify supplier proposals prior to team Evaluations.
- 3. Conduct supplier capability assessment.
- 4. Conduct green process capability assessment.
- 5. Conduct financial analysis.
- 6. Conduct risk assessment.
- 7. Implement value stream mapping of proposals.
- 8. Conduct finalist interviews.
- 9. Request firm and final proposals and pricing.
- 10. Document and present business case recommendations.
- 11. Create a transition compliance checklist.

C. Supplier/Program Transition Management

Program transition is typically a ninety-day

period, during which all assumptions, system designs, and plans are tested, adjusted, and refined. It is a "grace" period, during which a fine-tuning of the Green Cleaning program is applied. It is difficult for any program to survive a bad transition. There are typically seven activities to support effective supplier program transition. Of all the transition activities, the most value can be gained from participating in the multiparty performance management orientation training. Further, the transition period can add substantial value in support of the adjustment and refinement of the supplier's service delivery system. Also, because of the

Seven Key Transition Activities

- 1. Establish a cross-functional transition team.
- 2. Review the evaluation team compliance checklist.
- 3. Establish a transition schedule and responsibility matrix.
- 4. Conduct an orientation for all parties on the performance-based management model.
- 5. Meet weekly to review transition issues and challenges.
- 6. Adjust and refine the design of the supplier's Green Cleaning system.
- 7. Adjust and refine the design of the performance measurement and management model as needed

transition experience, buyers can offer insightful advice to the contractor during weekly transition meetings between all parties.



D. Ongoing Process Improvement

The best available system is an automated Six-Sigma model for contractor Green Cleaning measurement, management, and performance improvement. To support effective ongoing management, we envision eleven key activities. Because of Six Sigma's long history and experience, it can serve as an objective performance measurement resource to buyers. Using a team approach, including operations and the contractor on-site inspections and compliance, audits can be easily conducted. Using a software support solution can provide rapid, online performance dashboards and process improvement reports to buyers and the contractor alike. Buyer knowledge of Green Cleaning and cleaning management best practices will enable them to support the continuous process improvement strategy inherent in the six-sigma model. Further, they can provide the opportunity for knowledge transfer between buyers and contractors at various levels to enhance its capabilities for establishing successful performance-driven "green" relationships in other functional areas. The ongoing process improvement phase

Eleven Key On-Going Management Activities:

- 1. Conduct on-going performance measurement
- 2. Implement a six-sigma model for performance management
- 3. Establish a Supplier, Buyer cross-functional team and Elliott project management team
- 4. Review performance metrics and dashboard reports
- 5. Review last Supplier action plan
- 6. Review service successes and challenges
- 7. Establish green process improvement priorities
- 8. Create Supplier management action plans
- 9. Conduct Financial analysis and apply incentive/deductions
- 10. Track Supplier performance and contract compliance
- 11. Measure Supplier process changes as needed

generally achieves Green Cleaning performance stability in an eight- to ten-month timeframe. This allows the prevention focus for service performance to improve one process at a time, achieving its tipping point in the eight- to ten month period.



5 REQUEST FOR INFORMATION (RFI)

Janitorial Services for (Company Name) Location/Addresses Contact Name Title Date

REQUEST FOR INFORMATION

Janitorial Services for (Company Name)

Location/Addresses

Provide the perspective suppliers with a brief introduction to your Company and Mission (Sustainable or green policy can go here also.) Next, in detail, discuss the type of facility that will be serviced under the contract. (This section sets the tone for your expectations and goals for a successful custodial relationship with the perspective suppliers.)

Introduction

("Company Name") is soliciting competitive bids for green janitorial services for—(list the addresses, building description, square footages and any other relative information for of the facilities that will be bid on):

- 1. Facility Name The Green Facility
- 2. Building Type Manufacturing, Office, Medical, Education
- 3. Address
- 4. City, State zip
- 5. Country
- 6. Gross Square Feet
- 7. Cleanable Square Feet
- 8. Number of employee
- 9. Hours of Operation

The objective of this RFI is to select a group of potential custodial suppliers whom The Company believes are capable of providing green custodial services to our facilities/properties. A thorough review of the submitted information will be performed and the selected prequalified suppliers will be asked to participate in a request for proposal (RFP) and a site tour. The Company RFI will cover many key areas of your firm that we feel are vital to a successful green supplier relationship. These areas are:

- 1. Your Corporate Green Policy and Environmental Stewardship
- 2. Your Management Commitment to both The Company and your employees
- Your Quality Systems which will support implementation, management, maintenance and measurement of your services
- 4. Your Service Delivery Model as it pertains uniquely to The Company
- 5. Your Administrative Systems which include Human Resources, Procurement and Billing
- 6. Your Health, Safety and Compliance Systems as they integrate into our Project

Please review and respond to the following questions.

- 1. Company name
- 2. Company Address (note if this is your local, regional or national office)
- 3. Representative Name
- 4. Representative Phone Number
- 5. Representative Email address
- 6. General Description of your Company in terms of services area.
- 7. Year Company was formed
- 8. List of services provided
- 9. List of 4 green references of similar clients to that of The Company. Include
 - 9.1. Contact
 - 9.2. Contact Phone number and email address
 - 9.3. Address
 - 9.4. Square Footage
 - 9.5. Description of the type of services provided
 - 9.6. Provide Number of years of service
- 10. Provide your Corporate Environmental Policy and Environmental Stewardship roles in the industry and for your clients
 - 10.1. How is this communicated to your clients and employees?
 - 10.2. Discuss your experience in providing Green Cleaning services



- 10.2.1. Is your entire firm green? If so how long and how did you decide to do this
- 10.3. What innovations have you provided your clients in regards to cleaning for health?
- 10.4. Do you have any certifications in the processes of green cleaning?
- 11. Describe Management Commitment to The Company and your employees
 - 11.1. What is your Mission Statement?
 - 11.2. How is this communicated to the employees?
 - 11.3. Provide and organizational chart as it would relate to this account
 - 11.4. Provide job Descriptions for those in lead to Management of this account
 - 11.5. How do you communicate with your employees?
 - 11.6. How do you receive feedback from your employees?
 - 11.7. What type of succession planning do you have for your employees
 - 11.8. What is your retention rate of your ClientsProvide the formula for determining this rate
 - 11.9. What is the retention rate of your employees – Provide the formula for determining this rate
 - 11.10. Provide a copy of your business license for the city/providence that The Company is located in.
 - 11.11. Provide proof of insurance for the following
 - 11.11.1. Worker's Comp
 - 11.11.2. General Liability
 - 11.11.3. Automotive
 - 11.11.4. Employer's Liability
- 12. Provide information on your quality control programs to include
 - 12.1. The written program for which you will maintain a quality green cleaning program at The Company
 - 12.2. The Communication of this plan to our

staff and your employees

- 12.3. The measurement tools and the frequency that you will be using in order to indicate the sustainability of your program.
 - 12.3.1.This must include procurement of:
 - 12.3.a.1. Chemicals
 - 12.3.a.2. Paper supplies
 - 12.3.a.3. Equipment maintenance.
 - 12.3.2. This also must include adherence to the specifications
 - 12.3.b.1. Action Plans for default areas and their correction/ performance improvement
 - 12.3.b.2. How do you ensure the execution of periodic tasks?
 - 12.3.b.3.Responsibility chain for corrective/complaint resolution
 - 12.3.b.3.1. Feedback cycle
 - 12.3.b.3.1.1. Call Center

12.3.b.3.1.2. Surveys

- 12.3.b.3.1.3. Site Tours
- 12.3.b.4. Recognition plan for indicating successes 12.3.b.4.1. Employee incentives
- 13. Describe your service delivery model for this contract
 - 13.1. Staffing descriptions
 - 13.1.1. Part time or full time
 - 13.1.2. What work loading systems, if any, do you use?
 - 13.1.3. Who in management are dedicated to our account and in what capacity?
 - 13.1.4. Provide a brief bio on each
 - 13.2 What is your transition and implementation plan for this account?
 - 13.2.1. Provide a project timeline
 - 13.3. What contingency planning to you have in place for
 - 13.3.1. Staffing issues
 - 13.3.a.1. Illness
 - 13.3.a.2. Absenteeism
 - 13.3.2. Emergency Response

- 13.3.3. Special Requests
- 13.4. Describe your invoicing process as it pertains to your service delivery model
- 14. Describe your Administrative Systems as they pertain to
 - 14.1. Employees
 - 14.1.1. Recruitment
 - 14.1.a.1. Immigration compliance
 - 14.1.2. Retention
 - 14.1.3. Background checks What type do you provide?
 - 14.2. Payroll verification relative to your service delivery plan for the account
 - 14.2.1. How do you determine the pay for your crews that will be used on this site?
 - 14.3. Training
 - 14.3.1. In green janitorial operations versus other types of cleaning systems
 - 14.3.2. In green janitorial as it pertains to The Company
 - 14.3.3. On your company policy and procedures
 - 14.3.c.1.Do you have a company handbook?
 - 14.4. How do you plan to bill The Company
 - 14.5. What are your payment terms?
 - 14.6. What green procurement procedures will you be using in this contract?
- 15. What are your Health and Safety/Risk programs that would be utilized in this account?
 - 15.1. Do you have an illness and injury prevention program

- 15.1.1. Of so please provide a copy
- 15.1.2. Who maintains this program?
- 15.1.3. So you have safety meeting? If so how often and who conducts them?
- 15.1.4. Do you provide MSDS sheets?
- 15.2. Do you have a Blood Borne pathogen program?
 - 15.2.1. If so please provide a copy of the Program
 - 15.2.2. Who maintains this program?
 - 15.2.3. Do you provide Hepatitis vaccinations to your employees?
- 16. Provide 4 references of clients that you currently clean with green janitorial operations. Include
 - 16.1. Contact Name
 - 16.2. Contact Number
 - 16.3. Company name and address
 - 16.4. Years of service on this account
 - 16.5. Type of Staffing Day/night
 - 16.6. Cleanable Square Footage
- Provide 2 references of green cleaned operations that you have lost in the last 24 months. Include –
 - 17.1. Contact Name
 - 17.2. Contact Number
 - 17.3. Company name and address
 - 17.4. Years of service on this account
 - 17.5. Type of Staffing Day/night
 - 17.6. Cleanable Square Footage

18. What innovations or characteristics make your firm different from the rest that may not have been mentioned and would like The Company to be aware of?



6 REQUEST FOR PROPOSAL

Janitorial Services for (Company Name) Location/Addresses Contact Name Title Date



🔀 REQUEST FOR PROPOSAL

Janitorial Services for (Company Name)

Location/Addresses

Provide the perspective suppliers with a brief introduction to your Company and Mission (Sustainable or green policy can go here also.) Next, in detail, discuss the type of facility that will be serviced under the contract. (This section when partnered with the RFI should provide a complete analysis of the perspective supplier.)

Introduction

("Company Name") is soliciting competitive bids for janitorial services for

List the addresses, building description, square footages and any other relative information for of the facilities that will be bid on:

- 1. Facility Name The Green Facility
- 2. Building Type Manufacturing, Office, Medical, Education
- 3. Address
- 4. City, State zip
- 5. Country
- 6. Gross Square Feet
- 7. Cleanable Square Feet
- 8. Number of employee
- 9. Hours of Operation

The objective of this RFP is to enter into a contractual relationship with a custodial supplier who can:

- 1. Provide the most competitive price for high quality green cleaning services.
- 2. Maintain the buildings at a high professional and green standard.
- 3. Provide all the required labor, equipment and material.
- 4. Maintain building security while performing janitorial services.
- 5. Ensure all safety standards are met.
- 6. Make recommendations on possible price reductions with improved service levels

Legal Compliance:

Contractors shall ensure and maintain strict compliance with the various global, federal, state, provincial and local laws, ordinances, rules and regulations affecting the sustainable performance of the work in the aforementioned facilities. This compliance is to include but is not limited to labor/employment, environmental and contractor regulations. Evidence of such compliance is to made available from time to time during the tenure of this contract.

Responses to this request are due no later than - list date and time. Please review and complete the enclosed documents with the necessary information and return in a sealed envelope to:

- Name
- Address
- City and State
- zip
- email copy to ____

Proposal Compliance Requirements

This request for Proposal is being made based on the information noted in accordance with all of the dates provided in the referenced/attached enclosures. Bids will not be considered responsive unless there is compliance with the following paragraphs:

- Understanding The response to this RFP shall be accompanied by a cover letter stating whether or not the quotation includes understanding and compliance of the proposed General Terms and Conditions, and if not, what exceptions are taken.
- Audit Rights Concurrence of audit rights (by Company Name) is required on all Agreements, Contracts and/or Work Orders when the proposed bids are \$100,000 or higher.
- Bid Due Date bids shall be returned no later than_____Note: bids received later than the date and time indicated will be marked as "Late Bids" unless Company Name officially

extends the bid date. "Late Bids" may or may not be considered in accordance with the then current Company Rules and Regulations.

4. Bid Period/Selection Timeline - All bids submitted shall be considered firm for ninety (90) days, or the period otherwise stated to support quotation pricing. Company Name will open bids privately. All proposals must remain valid for a period of 90 calendar days after the designated submittal date. Company Name will not announce publicly, or to individual Vendors the comparative ranking or individual assessments of proposals submitted. All bid packages submitted become the property of Company Name and will not be returned to the individual / company submitting them. It is the intent of Company Name to select a Vendor and sign a formal agreement by mid February 2007.

5. Estimated timeline:

- Month date, year: Proposal submission deadline at ______ time
- Month date, year: Vendor questions and finalists selected
- Month date, year: Vendor qualification and contract review
- Month date, year: Contract Awarded
- Month date, year: Finalize and sign contract
- 6. **Exceptions:** Exceptions taken to any portion of the RFP are taken at supplier's peril and should be noted. Such exceptions must stated in detail and notate the particular components that are being assumed or changed. No such assumptions will be accepted unless agreed upon by the contracting agent.

7. Format of Contractor's Response:

 The bid response must be returned in exactly the same format as provided, and the RFP must be signed and dated by an authorized agent/person of your company.

- Vendor is to submit three (_) copies of the bid/quotation response to Company Name. Note: In response to the format provided, if the Vendor has a different or superior concept, please footnote that section or item and include the additional information as an attachment as is necessary to describe the differences. This does not relieve or change any of the above stated requirements, but it is intended to allow the Vendor a means of expanding or providing clarification when considered necessary.
- 8. **Insurance**: The insurances that are required will vary according the contracting company. The following provides some sample language for this section of the RFP. Selected Vendor shall procure and maintain in effect at all times during the term of this Agreement, at its sole cost and expense, the following insurance coverage, which insurance shall be placed with insurance companies rated at -Selected Vendor shall require all of its subcontractors to comply with the requirements of this section a copy of the Selected Vendor's Certificate of Insurance must be submitted to Company Name prior to the award of any contract. Vendor's response should include all insurance coverage required such as:
 - Worker's Compensation: Statutory coverage is required in accordance with the laws of the state, including Voluntary Compensation, Broad Form and Stop Gap compensation. Employer's liability shall be carried with limits of not less than (what is required by your company e.g. \$1,000,000 each employee/disease and \$1,000,000 disease/policy limit). The Selected contractor shall provide and shall cause each subcontractor, if any, to provide employer's liability coverage of not less than \$1,000,000.00 per incident.

- Liability: Personal, Property, Employer's (Employer's liability shall be carried with limits of not less than (what is required by your company e.g. \$1,000,000 each employee/disease and \$1,000,000 disease/ policy limit)
- Auto/Vehicle: Insurances should name Company name as additionally insured where required by the client firm. *Also certain firms require a waiver of subrogation notated on the coverage of insurance. Selected Vendor shall deliver to Company Name a certificate(s) of insurance certifying that he / she has obtained full Worker's Compensation and Employer's Liability Insurance coverage for all persons whom he / she employs or may employ in carrying out the work under the Agreement. The Selected Vendor shall not commence nor continue to perform any work unless it has in full force and affect all required insurance. The Selected Vendor shall not permit any work in the building unless they are in compliance with the Worker's Compensation and all other liability insurance requirements.
- 9. Other Insurance: The Scope of Service may require additional insurance to the coverage required above, from Selected Vendor. Vendor may also carry such other insurance as vendor deems prudent (auto, physical damage, general risk insurance). All such insurance shall include a waiver of the insurer's rights of subrogation against Company Name.
- 10. Terms and Conditions of Insurance: Prior to award of this request, Selected Vendor shall submit a valid/original "Certificate of Insurance" evidencing that all required insurance is in full force and effect. The Selected Vendor shall maintain current and valid Certificates of Insurance, which shall be kept on file with Company Name at all times

during the term of this Agreement. Company Name will not process any invoices or applications for payment submitted by Selected Vendor for Work performed unless Manager has a valid/original Certificate of Insurance on file for Selected Vendor and all of its subcontractors. Selected Vendor shall not make any changes in or allow the required insurance coverage to lapse without first obtaining prior written approval from Company Name. All policies for insurance shall be in form satisfactory to Company Name and shall contain an endorsement providing that Company Name must be given thirty (30) days prior written notice of any cancellation or material change in the policy or coverage hereunder. Upon request, Selected Vendor shall furnish Company Name with complete copies of insurance policies required.

11. Taxes, Licenses and Permits: The Selected Vendor shall provide to Company Name two (2) copies of all applicable certificates and Business Licenses that would be required to perform any part of the an ensuing procurement that may result from the RFP. Licenses will be provided by the company responding to the RFP for the Vendor's company and all subcontractors, if any, listed in the proposed response. The Selected Vendor is required to pay all sales, use and other taxes of every kind on labor, equipment and materials used in connection with the Work. Payment for such taxes is included in the compensation paid by Company Name to the Selected Vendor. Where applicable, Selected Vendor must separately state sales, use and other taxes on all invoices submitted to Company Name.

12. **RFP submittal not a commitment to purchase:** This RFP is not a commitment to purchase, and any costs borne by the contractor in preparing or submitting a response to this RFP shall not be reimbursed

by Company Name, nor does Company Name obligate itself with any actions taken or costs incurred by a Vendor responding to this RFP. Company Name reserves the right to reject any and all bids submitted in response to this request without any explanations.

- Pricing: For bid purposes all proposals must be presented per the attached Supplier Cost Analysis. This Analysis must detail the following:
 - Basic
 - Cost for basic service (labor) /month/year
 - Cost for basic service (material) /month/ year.
 - Grand Total/month/year
 - Extra Services
 - Cost for extra service (labor) /month/year
 - Cost for extra service (material)/month/year
 - Windows
 - Carpets
 - Floors
 - Grand Total/month/year
 - Cost for other cleaning service /monthly (be specific on charges)

14. Supplier Request for Information and Qualifying Materials:

Selected Vendor must complete Company supplier Request for Information. (RFI) This information will predetermine who The Company believes is best qualified for this RFP process. Therefore in order to proceed with the RFP the supplier company must have submitted a response to the RFI. Additionally, a copy of the RFI must be attached as part of the hard copy proposal.

- 15. Questions (Related to the RFP): All questions concerning the RFP shall be referred to -
 - Contract Manager
 - Email Address
 - Phone number
 - Address
 - City State
 - ZIP

All bids shall be returned by mail in sealed envelopes marked as follows in the lower left hand corner of the quotation return envelope:

Note: Please enclose three (3) copies of your quotation and a copy of your original and RFI.

On the cover of the sealed envelope list the following -

- Attention to
- Due date
- Project Name
- Suppler Company Name
- Supplier Contact information regarding the submittal.

Failure to follow the above instructions may cause your quotation to be considered nonresponsive.

- 16. Subcontractors: The Selected Vendor should provide Company Name with a complete list of all subcontractors, if any, that are included in the quotation, and/or that would be requested to perform any part of an ensuing procurement that may result from the RFP. The Selected Vendors' submission should include a description of the subcontractor's scope of work to be performed, estimated total dollars, the subcontractor's name, address, representative, verification of insurances and licensees as mentioned in the legal and contract compliance sections.
- 18. Guarantee and/or Warranty Policy: Upon written request, Company Name shall be furnished with all reasonable evidence ascertaining that the materials, labor and workmanship are in accordance with the requirements of these green specifications. The inspection of the work

shall not relieve the Selected Vendor of any of i ts obligations to fulfill the Agreement as prescribed, and insufficient work shall be made good at no expense to Company Name, notwithstanding that such insufficient work and materials may have been previously overlooked or accepted. The services will be bound the the performance indicator's developed by and between the supplier and the Company at the time of contract. All metrics of ensuring compliance to the green specifications and duties of this contract are to be kept in duplicate soft copy. (One copy of the performance metrics will be retained in the office of the supplier and one copy in the office of the Manager of this RFP.)

- 19. Confidentiality: Any confidential information provided to, discovered by or received by the Selected Vendor or its subcontractors in the performance of the janitorial agreement shall be kept confidential and shall not be made available to any individual or organization, unless required by law, without prior written approval of Company Name. The selected Vendor and all personnel working for the Selected Vendor may be required to read and sign a confidentially statement in a form provided by Company Name before any work by Selected Vendor commences.
- 20. **Conflict of Interest:** The perspective vendor ensures that they currently have no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services / purchase of materials under this proposal.
- 21. **Contractor Requirements:** The perspective supplier agrees to abide by the specifications and the company requirements under this RFP. In the event that they are awarded the contract for this bidding opportunity they warrant they will enter the contract provided to them by the Company. Any discrepancies will be so noted

prior to the inception of the work to be performed.

22. Agreement: Total cost for janitorial services (including Sales Tax if deemed appropriate) for:

Building Located at
Total Cleanable Square Feet
Nightly Service — per sq.ft — vac. credit
Porter Staff per hour
Carpet cleaning per sq. ft per hour
Supplies - If bid in lump sum — per month
(Including sales tax and handling)

All of the responses in the attached request for proposal are accurate and complete. I, as the authorized representative of understand the specifications and requirements and our ability to comply with them as stated unless otherwise noted. The pricing that is so noted in section 22 is accurate per the specifications and requirements stated in this RFP.

Name

Title/ Authorized Representative of Perspective Date

Specification and Terms

- 1. Insert Your Specifications Here (See sample in Appendix)
- 2. Insert Your Supplier Cost Analysis Here (See sample in Appendix)

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7 RFP CLEANING COST MODEL

DATE OF P	ROPOSAL:					CLIE	NT NAI	ME:		
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8 WALK-THROUGH AUDIT MANAGEMENT TOOL

🛛 AUDIT REPORTS

One of your key Green Cleaning management tools is the walk-through. As we discussed in the main body of this document, the walk-through is not a formal inspection. Rather it is an opportunity for you and your service provider to look at parts of the building together and understand what each other sees. It is also an opportunity to keep the program on-track between more formal in-spections. We've included the attached forms as a suggested method of documenting the walk-through. As you go through the building, you can grade areas on an acceptable or needs attention basis – there is space for notes if needed. Of course, in an attempt to be as generic as possible, these may include areas that are not appropriate for your building or be missing others that you need. These are meant as a starting point to assist in getting your program going, you can modify these or create new ones that better fit your needs.

Inspector:	Site Manage	r:		
AREA				
Building Usage, Exterior, & Neighbors	Checked	Needs Attn.	NA	Notes:
No changes in building usage				
No construction, renovation or other structural changes				
No construction, renovation or other changes affecting neighbors				
No evidence of standing water on roofs, parking lots or grounds				
No evidence of standing water on neighboring roofs, parking lots or grounds				
Potential vehicular traffic issues				
Basements and Crawl Spaces				
No evidence of moisture or standing water				
No evidence of biological contamination (molds, mildew)				
No evidence of high levels of dust or debris				
No evidence of insects, rodents or other pests				
No evidence of dirty or ineffective air filters, pumps, back draft dampers or fans				
No sources of VOCs (e.g. stored chemicals)				
No noticeable odors				
No evidence of cracks in flooring or foundation				

Inspector:	Site Manage	r:		
AREA				
Garages, Loading Docks, Shop Areas	Checked	Needs Attn.	NA	Notes:
No evidence of excessive dust, trash and debris				
Materials (e.g. paints, chemicals, fuels) are organized and VOCs are controlled through adequate ventilation (e.g. direct exhaust).				
Floors are clean to prevent tracking and floor matting systems are utilized and in good working order.				
Vehicular exhaust is NOT impacting fresh air intakes.				
Dumpster areas are clean and located away from fresh air intakes.				
No evidence of insects, rodents or other pests.				
Entrances & Lobbies				
Entrance mats and floor grills are clean, in good working order, and long enough to be effective (first 9 to 12 feet).				
Waste receptacles are cleaned and emptied.				
Carpets are clean and in good condition.				
Hard floors are clean, dust free and in good condition				
Glass doors, decorative surfaces, mirrors and bright work are clean	_	_		
and in good condition.				
Window coverings (e.g. draperies, curtains) are clean.				I

Inspector:	Site Manage	r:		
AREA				
Stairs & Elevators	Checked	Needs Attn.	NA	Notes:
Carpeting and flooring are clean and in good condition				
Bright work and hand rails are clean and in good condition				
Steps and landings are clean and free of trash and debris				
Offices / Workspaces				
Flooring and carpets are clean and in good condition.				
Dust levels minimal. Dusting performed with damp cloths or micro-fiber cloths.				
Office partitions (especially if fabric covered) are clean and dust free.				
Ceiling tiles exhibit no evidence of water or moisture damage.				
Telephones, door knobs and light switches are clean and disinfected.				
Window and light fixtures are cleaned and operating properly.				
Draperies and blinds are clean and dust free.				
Trash receptacles are accessible and emptied.				
Plants exhibit no evidence of insect infestation, and surfaces under plants are clean.				
No evidence of mold, mildew or other biocontamination. No evidence of insects, rodents or other pests. Self contained heating and cooling unites are clean & free of biocontamination				



Inspector:	Site Manage	r:		
AREA				
Special Areas (Smoking Areas, Pools, Labs, etc)	Checked	Needs Attn.	NA	Notes:
Chemicals are stored properly and vented directly outdoors.				
Smoking areas are vented directly outdoors.				
Trash receptacles are accessible and emptied.				
No evidence of mold, mildew or other biocontamination.				
Dust levels minimal. Dusting performed with damp cloths or micro-fiber cloths.				
Flooring and carpets are clean and in good condition.				
Food Preparation / Serving Areas				
Floors are clean, free of food scraps, debris or any signs of biocontamination,				
and cleaned at least once daily.				
Floor drains are operating properly.				
Air vents are clean and operating properly.				
All surfaces that come in contact with food preparation are clean, free of	_	_	_	
food scraps and debris, and cleaned after every meal or use.				
Tables (tops and undersides) and chairs are cleaned				
and sanitized after every meal or use.				
Trash receptacles are tightly covered and emptied daily.				
No evidence of insects, rodents or biocontamination.				

Inspector: Site Manager: AREA Washrooms, Restrooms, Showers & Locker Rooms Checked Needs Attn. NA Notes: Countertops, basins and toilets are disinfected/sanitized daily. Floor drains are operating properly. No noticeable odors or visible biocontamination (mold & mildew) Shower heads, water faucets and toilets are operating properly. Soap dispensers are operating properly. 22 Dispensers are wiped clean w/ disinfectant daily. Dispenser are properly stocked. Vents are clean and operating properly with enough ventilation to keep areas dry. Ceiling tiles exhibit no evidence of water or moisture damage. 22 Waste containers are emptied & wiped w/ disinfectant daily. Dust levels minimal. Dusting performed with damp cloths or micro-fiber cloths. Flooring and carpets are clean and in good condition. No evidence of mold, mildew or other biocontamination. 22 No evidence of insects, rodents or other pests. Self contained heating and cooling unites are clean & free of biocontamination.

Site Manager			
Checked	Needs Attn.	NA	Notes:
		Site Manager: Checked Needs Attn. <td></td>	



Inspector:	Site Manager	<u>.</u>		
AREA				
Custodial Closets & Storage Areas	Checked	Needs Attn.	NA	Notes:
Area is clean and products are neatly organized.				
Stored equipment is clean. Equipment is cleaned after every use.				
Vacuums fitted with HEPA or appropriate filters.				
Mops in good condition.				
Observe cleaning and stored chemicals for DOT Hazard placards.				
If hazardous products are stored, further review is necessary.				
Floors should be clean and free of debris.				
Ceiling tiles exhibit no evidence of water or moisture damage.				
Drains and washbasins operating properly				
Exhaust fans/vents are working properly.				
Trash receptacles are accessible and emptied.				
No evidence of mold, mildew or other biocontamination.				
No evidence of insects, rodents or other pests.				
Self contained heating and cooling unites are clean & free of biocontamination				

Inspector:	Site Manager	:		
AREA				
Mechanical Rooms, Attics, Roofs	Checked	Needs Attn.	NA	Notes:
No evidence of water leaks or standing water on roof.				
Dust levels and debris are minimal.				
No evidence of birds, rodents, insects or biocontamination.				
Screens and barriers are in place to prevent pest entry.				
Dust levels minimal. Dusting performed with damp cloths or micro-fiber cloths.				
Outdoor air intakes are clean and away from sources of				
contamination (vehicle exhaust, smoke stacks, etc.)				
Ceiling tiles exhibit no evidence of water or moisture damage.				
Telephones, door knobs and light switches are clean and disinfected.				
Window and light fixtures are cleaned and operating properly.				
Air handlers and related equipment are routinely inspected and cleaned.				
Filters are periodically cleaned and replaced.				
Trash receptacles are accessible and emptied.				
Mechanical rooms and air plenums not used for storage.				



9 INTRODUCTION TO APPA'S CUSTODIAL GUIDELINES

CUSTODIAL STAFFING GUIDELINES APPA LEADERSHIP IN EDUCATIONAL FACILITIES

www.appa.org

APPA began work on the Custodial Staffing Guidelines for Educational Facilities in 1987. The objective was to develop a standard methodology for auditing, measuring, and reporting custodial effectiveness. The working premise was that the cleaning results were closely tied to proper staffing levels. Response to the initial version was excellent, and the development team was able to collect a wealth of new data. This data was used in the development of new norms and standards as the tool was updated throughout the early and mid 1990s.

The information in this Appendix is meant to be informational and is not meant to substitute for reference material supplied by APPA (http://www. appa.org), or the USGBC LEED-EBOM Reference Guide (http://www.usgbc.org).

As described in APPA's Custodial Staffing Guidelines for Educational Facilities Second Edition, the APPA method revolves around three ground rules:

- 1) Five Appearance Levels
- Standard Spaces the guide defines thirty three types of spaces based on accumulated cleaning data
- The data is presented in Cleanable Square Feet (CSF) per worker

The five levels of appearance range from 1 (Orderly Spotlessness) to 5 (Unkempt Neglect); obviously, the lower score is the better score. As with any naming conventions, those chosen by APPA are sometimes confusing. We've included a brief description from the guidelines to explain each level of appearance.

1 - Orderly Spotlessness

- Floors and baseboards are clean and bright, with fresh colors and no buildup along walls or in corners.
- Vertical and horizontal surfaces have a freshly cleaned or polished appearance with no accumulation of dust, dirt, marks, streaks, smudges, or fingerprints. Lights work, and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste and are clean and odor-free.

2 - Ordinary Tidiness

- Floors and baseboards are clean and bright, with fresh colors and no buildup along walls or in corners, but there may be up to two days of dust, dirt, stains, or streaks.
- All vertical and horizontal surfaces are clean, but marks, smudges, dust, and fingerprints are noticeable upon close observation. Lights all work, and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste and are clean and odor-free.

3 - Casual Inattention

- Floors are swept or vacuumed clean, but upon close observation stains can be seen. A buildup dirt or floor finish in corners and along walls can be seen.
- There are dull spots or matted carpet in traffic lanes. There are streaks or splashes on baseboards and molding.



- All vertical and horizontal surfaces have obvious dust, dirt, marks, smudges, and fingerprints. Lights all work and fixtures are clean.
- Trash containers and pencil sharpeners hold only daily waste and are clean and odor-free.

4 - Moderate Dinginess

- Floors are swept or vacuumed clean but are dull, dingy, and stained. There is a noticeable buildup of dirt or floor finish along walls and in corners.
- There is a dull path or obviously matted carpet in traffic lanes. Baseboards are dull and dingy with streaks and splashes.
- All vertical and horizontal surfaces have conspicuous dust, dirt, smudges, fingerprints, and marks. Lamp fixtures are dirty and some lamps (up to 5 percent) are burned out.
- Trash containers and pencil sharpeners have old trash and shavings. They are stained and marked. Trash containers smell sour.

5- Unkempt Neglect

- Floors and carpets are dull, dirty, dingy, scuffed, or matted. There is conspicuous buildup of old dirt or floor finish in corners and along walls. Baseboards are dirty, stained, and streaked. Gum, stains, dirt, dust, and trash are broadcast.
- All vertical and horizontal surfaces have major accumulations of dust, dirt, smudges, and fingerprints, all of which will be difficult to remove. Lack of attention is obvious.
- Light fixtures are dirty with dust balls and flies. Many lamps (more than 5 percent) are burned out.
- Trash containers and pencil sharpeners overflow. They are stained and marked. Trash containers smell sour.

The second ground rule involves the use of standard spaces. APPA created thirty-three "standard area types." They then identified the cleaning activities for each standard space to reach each level of cleanliness (1 - 5). The data used by APPA to create these standards was based on the responses of hundreds of respondents from educational institutions in North America.

The third ground rule is that the results should be formatted in CSF (cleanable square feet) per custodian. The APPA publication then provides various charts listing CSF per custodian per shift according to the spaces. As the APPA points out, actual staffing levels can and will vary, but these guidelines have proved to be very effective starting points.

APPA Audit Steps:

First, determine the appropriate spaces of the building for the audit by assessing the building floor plan relative to the APPA space categories. Commercial property managers may be concerned with the educational facility nature of the spaces. This is not a significant issue. If the APPA space categories do not match your space, simply choose one of the listed categories that is most similar to your space.

Second, choose a subset of spaces to be audited; be certain that each space type is adequately represented. APPA requires that rooms equivalent to at least 10 percent of each space type and 10 percent of total floor area cleaned be selected for auditing. For any space types where 10 percent of the given room or space type totals less than five rooms, all five rooms must be audited.

Third, identify the auditor or auditors. The intention is that the auditor is an independent third party with no relationship to either property management or the cleaning service provider. Alternatively, two auditors (typically one from property management and one from the service provider) may audit comparable spaces independently of each other and the results are averaged.

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Fourth, develop an audit analysis for each space type by integrating the key appearance items and weighting factors as described in the APPA Custodial Staffing Guidelines book. APPA has evaluated each space type and assigned "appearance items" that help guide the auditor's evaluation. Each appearance item is assigned a "weighting factor" that places more importance on the items requiring more effort to achieve a high level of cleanliness.

Finally, each appearance item shall be scored based on the five appearance levels established by APPA.

For each space type, score the relevant appearance items using the appearance levels

above, apply the weighting factor to determine the raw score, and calculate the average appearance level for the audited rooms.

Please refer to APPA's Custodial Staffing Guidelines for Educational Facilities for complete details in understanding the background and process for evaluating a facility's appearance level. The book may be purchased at http://www.appa.org.

For information about applying these guidelines to EQ Credits 3.2 and 3.3 of the LEED-EBOM Certification Standards, please refer to the reference guide published by the U.S. Green Building Council at http://www.usgbc.org.



10 THE ASHKIN GROUP GREEN CLEANING COST SURVEY

Survey Statistics

 Viewed
 794

 Started
 305

 Completed
 302

 Completion Rate
 99.02%

 Drop Outs (After Starting)
 3

 • Average time taken to complete survey : 4 minute(s)
 3

1. Your position: Could you please tell us which of the following best describes your title or position with your organization.

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	Facility manager or building owner	160	52.81%					
2.	Distributor	24	7.92 %					
3.	Building service contractor (facility service provider)	62	20.46%					
4.	Product manufacturer	11	3.63%					
5.	Manufacturers rep	6	1.98%					
6.	Other (please describe below)	40	13.20%					



Key Analytics		
Mean	2.337	Key Facts
Confidence Interval @ 95%	[2.140 - 2.534] n = 303	73.27% chose the following options : Facility manager or building owner
Standard Deviation	1.751	 Building service contractor (facility service provider)
	0.101	Least chosen option 1.98% : Manufacturers rep

2. Location: Please tells us what part of the world you are located in.

Frequency Analysi

	Answer	Count	Percent	20 %	40 %	60%	80%	100%
1.	North America	289	95.70%					
2.	Central America	4	1.32%					
3.	South America	1	0.33%					
4.	Europe	0	0.00%					
5.	Middle East	3	0.99%					
6.	Africa	0	0.00%					
7.	Asia	3	0.99%					
8.	Oceania (Pacific Islands, Australia and New Zealand) Antarctica	2	0.66%					
	Total	302	100%					

Key Analytics

Mean	1.166	Key Facts
Confidence Interval @ 95%	[1.062 - 1.269] n = 302	
Standard Deviation	0.918	 Central America
Standard Error	0.053	

3. Cleaning Service: If you are using a *Green Cleaning service* now, have the overall

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3. Cleaning Service: If you are using a Green Cleaning service now, have the overall costs been more than, less than, or about the same as a service providing conventional cleaning services?

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	More than 20% more	7	2.37%					
2.	10% to 20% more	22	7.46%					
3.	0% to 10% more	51	17.29%					
4.	The same cost	63	21.36%					
5.	0% to 10% savings	12	4.07%					
6.	10% to 20% savings	5	1.69%					
7.	More than 20% savings	6	2.03%					
8.	N/A	129	43.73%					
	Total	295	100%					

Key Analytics

Mean	5.492	Key Facts
Confidence Interval @ 95%	[5.217 - 5.766] n = 295	• 65.08% chose the following options :
Standard Deviation	2.402	• The same cost
Standard Error	0.140	 Least chosen option 1.69% : 10% to 20% savings

4. Green Cleaning Products: If you are currently using Green Cleaning products, do you find the total overall cost, including all products and labor, to be more than, less than, or about the same when compared to traditional counterparts?

Frequency Analysis
	Answer	Count	Percent	20 %	6	40%	60%	80%	100%
1.	More than 20% more	13	4.32%						
2.	10% to 20% more	40	13.29%						
3.	0% to 10% more	67	22.26%						
4.	The same cost	75	24.92%						
5.	0% to 10% savings	22	7.31%						
6.	10% to 20% savings	14	4.65%						
7.	More than 20% savings	5	1.66%						
8.	N/A	65	21.59%						
	Total	301	100%						

Key Analytics

Mean	4.462	Key Facts
Confidence Interval @ 95%	[4.214 - 4.710] n = 301	 47.18% chose the following options : The same cost
Standard Deviation	2.193	 0% to 10% more
Standard Error	0.126	 Least chosen option 1.66% : More than 20% savings

5. Labor: Regarding the cost of labor, do you find that the total spent on labor is more than, less than, or about the same when using a Green Cleaning program compared to a traditional cleaning program?

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	More than 20% more	3	1.00%					
2.	10% to 20% more	16	5.35%					
3.	0% to 10% more	37	12.37%					
4.	The same cost	142	47.49%					

Mean	4.793	Key Facts					
Confidence Interval @ 95%	[4.577 - 5.009] n = 299	69.23% chose the following options : o The same cost					
Standard Deviation	1.905	o N/A					
Standard Error	0.110	Least chosen option 1% : More than 20% more					

6. Chemicals: Do you find that the total spent on *Green cleaning chemicals* (i.e. glass, all purpose, disinfectants, floor finishes, strippers, carpet cleaners, etc.) is more than, less than, or about the same compared to traditional counterparts?

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	More than 20% more	15	5.03%					
2.	10% to 20% more	36	12.08%					
3.	0% to 10% more	82	27.52%					
4.	The same cost	74	24.83%					
5.	0% to 10% savings	23	7.72%					
6.	10% to 20% savings	7	2.35%					
7.	More than 20% savings	4	1.34%					
8.	N/A	57	19.13%					
	Total	298	100%					

Key Analytics

Mean	4.262	Key Facts
Confidence Interval @ 95%	[4.021 - 4.503] n = 298	 52.35% chose the following options : 0% to 10% more
Standard Deviation	2.124	• The same cost
Standard Error	0.123	Least chosen option 1.34% : o More than 20% savings

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7. Paper: As to paper products used in your facility, do you find the total spent on *Green paper products* (i.e. hand towels and toilet tissue) costs more than, less than, or about the same when compared to traditional counterparts?

Frequency Analysis

	Answer	Count	Percent	20)%	40%	60%	80%	100%
1.	More than 20% more	9	3.03%						
2.	10% to 20% more	43	14.48%						
3.	0% to 10% more	73	24.58%						
4.	The same cost	73	24.58%						
5.	0% to 10% savings	21	7.07%						
6.	10% to 20% savings	8	2.69%						
7.	More than 20% savings	2	0.67%						
8.	N/A	68	22.90%						
	Total	297	100%						

Key Analytics

Mean	4.434	Key Facts
Confidence Interval @ 95%	[4.184 - 4.684] n = 297	 49.16% chose the following options :
Standard Deviation	2.197	 0% to 10% more The same cost
Standard Error	0.127	Least chosen option 0.67% : o More than 20% savings

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8. Equipment: Regarding cleaning equipment, do you find the total spent on Green cleaning equipment (i.e. vacuums, floor machines, scrubbers, etc.) costs more than, less than, or about the same compared to traditional counterparts?

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	More than 20% more	16	5.37%					
2.	10% to 20% more	39	13.09%					
3.	0% to 10% more	74	24.83%					
4.	The same cost	81	27.18%					
5.	0% to 10% savings	5	1.68%					
6.	10% to 20% savings	3	1.01%					
7.	More than 20% savings	2	0.67%					
8.	N/A	78	26.17 %					
	Total	298	100%					

Key Analytics

Mean	4.433	Key Facts
Confidence Interval @ 95%	[4.169 - 4.697] n = 298	• 53.36% chose the following options :
Standard Deviation	2.322	• N/A
Standard Error	0.135	 Least chosen option 0.67% : More than 20% savings

9. Liners: Do you find the total spent on Green trash can liners costs more than, less than, or about the same compared to traditional counterparts?

9. Liners: Do you find the total spent on Green *trash can liners* costs more than, less than, or about the same compared to traditional counterparts?

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	More than 20% more	31	10.40%					
2.	10% to 20% more	51	17.11%					
3.	0% to 10% more	59	19.80%					
4.	The same cost	39	13.09%					
5.	0% to 10% savings	8	2.68%					
6.	10% to 20% savings	3	1.01%					
7.	More than 20% savings	1	0.34%					
8.	N/A	106	35.57%					
	Total	298	100%					

Key Analytics

Mean	4.628	Key Facts
Confidence Interval @ 95%	[4.322 - 4.933] n = 298	
Standard Deviation	2.690	0 0% to 10% more
Standard Error	0.156	 Least chosen option 0.34% : More than 20% savings

10. Tools and Supplies: As to cleaning tools and supplies used in your facility, of the following product categories, which do you find costs more because they are Green when compared to traditional products used for the same purpose? <u>Select all that apply</u>.

Frequency Analysis

	Answer	Count	Percent	20%	40%	60%	80%	100%
1.	Microfiber cloths	147	21.00%					
2.	Microfiber mops	126	18.00%					
3.	Green mops (i.e. containing recycled content)	77	11.00%					
4.	Mop buckets and wringers	50	7.14%					
5.	Entryway mats	56	8.00%					
6.	Carts	27	3.86%					
7.	Recycling bins and trash cans (i.e. containing recycled content)	81	11.57%					
8.	Floor and hand pads	38	5.43%					
9.	N/A	98	14.00%					
	Total	700	100%					

Key Analytics

Mean	4.321	Key Facts
Confidence Interval @ 95%	[4.108 - 4.535] n = 700	39% chose the following options : Microfiber cloths
Standard Deviation	2.876	 Microfiber mops
Standard Error	0.109	 Least chosen option 3.86% : Carts

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11. Product Categories: Of the following product categories, which Green tools and supplies are prohibitive to use due to their higher costs when compared to the traditional products used for the same purpose? <u>Select all that apply</u>.

Frequency Analysis

	Answer	Count	Percent	2	0%	40%	60%	80%	100%
1.	Microfiber cloths	38	9.09%						
2.	Microfiber mops	41	9.81%						
	Green mops (i.e. containing recycled content)	30	7.18%						
4.	Mop buckets and wringers	28	6.70%						
5.	Entryway mats	24	5.74%						
6.	Carts	26	6.22%						
7.	Recycling bins and trash cans (i.e. containing recycled content)	31	7.42%						
8.	Floor and hand pads	21	5.02%						
9.	N/A	179	42.82%						
	Total	418	100%						

Key Analytics

Mean	6.206	Key Facts
Confidence Interval @ 95%	[5.919 - 6.492] n = 418	 52.63% chose the following options : N/A
Standard Deviation	2.987	 Microfiber mops
Standard Error	0.146	Least chosen option 5.02% : Solve the set of the set

11 GREEN OUTDOOR CLEANING

As a Facility Manager, you can prevent over one million gallons of fresh water from being polluted every day by making simple changes regarding how your company cleans the outdoor surfaces of the properties you manage.

Outdoor hard surfaces, such as parking lots, building exteriors, delivery/dumpster areas at most commercial and industrial businesses need to be cleaned for cosmetic reasons and liability concerns. A clean business attracts more customers. Also surfaces need to be prepped prior to applying a new seal coat or paint. Dirt and silt needs to be removed from a building site once the construction is completed.

Pressure washers and floor scrubbing equipment are the most cost effective and efficient tools for cleaning and prepping these types of surfaces. The question is what happens to the wash water, which contains the oil, grease, paints, gum and dirt removed from the surfaces being cleaned.

Storm water runoff is the leading cause of our nation's impaired water quality. Storm drains lead to the nearest creek, river and ultimately the ocean. One quart of oil can cause a 2 acre oil slick and contaminate up to 2 million gallons of drinking water!

80% of pollution in our marine environment comes from pollutants washing off of outdoor surfaces into the storm drains, during normal rainfall and cosmetic cleaning and surface preparation activities. 32% of the pollution in our waters is from used motor oil, transmission fluid and antifreeze, 12% from silt, dirt and mud, 9% paint and wood stain.

The cost of this source of water pollution is staggering. According to the U.S. Environmental Protection Agency and Department of Energy estimates, 4 million watt hours of power and 5,360 pounds of carbon dioxide are consumed along with every million gallons of fresh water used.

History has shown that preventing pollution is more cost effective than cleanup up after the damage has been done. Investing in water quality now, protects vital resources for future generations. Clearly, reducing water pollution is a way to make an immediate and sustainable positive impact on the environment. The question is how.

Fines related to illicit discharge to the storm drains and violation of the Federally mandated Clean Water Act is becoming very significantly and increasingly more frequent and expensive. If caught discharging contaminates to the storm drain and the spill is reported, government personnel are quickly dispatched to the scene to evaluate the situation. The Spill Response Team may include staff from Water Quality Control, EPA, Department of Fish and Game, Fire and Police Department.

Enforcement of the Federally mandated Clean Water Laws is quickly becoming a priority to our Water Quality Control Agencies, particularly in 2007. Forty-six percent of the contiguous U.S. is in a drought.

Recently, Wal Mart paid a million dollar fine for alleged storm water violations that occurred at construction sites in several states and are required to invest another 4.5

million to implement a storm water management plan. Home Depot was also recently fined 1.3 million for storm water violations and required to implement a nationwide multi- million dollar compliance training program.

Citing a growing non-compliance problem, including criminal investigations, intense fines and potential lawsuits, the Environmental Investigations Unit of the Houston Police Department, who are enforcing a zero-tolerance policy, contacted the Power Washers Association of North America to see if they could help with discussions surrounding water management regulations enacted there. In fact, the regulatory issues had been so intense and police actions so severe that commercial power wash contractors were completely stopped power washing in the city for a short time. Contractors are now required to transport their wash water to one of only four locations in the entire metro Houston area for proper disposal.

The good news is that Facility Managers now have the power to stop this significant source of water pollution, because new and very affordable methods and technologies for proper wash water management have recently become available.

If one of your responsibilities as a Facility Manager is to maintain large surface areas, both inside and out, think outside the box. For instance, highspeed floor scrubbers and/or pressure washing equipment are commonly used to clean high traffic areas by most commercial and industrial businesses, who have parking structures/outdoor lots, delivery/pick up areas and loading ramps. Most often, storm drains are located in each of these areas, not sewer outlets. Storm drains lead to the nearest creek, river and ultimately the ocean. Sewer outlets lead to the local wastewater pretreatment plant.

Unfortunately, most users of floor scrubbing and pressure washing equipment dump all their wash water, directly into the nearest storm drain, because that is the closest "hole" in the area they are cleaning. If there are even 10 businesses in your city dumping only 1 quart of used motor oil to the storm drain each day, 250,000 million gallons of fresh water is polluted, every day.

Some cleaning technicians vacuum up their wastewater and discharge to a sewer outlet without removing contaminants, which is also illegal. Oil, grease, metals, paints and solids need to be removed and the pH needs to be adjusted to levels that acceptable to the local Public Owned Treatment Facility, before discharging to the sewer.

Wash water contains varying levels of contaminates, depending on what is being removed from the surface being cleaned. Some untreated wastewater discharges to the sewer can corrode pipes. Also, solids, grease, coatings or paints can build up and create blockages, which lead to overflows into businesses and expensive plumbing bills. If toxic waste enters the sewer, it can upset the biological treatment processes at the treatment plant.

Fortunately, a new generation of "Green" cleaning equipment technology is now available. Storm drain covers block the wash water from flowing into our waterways. Vacuum systems, which collect the wash water, as well as, mobile treatment equipment are available, enabling the equipment operator to quickly clean, recycle and reuse

wash water or discharge legally to the onsite sewer. Even if they recycle and reuse their wastewater just once, water consumption is cut in half.

For instance, new drivable pressure washing machines clean more efficiently and faster and use less water than conventional pressure washers who are walking, utilizing hose wands, which do not include vacuum recovery and wastewater treatment systems. Driving Pressure Washing Machines do not require the use of toxic cleaning agents, because the power of the pressurized hot water surpasses 50,000 cleaning units, 5,000 psi at 10gpm flow rate. Due to the increased speed of cleaning, they use 70% less water and reduce labor up to 80%. And most importantly, all the wash water is automatically collected, cleaned within the mobile treatment system, and reused or it can be discharged on site to the sewer.

Floor scrubbing equipment utilize rotating brushes and small amounts of water to clean contaminated surfaces. They don't clean as efficiently as pressure washing equipment, but they clean faster. They recover a portion of the wash water and some of it absorbs into the pores of the surface being cleaned.

Large floor scrubbers have 500gallon solution holdings tanks, where 350-400 gallons of water is added to 100gallons of powerful cleaning agents or degreasers. This solution drizzles at a rate of 2gpm across a rotating brush, which cleans the surface. Unfortunately, scrubbers don't clean as well as pressure washers and the concentrated cleaning agents are toxic and have a high pH concentration of 12.5 and above.

The problem is that the concentrations of the cleaning agents, left on the surface begin to build up with each cleaning, penetrating deeper into the concrete, eventually corroding the metal rebar which supports the concrete, resulting in a shorter lifespan of the structure. Annually, industry experts recommend complete wash downs of parking structures utilizing pressure washers to clean and rinse from floor to ceiling to remove built up corrosive cleaners and salts.

Using floor scrubbing equipment for outdoor surfaces is not recommended due to the build up of the concentrations of the cleaning agents. When it rains the toxic cleaners will wash into the storm drains.

Assessing, planning, and implementing a process which incorporates BAT's and BMP's that will support Outdoor Green Cleaning Activities will guarantee the long term sustainability of our waterways for generations to come.

Business leaders have a fiduciary responsibility to act promptly to take steps to address these challenges rather than taking a short term view of risk and operating under the false assumption that even though these risks that may be saving money now, their decisions are having dire effects on long term sustainability of our water supplies and could have dire effects on their successors and those connected to their companies years later.

12 INDIANA UNIVERSITY SUSTAINABILITY TASK FORCE RECOMMENDATIONS ON

GREEN PURCHASING/ GREEN CLEANING

Adrianne Ashkin, Student Intern

The mission of the Indiana University Task Force on Campus Sustainability is to develop a framework for Indiana University's plan for sustainability. The university defines sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (1) Thus with Indiana University spending \$1,851,397.45 annually on chemicals, janitorial products, equipment, etc. the opportunity to incorporate green cleaning into Indiana University's sustainability efforts could have a widespread impact on both the campus and the environment.

Mission Statement

This project will investigate the growing trends of sustainability and will specifically focus on the concept of green cleaning. The federal government, through Executive Order 13101 has defined environmentally preferable or "green" as:
"...products and services that reduce the health and environmental impacts compared to similar products and services used for the same purpose."
(3) Based on this definition green cleaning is defined as "cleaning that protects health without harming the environment." (4)

Research activities on green cleaning included:

Through phone and in-person interviews, research on Big Ten Universities' efforts involved with the development and implementation of green cleaning programs and with schools that applied for the Green Cleaning Awards for Schools and Universities from American School & University, The Green Cleaning Network and the Healthy Schools Campaign.

Review of existing programs such as US Green Building Council's LEED for Existing Buildings Rating System (LEED-EBOM), Healthy Schools Campaign's Quick & Easy Guide to Green Cleaning in Schools, Hospitals for a Healthy Environment's 10 Step Guide to Implement Green Cleaning in Healthcare, and San Diego Community College District's green product contract all of which identify standards for green cleaning.

Templates from Nichols (a great lakes regional distributor), University of California, University of California Santa Barbara, University of Colorado and University of Northumbria for green cleaning policies.

Meeting with Governor Mitch Daniels' staff to discuss green buildings and related issues.

Based on the above research, directions for implementing a green cleaning program at Indiana University is provided through the following:

Recommendations based on the interviews with peer institutions identifying alternative green cleaning chemicals, janitorial paper products, equipment and other materials used in cleaning, along with alternative green cleaning methods.

A Green Cleaning Product Addendum to provide specifications that could be used for purchasing.

A movement report from HP Products (IU's current product supplier) and research that indicates ways for further improvement.

Introduction

According to a recent article in Real Estate Weekly, "As the industry has become more aware of the benefits of green cleaning, the products have significantly improved, and because they are more readily available.... It now costs nearly the same to buy green products [as traditional products] whereas five years ago, it would have been 50 percent more." (5) The shift of the cleaning industry towards sustainability has produced green products that are easy to access, perform as good if not better compared to their conventional counterparts and are cost competitive in a number of categories including cleaning chemicals, janitorial paper products, equipment and other items used during the cleaning process. Thus, green cleaning is looked at as an easy "low hanging fruit" that many organizations undertake when beginning their journey to sustainability.

Methods

The methodology that was followed consisted of the following steps:

Initial research focused on developing an understanding of the basic concepts of green cleaning; this included reading Green Cleaning for Dummies and reviewing several other cleaning industry books, trade industry journals on the subject, a review of a number of websites and personal interviews with multiple experts in the field.

The first set of interviews included schools that applied for the Green Cleaning Awards for Schools and Universities sponsored by the Green Cleaning Network, a non-profit educational organization whose mission is to accelerate the adoption of green cleaning and the Healthy Schools Campaign another non-profit working to create schools that are healthier for students and staff. The universities examined included: University of Washington, Georgia Institute of Technology, Slippery Rock University, Western Washington University, Delta College, Union College and Harvard. The review included:

- History of the schools green cleaning program
- A description of cleaning procedures and strategies
- Policies or processes used to share responsibility between the institution
- Training
- Ongoing internal and external communications
- An explanation of the incorporation of green cleaning products including chemicals, equipment, janitorial paper products and supplies
- Whether the products met specific certifications
- Any innovations that should be considered noteworthy.

After the research was compiled the benefits were assessed for the new cleaning chemicals, janitorial products, supplies and equipment. This was a valuable strategy because the program concisely documents what schools have done to improve their green cleaning efforts, and the awards process also helped identify which college and universities were "best in class" for their green cleaning initiatives. A goal of Indiana University has been to become a leader in both sustainability and green cleaning; therefore, these awards are perfect models to help achieve Indiana University's desired success.

The next step was to further refine the research and to interview Big Ten Universities on their development of their green cleaning programs. Phone interviews were conducted with Purdue, University of Illinois, Northwestern University, Ohio State University, University of Wisconsin, Penn State University and University of Minnesota. In addition, personal interviews were conducted with personnel from both University of Michigan and Michigan State University. The interviews included an in-depth examination of the schools green cleaning program, products (chemicals, janitorial products, paper products, etc), cost comparisons, key issues or questions that should be addressed while creating and implementing a green cleaning program, green cleaning policies and information on training and communication both of which are extremely important for a successful green cleaning program.

Additional interviews were done with the U.S. Green Building Council, where we discussed their Leadership for Energy and Environmental Design for Existing Buildings Rating System (LEED-EB). Interviews concentrated in two specific areas. The first was the overall rate of adoption of LEED-EB and the uptake by large public universities to determine if LEED-EB would be appropriate for Indiana University. The second part of the interview was to discuss model green cleaning policies, which are a requirement within LEED-EB. Samples of the green cleaning policies from public universities were requested which reflected what the U.S. Green Building Council considered to represent the highest quality standards. These samples were used to help formulate a similar green cleaning policy for Indiana University.

A recommended green cleaning policy for Indiana University was created by reviewing and compiling information from LEED-EB's green cleaning credits, templates for green cleaning policies and specifications on green cleaning products that meet Green Seal or Environmental Choice's guidelines from Nichols (a Great Lakes Regional Distributor). Policies were also reviewed from the University of California, University of California Santa Barbara, University of Colorado and University of Northumbria green cleaning/purchasing policies. The recommended green cleaning policy and product specifications are included in Appendices A and B respectively.

LEED-EB's cleaning credits would play a significant role in the shaping a green cleaning policy which, if enacted, will simultaneously contribute to the generation of credits for the LEED-EB program should the University find this of value at some future time. These credits are designed with the intentions of reducing exposure of building occupants and maintenance personnel to potentially hazardous chemical, biological and particle contaminants, which adversely impact air quality, human health, building finishes, building systems and the environment. (6)

A formal meeting was held by Governor Mitch Daniels staff and Representative Matt Pierce in Indianapolis on the subject of green buildings and green cleaning in the state of Indiana. During this meeting the governor's Executive Order 08-14 was reviewed which helped formulate the beginning of Indiana University's green cleaning policy. A formal copy of Executive Order 08-14 can be found at: http://www.in.gov/gov/files/EO_08_14.pdf

A green cleaning product addendum is included in Appendix C to help identify the appropriate products for use in a green cleaning program. The addendum credits a number of leaders and programs in the green cleaning movement. These include: LEED for Existing Buildings Rating System (LEED-EBOM), Healthy Schools Campaign's Quick and Easy Guide to Green Cleaning in Schools, Hospitals for a Healthy Environment's 10 Step Guide to Implement Green Cleaning in Healthcare, Pennsylvania's Guidelines for Creating High-Performance Green Buildings, and San Diego Community College District's Green Purchasing Specifications. The main purpose of the green cleaning product addendum is to provide Indiana University's purchasing department with language that could be added to their existing contracts to be able to include the appropriate green requirements that would make their purchases consistent with the various leaders in the green cleaning movement.

For a clearer illustration of the purchasing process and green cleaning product information, a meeting was held with Indiana University's purchasing department and HP Products (IU's product distributor). During this meeting a movement report was presented. The movement report not only contains products that were bought from HP Products within the past 12 months, but it also identifies quantities that have been purchased. A close study of Indiana University's movement report should yield new product recommendations that will continue to further IU's goal towards campus sustainability.

Findings/Results

The Green Cleaning Awards by the Green Cleaning Network laid the foundation for a model green cleaning program and helped identify cleaning product specifications, program history, policies, processes and training which are imperative for creating a successful program. Obvious conclusions proved that each school found different chemical manufactures who produced "certified" green cleaning chemicals that met their expectations and cleaned well. The popularity of microfiber cloths/mops and Tennant Auto-Scrubbers seemed universal between the seven schools. It will be important for Indiana University to consider what these schools, that have been reviewed, have done to create such an accomplished green cleaning program.

A compilation of information obtained from interviews with the Big Ten Universities shows that Indiana University appears to be right in the middle for their green cleaning efforts. Chemical products used by the Big Ten Schools range from Johnson Diversity, Spartan, Betco and 3M. The green cleaning products from these companies were certified by Green Seal and meet their standard for industrial and institutional cleaning chemicals (GS-37).(7)

Johnson Diversity's Aquaria Floor Finish also seems popular among many of the Big Ten schools. The Aquaria Floor Finish is formulated without zinc or other heavy metals; thus, meets Green Seal's standard for industrial and institutional floor care products based on its reduced human and aquatic toxicity and reduced smog protection potential (GS-40).(8) In the future Indiana University should consider using a product with comparable qualities.

Within the movement report, HP lists all products they supply to Indiana University as a whole, this includes satellite campuses. Because the report is formatted in this way, it is easy to identify that within each product category there are numerous brands and products bought for the same use. It would be to Indiana University's benefit to reduce the number of brands and products bought, and instead buy more of one individual product. This would be easier on the purchasing end, and could potentially reduce costs.

The meeting with HP demonstrated their desire to help Indiana University implement a green cleaning program. With the help of HP Products, Indiana University has already taken a large step in replacing both soap and soap dispensers to GOJO Foaming Hand wash, thus reducing the amount of soap used significantly. Indiana University has also focused a great deal of effort into finding both a toilet tissue and paper towel that has a high recycled content and simultaneously meets customer satisfaction. However it is clear that more can be done.

Conclusions/Recommendations

Based on the research that was conducted with both the Big Ten schools and other universities it appears that Indiana University is well situated to implement a green cleaning program that meets the objectives of Indiana University's sustainability goals. The recommended green cleaning policy is based on the requirements of the U.S. Green Building Council's LEED Rating System, which in turn has led to the development of product purchasing specifications that can be implemented by the various departments that are responsible for cleaning Indiana University's campus. Furthermore, based on meetings with Indiana University's current product distributor it appears that these products are both readily available and comparable in cost to what is currently being used. These recommendations will place Indiana University as one of the leading institutions on green cleaning in the country.

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APPENDIX A

The following is a recommended green cleaning policy based on information from LEED-EB, Nichols Supply, University of California, University of California at Santa Barbara, University of Colorado and University of Northumbria.

Green Cleaning Policy

Indiana University is committed to providing a healthy and productive work environment as well as a clean and well-maintained building. This policy outlines the specific cleaning practices which will maintain good indoor air quality, increase occupant health and comfort, assure a clean building, provide a healthy environment for the custodial crew and be fiscally responsible.

Use of green cleaning products:

In compliance with Indiana Executive Order 08-14 Establishment of Energy Efficient State Building Initiative it shall be the policy of Indiana University to use green products in multiple cleaning product categories (e.g. cleaning chemicals, janitorial paper products and powered equipment) which meet the guidelines for green cleaning products and practices based on nationally recognized programs such as the U.S. Green Buildings Council's LEED for Existing Buildings Rating System.

Green products are defined as, "products that reduce the health and environmental impacts compared to similar products used for the same purpose".

Cleaning products meet one or more of the following standards for the appropriate category:

Green Seal GS-37. general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes.

Environmental Choice CCD-110. cleaning and degreasing compounds.

Environmental Choice CCD-146. hard surface cleaners.

Environmental Choice CCD-148. carpet and upholstery care.

Disinfectants, metal polish, floor finishes, strippers or other products not addressed by the above standards meet one or more of the following standards for the appropriate category:

Green Seal GS-40. Industrial and institutional floor care products.

Environmental Choice CCD-112. D igestion additives for cleaning and odor control.

Environmental Choice CCD-113. Drain or grease traps additives.

Environmental Choice CCD-115, for odor control additives.

Environmental Choice CCD-147. Hard floor care.

California Code of Regulations maximum allowable VOC levels for the specific product category.

Disposable janitorial paper products and trash bags meet the minimum requirements of one or more of the following programs for the applicable product category:

U.S. EPA Comprehensive Procurement

Guidelines. Janitorial Paper and Plastic Trash Can Liners.

Green Seal GS-09. Paper towels and napkins.

Green Seal GS-01. tissue paper.

Environmental Choice CCD-082. Toilet tissue.

Environmental Choice CCD-086. Hand towels.

Janitorial paper products derived from rapidly renewable resources or made from tree-free fibers.



Hand soaps meet one or more of the following standards:

No antimicrobial agents (other than as a preservative) except where required by health codes and other regulations (i.e., food service and health care requirements).

Green Seal GS-41. Industrial and institutional hand cleaners.

Environmental Choice CCD-104. Hand cleaners and hand soaps.

🔀 APPENDIX B

The following are recommended specifications that can be added for product purchasing that is consistent with the recommended green cleaning policy provided for Indiana University. These recommended specifications are based off of various "roadmaps" such as: US Green Building Council's LEED for Existing Buildings Rating System (LEED-EBOM), Healthy Schools Campaign's Quick & Easy Guide to Green Cleaning in Schools, and Hospitals for a Healthy Environment's 10 Step Guide to Implement Green Cleaning in Healthcare.

CHEMICAL CLEANING PRODUCTS:

1. All Purpose Cleaners

All Purpose Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

2. Glass Cleaners

Glass Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

3. General Purpose Cleaners

General Purpose Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

4. Washroom Cleaners (non disinfecting)

Washroom Cleaners shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-146.

5. Floor Care Products (Finishes and Sealers)

Floor Care Products (Finishes) shall be durable and slip resistant. In addition, the finish shall be free of zinc (metal-free) OR shall meet the requirements of Green Seal's GS-40 and/or Environmental Choice's CCD-147.

6. Floor Care Products (Strippers)

Floor Care Products (Strippers) shall meet the requirements of Green Seal's GS-40 and/or Environmental Choice's CCD-147.

7. Carpet Care Products (Shampoo and Extraction)

Carpet Care Products shall meet the requirements of Green Seal's GS-37 and/or Environmental Choice's CCD-148

8. Degreasers

Degreasers shall meet the requirements of Green Seal's GS-34 and/or Environmental Choice's CCD-110 for Cleaning and Degreasing Compounds

1. Hand Soaps

Hand soaps shall be free of antimicrobial ingredients except as preservatives or where required by code or regulation (i.e. food service and healthcare) OR shall meet the requirements of Green Seal's GS-41 and/or Environmental Choice's CCD-104

Preference will be given for the use of foaming dispensers to minimize product use.

2. Odor Control Products

Odor Control products shall meet the following requirements:

Environmental Choice's CCD-112 Digestion Additives for Cleaning and Odor Control



Environmental Choice's CCD-113 Drain or Grease Traps Additives

Environmental Choice's CCD-115 Odor Control Additives

11. Other Products NOT Otherwise Addressed

Other products NOT otherwise addressed (i.e. furniture polish, metal polish, disinfectants) shall at a minimum meet the requirements of the California Code of Regulations (http://www.arb.ca.gov/ consprod/regs/cp.pdf) OR the Canadian National Office of Pollution Prevention (http://www.ec.gc.ca/ nopp/voc/en/secCP.cfm) for the maximum amount of volatile organic compounds (VOCs) allowed by the specific product category.

3. Reporting on Chemical Purchases

Documentation shall 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 on a quarterly basis.

PAPER PRODUCTS:

13. Paper Hand Towels

Paper hand towels shall meet the minimum requirements of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (minimum of 40% post-consumer recycled content) OR Green Seal's GS-09 and/or Environmental Choice's CCD-086 and/or Chlorine Free Products Association (CFPA) Certification.

14. Toilet Tissue

Toilet tissue shall meet the minimum requirements of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (minimum of 20% post-consumer recycled) content OR Green Seal's GS-01 and/or Environmental Choice's CCD-082 and/or Chlorine Free Products Association (CFPA) Certification.

4. Reporting on Paper

Documentation shall 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 on a quarterly basis.

PLASTIC TRASH CAN LINERS

16. Plastic Trash Can Liners

Liners shall meet the minimum requirements of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (minimum of 10% post-consumer recycled content). NOTE: size of liners and thickness must be added.

5.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) shall be provided on a quarterly basis.

JANITORIAL POWERED EQUIPMENT

18. Vacuum Cleaners

Vacuum Cleaners shall meet the requirements of the Carpet & Rug Institute's (CRI) Green Labeled vacuums.

19. Carpet Extraction Equipment

Carpet Extraction Equipment shall meet the requirements of the Carpet & Rug Institute's (CRI) CRI Bronze Seal of Approval at a minimum. Hot water extraction equipment shall be capable of removing sufficient moisture such that carpets can dry in less than 24 hours.

20. Automatic Floor Scrubbing Machines

Automatic Floor Scrubbing Machines shall be equipped with variable-speed chemical feed pumps to minimize the use of cleaning chemicals OR shall clean without the use of added cleaning chemicals.



21. Floor Burnishers

Floor Burnishers shall contain shrouds and active vacuum attachments to capture particles produced during use. Propane-powered floor equipment shall have high-efficiency, low-emissions engines. Battery powered equipment shall be equipped with environmentally preferable gel or comparable batteries.

6. Reporting on Janitorial Powered Equipment

Documentation shall be provided to demonstrate compliance with these requirements. A log shall 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.



APPENDIX C

The following is an example from San Diego Community College District's green cleaning product supplies which are required to meet LEED for High Performance Operations. This example represents how the specifications found in various programs could be applied to standard purchasing requirements.

ltem #	Description Green Cleaning Chemicals	Qty	Unit	Brand Order #	Unit Price	Extended Amount	Dilution Rate For Medium Soils	Cost Per Usable Gal
1	GREEN CLEANER, general purpose/floor cleaner. Must be certified by Green Seal (GS-37) or Environmental Choice (CCD 110 or CCD 146l).		GAL		\$	\$	1:64	\$
2	GREEN CLEANER, glass, windows and mirrors. Must be certified by Green Seal (GS-37) or Environmental Choice (CCD 146A).		GAL		\$	\$	1:128	\$
3	GREEN CLEANER, restroom & tile cleaner. Must be certified by Green Seal (GS-37) or Environmental Choice (CCD 146J).		GAL		\$	\$	1:64	\$
4	GREEN CLEANER, carpet and upholstery cleaner. Must be certified by Green Seal (GS-37) or Environmental Choice (CCD 148A).		DRUM		\$	\$	1:13	\$
5	GREEN DEGREASER, heavy-duty. Must be certified by Green Seal (GS-34) or Environmental Choice (CCD 146E or F).		GAL		\$	\$	1:30	\$
6	GREEN FLOOR FINISH. Must be certified by Green Seal (GS-40) or Environmental Choice (CCD-147). 55-gal/dr.		DRUM		\$	\$	RTU	\$
7	GREEN FLOOR FINISH, same as above, 5 gallon plastic pail.		PAIL		\$	\$	RTU	\$
8	GREEN STRIPPER, floor, must be certified by Green Seal (GS-40) or Environmental Choice (CCD-147), 5 gallon plastic pail.		PAIL		\$	\$	1:12	\$
9	GREEN STRIPPER, same as above, 55- gal/dr.		DRUM		\$	\$	1:12	\$

ITE M #	DESCRIPTION GREEN CLEANING CHEMICALS	QTY	UNIT	BRAND ORDER #	UNIT PRICE	EXTENDE D AMOUNT	DILUTIO N RATE FOR MEDIU M SOILS	COST PER USABL E GAL
10	GRAFFITI REMOVER, non-aerosol, citrus or soy based, non toxic spotter to remove paint, oil, grease, marker and crayon from concrete, stone, metal and plastic. Quart container.		CS		\$	\$		\$
12	SOAP, lotion. Must be certified by Green Seal (GS-41) or Environmental Choice (CCD-104) for use in ml sealed dispenser packs, per case.		CS		\$	\$		\$

ITEM #	DESCRIPTION Plastic Trash Liners	QTY	UNIT	BRAND/ORDER #	UNIT PRICE	EXTENDED AMOUNT
13	LINER, can 40"x46", Dark LLDPE, minimum 40% recycled content, stretchable, 1.5 mil gauge, approx. 100/cs, for heavy use.		CS		\$	\$
	Indicate case quantity:					
14	LINER, can, 33" x 40", Dark LLDPE, minimum 40% recycled content, 1.5 mil gauge, approx. 150/cs, for extra heavy use.		CS		\$	\$
	Indicate case quantity:					
15	LINER, can, 24" x 24", Dark LLPPE, minimum 10% recycled content, 7.5 gal, .36 mil gauge, approx. 1000/cs, for general purpose use.		CS		\$	\$
	Indicate case quantity:					
16	LINER, can, 24" x 24", Dark LLDPE, minimum 10% recycled content, .74 mil gauge, approx. 500/cs, for general purpose use.		CS		\$	\$
	Indicate case quantity:					

ITEM #	DESCRIPTION Janitorial Paper Products	QTY	UNIT	BRAND/ORDER #	UNIT PRICE	EXTENDED AMOUNT
17	TISSUE, toilet, universal, 1-ply on roll, not less than 100% recycled paper containing minimum 20% post- consumer fiber, bleached process chlorine-free. SPECIFY ANY UNIQUE		cs		\$	\$
	REQUIREMENTS RELATING TO LENGTH OF ROLL, SIZE OR DISPENSERS.					
	Indicate case quantity:					
18	TISSUE, toilet, universal, 2-ply on roll, not less than 100% recycled paper containing minimum 20% post-consumer fiber, bleached process chlorine-free. SPECIFY ANY UNIQUE REQUIREMENTS RELATING TO LENGTH OF ROLL, SIZE OR DISPENSERS.		CS		\$	\$
	Indicate case quantity:					
19	TOWELS, paper, roll, universal, not less than 100% recycled paper containing minimum 40% post consumer fiber, unbleached or bleached process chlorine free. SPECIFY ANY UNIQUE REQUIREMENTS RELATING TO LENGTH OF ROLL, SIZE OR DISPENSERS.		CS		\$	\$
	Indicate case quantity:					
20	TOWELS, paper, roll, universal, not less than 100% recycled paper containing minimum 40% post consumer fiber, unbleached or bleached process chlorine free. SPECIFY ANY UNIQUE REQUIREMENTS RELATING TO LENGTH OF ROLL, SIZE OR DISPENSERS.		CS		\$	\$
	Indicate case quantity:					



ITEM #	DESCRIPTION Janitorial Powered Equipment	QTY	UNIT	BRAND/ORDER #	UNIT PRICE	EXTENDED AMOUNT
21	Vacuum cleaner, upright. Must be certified by the Carpet & Rug Institute and operate with a sound level less than 70dBA. 12 inches.		EA		\$	\$
22	Vacuum cleaner, upright. Must be certified by the Carpet & Rug Institute and operate with a sound level less than 70dBA. 15 inches.		EA		\$	\$
23	Vacuum cleaner, upright. Must be certified by the Carpet & Rug Institute and operate with a sound level less than 70dBA. 18 inches.		EA		\$	\$
24	Vacuum cleaner, backpack. Must be certified by the Carpet & Rug Institute and operate with a sound level less than 70dBA.		EA		\$	\$



The Business Of Green Cleaning

CASE STUDIES

- 1. GOJO Handwashing Study
- 2. GCA Services Group
- 3. Pacific Northwest Laboratory Green Custodial Specifications
- 4. Harvard Maintenance Great River Energy
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CASE STUDY 1 HANDWASHING STUDY

Evaluating Effects of an Alcohol-based Hand Sanitizer Hand Hygiene Program on Employee Absenteeism

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*Skin Care Science and Technology Research and Development, GOJO Industries, Inc. Akron, Ohio

BACKGROUND:

It is well recognized that hands are the primary mode of transmission of many infectious diseases.1 Most workplace environments share key predisposing factors that contribute to infection transmission, such as close working environments, shared bathrooms, and break rooms for eating or cafeterias. It has been shown in multiple environments, including healthcare, elementary schools, and dormitories, that intervention with an effective alcohol-based hand sanitizer results in a significant reduction in infection.2-6 It is hypothesized that an effective instant hand sanitizer as part of a workplace wellness program would also decrease the spread of infection by sick individuals present at work, although this type of study has never been published.

Sickness related absenteeism is a major contributor to lost productivity in the workplace and to most companies.7-9 The illnesses causing absenteeism include not only chronic diseases, but also illnesses such as the common cold, and influenza. Respiratory illnesses alone cause approximately a 6.1% loss in productivity due to absences and a 17.2% productivity loss due to "presenteeism" (i.e. working while ill).8

Presenteeism is counter productive in multiple ways: poor productivity by the sick individual,

prolonged illness because they are not resting, and spread of disease to other colleagues. Recently, a large cohort study showed that unhealthy employees who took no absences had significantly more serious coronary events than unhealthy employees with moderate levels of sickness absenteeism.10 The authors of the study concluded it is important for employees and employers to recognize the potential harmful effects of sickness presenteeism.

Studies suggest that every \$1 spent on a workplace wellness program will yield an average return of \$3.11 Several studies have specifically examined lost productivity caused by influenza and the common cold and the benefits of vaccinations, but no studies have examined absenteeism in the workplace and the affects of alternate methods of infection control, other than influenza vaccinations.9,12,13

The aim of this pilot study was to determine if the implementation of a workplace wellness hand hygiene program including alcohol-based instant hand sanitizer (PURELL®), educational tools and communications would effectively reduce the number of illness related absences. Concurrently, the feasibility of executing a workplace study was also examined.

DESIGN:

A prospective case-control intervention study, utilizing an alcohol-based instant hand sanitizer and educational intervention was implemented. A more ideal double-blinded prospective trial utilizing a placebo control was not implemented primarily due to ethical considerations of exposing a control group to an ineffective placebo hand hygiene product that could have lead to a false sense of security and potentially increased illness. Consent was obtained from all employees willing to participate.

SETTING / PARTICIPANTS:

The study was conducted at FedEx Custom Critical, in Green, OH. The study populations were created using two different floors in the same building, with approximately 250 employees on each floor. The sample populations were composed of similar "white-collar" jobs including customer service, sales and marketing personnel, and operation managers. The employees on each floor did not interact directly with each other as part of their normal job; however there was a shared cafeteria without hand sanitizer on the first floor. Employee absences were collected for each population by means of self report from employee to supervisor. The supervisor checked with employees on the cause of absences, documented the days absent due to cold / flu or other communicable disease and results were sent to an on-site study coordinator.

INTERVENTION:

In this outcome study, we hypothesized that the implementation of a hand hygiene program including alcohol-based instant hand sanitizer (PURELL®), educational tools and communications would reduce workplace absenteeism due to illness. PURELL contains 62% ethanol as the active ingredient and complies with FDA OTC drug requirements. The test population was given a brief explanation on product usage and 12 fluid ounce desktop pump bottles of PURELL Instant Hand Sanitizer (IHS) on day one of the study. Additionally, wall mounted dispensers were placed in strategic locations such as walkways and common areas limited to first floor employees. The case population was instructed to use the product regularly (i.e. three to five times a day) and given occasional e-mail training and reminders, but ultimately product usage was their choice. The control population continued their normal hand hygiene regimen, which primarily consisted of typical hand soap provided in the bathrooms and adjacent to break area sinks. Data collection occurred over a 34 week period (1/12/04-9/3004).

MAIN OUTCOME MEASURES:

Absenteeism rates were calculated weekly by dividing the number of days absent due to personal illness by the number of employee-days. To normalize the data, the resulting number was multiplied by 100 to give an absenteeism rate per 100 individuals. The Student's t-test was used to compare absenteeism rates between groups. Data analyses were conducted using SPSS (SPSS, Inc., Chicago, IL), all were one-tailed, and considered statistically significant at p<0.05.

RESULTS:

The absenteeism rate of 0.494 per 100 case employees vs. 0.618 per 100 control employees (p=0.097), suggested that intervention with an alcohol-based hand sanitizer hand hygiene program resulted in lower absence rates due to illness. This rate of illness reduction translates into a 21% increase in viable work days. Table 1 represents basic data for the population. Further analysis was conducted to determine if seasonal effects existed. Figure 1 represents the data split into winter (week of January12-March 22), spring (week of March 29-June 21) and summer (week of June 28-August 30), p=0.087; p=0.288; p=0.271, respectively. Again, there was no significant difference between the test and control groups for absenteeism rates in each season, but the results from the winter months are suggestive.

Based upon the success of the study, FedEx Custom Critical now offers PURELL throughout their facility for easy access to germ control. In addition to PURELL on every employee desktop, wall dispensers are located in high traffic areas near the stairways, lunchroom and exercise facility. Using PURELL has become a large part of the company's corporate culture. All meeting rooms have PURELL on the conference tables and the product is requested by employees before working lunch sessions. During employee orientation, new employees are given a bottle of PURELL and educational materials on how to prevent the spread of germs at work. FedEx Custom Critical believes PURELL is an essential component to any corporate wellness program.

CONCLUSION:

This study demonstrated that using an alcoholbased instant hand sanitizer in conjunction with an educational program in a workplace setting could produce a positive effect on absenteeism (p=0.097). The absenteeism rate observed in the case population was 21% lower than the control population. This indicates adding an alcohol-based hand sanitizer program to a workplace wellness program could gain an employer several employee work days per year. Additionally, based on seasonal analysis, it appears this program is most effective during winter months when transmissible illnesses such as influenza and the common cold are most prevalent. The significance of this result is especially relevant to white-collar workers who are typically outside of the suggested population for influenza vaccinations (i.e. children and the elderly). The results suggest that by properly using an alcoholbased instant hand sanitizer, the employee is given an alternative means of protection against illnesses other than vaccinations.



FIGURE 1- Absenteeism rates during the weeks of winter (1/12-3/22) spring (3/29-6/21) and summer (6/28-8/30). (p = 0.087; p = 0.288; p = 0.271, respectively) The effects of alcohol hand sanitizer programs on workplace public health deserves further investigation and more robust study, including confidential reporting, monitoring product usage, baseline illness rates prior to intervention, and presenteeism measures.

ACKNOWLEDGEMENTS:

We would like to extend a special thanks to Lynn Pedulla, Maria Corvington, and Regina Sacha from FedEx Custom Critical and Brian Gold from GOJO, Industries. Inc. for significantly assisting with the implementation of this study. This study was funded by GOJO Industries Inc., a manufacturer of skin care products for occupational settings. The products tested in this study are currently marketed by GOJO. Investigators were paid employees of GOJO. However, investigator bias was minimized in that all aspects of study design, execution, analysis, and the decision to publish were conducted exclusively by scientists in the skin care science group within Research & Development. GOJO has a history of unbiased reporting as demonstrated by multiple publications in peer-reviewed technical journals, studying the effects of hand hygiene interventions in occupational settings.

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🔁 CASE STUDY 2

GCA SERVICES GROUP CLEANING FOR HEALTH AND HYGIENE

GCA Services Group was founded by a group of entrepreneurs with a goal of creating a nationwide network of building service contractors who would become the commercial cleaning industry's leaders in sustainable cleaning. From the outset, the company was dedicated to cleaning for health and hygiene—that is, using cleaning products and processes that improve indoor air quality, safety and the environment. It was this cleaning approach that helped define the vision and future of GCA.

Today, through its Custom Green program, GCA offers its clients an opportunity to experience the well documented health, safety, hygiene, environmental, and financial benefits associated with sustainable cleaning practices. Custom Green is a partnership between GCA and its clients to develop customized, environmentally friendly, results-oriented cleaning programs that meet clients' specific goals and needs. In general, Custom Green is a combination of EPA procurement standards, several Green Sealcertified chemicals and products, and appropriate employee training on sustainable cleaning practices to provide clients with both a clean and healthy facility.

Jason Lee, training manager for GCA Services Group, is responsible for helping to advance the Custom Green program and serves as a liaison between GCA, its clients and its vendors who are involved in the program. "Custom Green as a concept was designed to be transparent and ever-evolving to ensure all of our clients have the opportunity to benefit from green cleaning best practices," said Lee. "GCA along with many of our clients is constantly researching sustainable cleaning practices and the newest products, technologies, and programs. The result is that all of our Custom Green clients have a highly customized program that also incorporates proven sustainable cleaning practices as appropriate."

According to Lee, all of GCA's clients benefit from some level of green cleaning and, thanks to ongoing input and education from GCA staff, many have implemented specific Custom Green programs. "As we train GCA field and site managers on Custom Green and how to introduce our clients to Custom Green, we are seeing more and more of our clients signing on for their own customized program," he said. "The rate at which our clients are adopting Custom Green programs is a clear indication that this type of program was and is necessary."

Lee also credits Tennant Company with the increasing adoption rate of its Custom Green program. Historically, Tennant has offered cleaning products and technologies that help conserve water, decrease detergents, increase safety, improve air quality, and reduce noise; technologies such as FaST® Foam-Activated Scrubbing Technology, which uses 70 percent less water and requires 90 percent less detergent than traditional automated scrubbers, and ReadySpace® Technology, which uses 80 percent less water and leaves behind 90 percent less water than traditional extractors. And, historically, GCA has incorporated many Tennant products and technologies into its Custom Green programs.

But in Lee's opinion, Tennant Company introduced a cleaning technology that exemplifies cleaning for health and hygiene in late 2007 when the company launched ec-H2O[™], which electrically converts plain tap water into a powerful cleaning agent without any added chemicals. ec-H2O poses no harm to the surfaces or finishes it cleans, to the environment, or to the people using the technology. Among ec-H2O's attributes and benefits, it begins as water and ends as water, so it can be handled and disposed of easily and safely; it uses 70 percent less water than traditional cleaning methods; it leaves behind no slippery detergent residue on the floor; it does not emit hazardous chemicals into the air; and it does not release used detergent discharge into water systems. Further, eliminating the need for chemical additives enhances worker safety and reduces costs for purchasing and disposal of chemicals.

"Admittedly, I was a bit skeptical when I first heard about Tennant Company's ec-H2O technology. It sounded too good to be true," said Lee. "But one of our clients tested the technology and found it to perform as good as if not better than traditional cleaning methods. Within a week of testing the ec-H2O technology, that client purchased an ec-H2O-equipped automatic scrubber, and we incorporated it into their Custom Green cleaning program."

Lee says that since Tennant Company launched its ec-H2O technology, GCA has purchased 15 ec-H2O-equipped Tennant T3 or T5 walk-behind automatic scrubbers for use at various client sites across the country.

"It uses no chemicals. It improves indoor air quality. It improves safety. It's good for the environment. It's effective. It's practical. There is no question in my mind—or in the minds of our operations team, which is purchasing the technology—that Tennant's ec-H2O technology is a perfect fit for GCA and its clients as we continue to be innovators in the area of sustainable cleaning and advance the concept of cleaning for health and hygiene," said Lee.

Lee added that there is one additional and very important benefit to ec-H2O that GCA is realizing. "When we approach our clients with a state-of-the-art, industry-changing, cost-saving, sustainable cleaning technology like ec-H2O, we are able to demonstrate to our clients that we are environmental stewards, that we work with industry partners who are environmental stewards, and that we can help them become environmental stewards, too," he said. "In this way, Tennant Company has proven to be a valuable partner who provides us with products and solutions that are helping us grow our business."

CASE STUDY 3

GREEN CUSTODIAL SPECIFICATIONS

Pacific Northwest National Laboratory

Operated for the U.S. Department of Energy by Battelle

Introduction

Battelle is establishing a procurement process for custodial/maintenance products to allow Battelle to better evaluate the overall worker health and environmental impacts associated with their use. This process is consistent with and integral to Battelle's Pollution Prevention Program. For each product submitted for consideration, the vendor must complete a Product Reporting Form (see below) with appropriate back-up documentation attached by staple in the upper left corner. Documentation for training can be submitted as a separate attachment. Please find enclosed the following materials:

I. General Guidelines

- A. Product categories requested in the bid
- B. Product performance testing program
- C. Product specification description

II. Reporting Form Instructions

- A. Minimum Requirements
- B. Relative Ranking Specifications

III. Reporting Forms

- A. Custodial Product Reporting Form
- B. Product Testing/Employee Training and Technical Assistance Form

Battelle encourages you to participate in this innovative opportunity to help safeguard the health of our employees, the community, and the environment.

I. General Guidelines

A) Product Categories

The following is a list of product categories Battelle requires for custodial purposes. Each product submitted must be identified with one of these categories. It is desirable that vendors be able to supply the greatest number of products listed meeting the health and environmental specifications. Vendors of single products are encouraged to partner with other manufacturers or distributors to maximize Battelle's administrative convenience.

Cleaning Products

All products must be non regulated after use. Labeling should be screen printed on all containers and preferably color coded.

All purpose cleaner	Degreaser/cleaner
Heavy duty cleaner	Deodorizer
Carpet shampoo	Floor finish
Defoamer	Floor finish restorer
Disinfectant sanitizer	Floor sealer - resilient and non- resilient (brick, linoleum, and tile)
Extraction fluid	Furniture polish
Floor stripper	Glass and window cleaner
Neutral cleaner (liquid)	Grout sealer
Spot and stain remover (presently using XO-concentrate)	Lime and scale remover (tub and tile cleaner)
Air freshener including dispenser (restrooms)	Liquid hand soap including dispenser
Bathroom cleaner	Stainless steel polish (presently using Cameo)
Brass polish/cleaner	Toilet bowl cleaner
Chrome polish/cleaner	White board cleaner
Cream cleaner	Wood floor wax/cleaner
Carpet/Upholster shampoo (compatible with wool carpet/fabric)	

Paper Products

All roll towels and terri paper towels must be made of a minimum of 40% post-consumer recycled fiber, and all toilet tissue with a minimum of 20% postconsumer recycled fiber.

Fragrance with dispensers Kotex with dispensers Roll towels with dispensers Terri paper towels Toilet seat covers with dispensers Toilet tissue with dispensers

Bags

All trash bags must be made of a minimum of 10% post-consumer recycled material. Preferable is for them to be clear plastic.

Bags - large	Kitchen/Office	40 x 48 inches, 2 mil	strong enough to hold liquid
Bags - large	Restrooms	40 x 48 inches, 1.6 mil	
Bags - small	Office	24 x 24 inches, 1 mil	
Bags - sanitary	Restrooms	10 x 10 x 10 inches, 1 mil	

B) Product Performance Testing

Battelle will score your proposal based on the information provided in the Custodial Product Reporting Form. Those products with the best scores will be tested by Battelle. Battelle will request samples from the Contractor for three 1-pint bottles up to three 1-gallon bottles depending on the application. Battelle custodians will test each of the products on the job and will rank each product according to its performance. Battelle will use this ranking to make a short list from which to evaluate the cost consideration and administrative convenience of the product or product line. Those products which rate the most favorably will be approved for purchase by Battelle.

C) Product Specification Description

Battelle has compiled a set of specifications (see below) that will be used to evaluate the

environmental and health impacts of various cleaning products which Battelle will be considering for purchase. The specifications require the supplier to submit a wide range of specific information regarding such elements as product chemical characteristics, packaging, and training capabilities. The specifications are divided into two groups: 1) mandatory or pass/fail, and 2) relative ranking. It is the responsibility of the bidder to make sure that all the requested information is included in the submitted bid package.

Minimum Requirements Section

Products which do not meet the mandatory specifications or for which the appropriate information has not been submitted will be disqualified from further consideration.

Relative Ranking Specifications Section

Specifications in this section are listed in the order of importance to Battelle, most important first. The information submitted by the bidder will be used to assign a point value for each specification for purposes

of calculating a cumulative score for each product. The greater the point score the more favorable the product. If any information in the relative ranking section is missing or incomplete the product will be assigned the least favorable score for that specification. For example, if no documentation is submitted on the product's irritability to the skin, the product will receive 0 points for that specification. Products will be compared within an individual product category (such as, floor strippers, glass/window cleaners).

Reporting Forms

These forms must be copied by the vendor and submitted for each product under consideration. The Training and Other Attribute forms do not have to be duplicated for each product category, a single copy of each is all that is required from each vendor. All copies should be printed double sided on a minimum of 30% post-consumer content paper, which is also recyclable. Should you wish an electronic copy of the reporting form, send an e-mail to Chris Armstrong.

II. REPORTING FORM

When One Product Is Intended for Use in More Than One Product Category

If a single product fulfills more than one category (such as, the product can serve as a glass cleaner and as an all purpose cleaner for walls etc.) then all appropriate categories should be listed on the top of the Product Reporting Form. One set of Product Reporting Forms and associated backup documentation should be submitted in the bid package for a product that meets several categories.

A) Minimum Requirements

Please note that failure to meet the standards of any of the pass-fail criteria listed below will lead to the automatic rejection of that product. In addition, failure to submit responses to any passfail criteria will render your bid for that product as "unresponsive" and lead to the rejection of that product.

1. Non-Regulated

No products shall be accepted that meet the criteria of a hazardous waste as defined in Washington Administrative Code Chapter 173-303, Dangerous Waste Regulations. Products that meet the following criteria will accepted as non regulated waste by Battelle per WAC 173-303.

Acceptable response -

Flashpoint/Ignitability:

Liquids: Solids

pH: Liquid: Solid (1:1 w/water wt%)

Reactivity/Oxidizer:

Toxic Characteristics:

Washington State Toxic:

Washington State Persistent:

Sole Active Ingredient:

Unused: Used: not a characteristic

>200F

>2 and <12.5

not over the maximum concentration limits for D004 through D043

LD50 oral rat >5000 mg/kg LC50 inhalation rat >200 mg/l LD50 dermal rat >20,000 mg/kg

Halogenated Hydrocarbons <.01% Poly Aromatic Hydrocarbons <1%

does not contain per WAC 173-303-9903 and WAC 173-303-9904

does not contain per WAC 173-303-9903 and WAC 173-303-9904

No ingredient shall require reporting under the U.S. Environmental Protection Agency's (EPA) Superfund Amendments and Re-Authorization Act (SARA Title III, Section 313, 40 CFR 372.45, Toxic Release Inventory Chemicals). The ingredients requiring reporting under this act represent some of the most acutely toxic chemicals used in cleaning products. Battelle believes that these aggressive chemicals are no longer required in most cleaning product categories and seeks to protect the health of our workers by minimizing exposure to the chemicals. A current list of Toxic Release Inventory Chemicals can be found on the U.S. Environmental Protection Agency web page.

Acceptable response -

If all ingredients over trace amounts are not listed on the MSDS than a certification from the product manufacturer will be required

3. Aerosol Cans

No products shall be delivered in aerosol cans. Battelle believes that no aerosol container can be considered truly empty of product and propellant. Recycling such partially filled aerosol cans is extremely expensive and requires special handling by hazardous waste technicians. All product categories must be available in a nonaerosol formulation such as ready-to-use pump action sprays, air-charged refillable containers, or concentrates that can be dispensed into spray bottles for use.

Acceptable response -Description of delivery system

4. APEs

No products shall contain alkyl phenol ethoxylates (APEs) above trace amounts. Battelle recognizes the potential danger to wildlife and humans when hormonal mimics, such as APEs are released into water systems. APEs, such as nonyl phenol ethoxylate and octyl phenol ethoxylate, persist in the environment and even in very small amounts can damage the hormone systems of animals. It is strongly suspected that humans eating these animals or drinking from supply systems that draw river water downstream of sewage treatments plants will be harmed as well.

Acceptable response -If all ingredients over trace amounts are not listed on the MSDS then a certification from the product manufacturer will be required

5. Priority Pollutants

No product ingredient should have more than a trace amount of any priority pollutant. Identify any product ingredients that are listed as a Priority Pollutant (see attached list). While ingredients listed as Priority Pollutants are rare in today's cleaning product formulations, Battelle wishes to minimize their use in products which are purchased for use in Battelle operations. Priority Pollutants are chemicals that are toxic and may potentially harm plants, animals, and human health.

Acceptable response -

If all ingredients over trace amounts are not listed on the MSDS then a certification from the product manufacturer will be required

6. Carcinogens, Mutagens, Teratogens

No ingredients can be classified as known or probable carcinogens, teratogens, or mutagens on any of the following lists:

National Toxicology Program (NTP) International Agency for Research on Cancer (IRAC), Groups 1, 2A or 2B OSHA regulated carcinogen list ACGIH 1A and 1B categories

While ingredients listed in the above documents are rare in today's cleaning product formulations, Battelle wishes to eliminate them entirely from the products which are purchased for use in Battelle operations. Such chronic toxins are no longer necessary for the efficacy of current cleaning technologies. Acceptable response -Reference on MSDS or certification by product manufacturer. (Note: all the above lists must be addressed in your response)

7. Ozone Depleting Compounds

No compounds shall have more than trace amounts of ozone depleting substances. Information on any product containing an ozone depleting substance as defined in 40 CFR 82 Protection of Stratospheric Ozone must be provided in full compliance with that regulation. Battelle wishes to minimize releases of ozone depleting substances.

Acceptable response -

Supplier must certify compliance with 40 CFR 82. If any ozone depleting substance over trace amounts is not listed on an MSDS, the product manufacturer will be required to certify the maximum concentrations of Class I and Class II ozone depleting substances.

8. VOCs

For the bid to be accepted, Volatile Organic Compound (VOC) levels must be reported in units of percent, not in grams per liter. Battelle wishes to use products with the minimum levels of VOCs for appropriate cleaning product categories.

Acceptable response -

VOC levels must be stated as a percent of VOC by weight at the minimum recommended dilution and at the concentrate level. The dilution at which the %VOC content was calculated must be submitted (such as, at 50% dilution, %VOC is 5%, as concentrate, %VOC is 8%).

B) Relative Ranking Specifications

Because a single set of criteria can not be developed for all product categories, the following characteristics will be judged on a relative ranking basis. Point scores will be assigned to each criteria that are reflective of Battelle's priorities concerning protection of human health and that of the environment. The higher the score the more favorable the evaluation. If no documentation is included in the bid packet to address a criteria, the product will be automatically awarded the lowest or least favorable score for that criteria.

Again, the criteria relate to either whole product or each individual ingredient present in greater than trace amounts in the concentrate formulation (formulation as delivered to Battelle).

9. Price per Unit

Provide the price of the product. If there are options for ordering in smaller/larger quantities or diluted/ undiluted, please describe. The pricing proposed will be firm for the first 2 years of this contract and be negotiated annually each year thereafter.

10. Aquatic Toxicity

Provide a measure of the aquatic toxicity, if available, for the product or its ingredients. Battelle is situated adjacent to the Columbia River and seeks to protect this habitat from potential environmental toxicants. Only toxicity data for fish species (salmon, rainbow trout, fathead minnow, etc.) are required.

Acceptable response -Measures include LD50, LC50, EC50, etc. for fish. State the source of information for any aquatic toxicity data provided

11. Skin Irritation Index

Battelle is concerned over the exposure of Battelle staff to potentially irritating chemicals and wishes to reduce exposure.

Acceptable responses -MSDS or dermal irritation index information, including animal testing information

12. Eye Irritation

Battelle is concerned over the exposure of Battelle staff to potentially irritating chemicals and wishes to reduce exposure. Acceptable responses -MSDS or eye irritation information, including animal testing information

13. Dilution Range, Mixing and Application Methods

List the range of relevant dilutions for this product from heavy duty cleaning to daily use (such as, heavy duty cleaning use full strength, daily use dilute 1 part product to 5 parts water) and identify the mixing and application methods.

14. Product Container

It is Battelle policy to maximize our solid waste recycling, minimize disposal, and where possible purchase products with recycled content. We give preference to containers that are returnable and reusable. Identify whether a container is returnable/ reusable, the type of material used in construction of the product container, and the recycled content if any. If plastic, include the numbered type of plastic (nos.1-7) or common polymer name (for example, high density polyethylene, polypropylene, etc.). Laminated container materials are undesirable and easily recycled plastics (nos. 1 and 2) and steel are desirable. To reduce the amount of packaging consumed, Battelle wishes to purchase the most concentrated formulations available for each product category. All containers should have screen printed labels, as opposed to paper labeling, and the labels should be color coded to readily identify the product.

15. Product Application Compatibility

The application of each product must be compatible with other products it affects. For example, a product coming in contact with a floor should not affect the floor finish.

16. Product Demonstration and Testing, Employee Training and Technical Assistance

Battelle believes that a demonstration of how to use the products, free samples for testing, an effective training program for the products selected, and technical assistance are central to the selection and eventual success of using environmentally preferable products. Battelle will look for vendors who will 1) demonstrate their products and leave free samples for testing as part of the vendor selection process (three 1-pint bottles up to three 1-gallon bottles depending on the application) and 2) when selected, offer effective training to all of our custodial staff and be available with technical assistance to trouble shoot problems.

Complete the form entitled "Product Demonstration and Testing, Employee Training and Technical Assistance" once. A separate form is not required for each product submitted for consideration. To receive points for this criterion, bidders must complete the questions listed on the form. If this form is not included or is left blank, a score of 0 points for this criterion will be awarded.

17. Delivery Time

Describe the number of days required for delivery from the date of order. A maximum of 5 working days is acceptable and sometimes 24 hour delivery is required on an emergency basis. Also describe whether the items will be delivered by commercial carrier or another method and whether your company carries an inventory of these products.

Acceptable response -Statement that any product can be delivered within 5 working days of the order being placed and 24 hours when required on an emergency basis

18. Disinfectants in Cleaners

Because proper/adequate disinfecting of a surface requires that the surface be cleaned prior to disinfecting, Battelle wishes to separate out the cleaning and disinfecting processes. Eliminating disinfectants from all purpose, bathroom and floor cleaners will reduce the toxicity of these products and will minimize the possibility of viral, bacterial, and/or fungal micro-organisms developing resistance to disinfectants. A separate product category for disinfectants is included separate from cleaners.
Acceptable response -

If all ingredients over trace amounts are not listed on the MSDS then a certification from the product manufacturer will be required

19. Dyes

Identify all added dyes and state whether or not they are considered food-grade. Battelle considers the addition of dye superfluous to product performance and recognizes the potential hazard associated with some of these additives. Battelle prefers that product identification for users be through a clear labeling system rather than by chemical additives.

Acceptable response -MSDS or certification from manufacturer

20. Added Fragrances

Identify any added fragrances and state whether or not they are considered food-grade. (Note: does not include the natural fragrance that may result from active ingredients).

Acceptable response -MSDS or certification from manufacturer

21. Other Attributes

Battelle recognizes products may have attributes that will help assess environmental preferability other than the ones listed in these specifications. For example, equipment or a specific tool may be available from your company that improves the efficacy of the product and so helps to replace the need for aggressive chemicals. Another example might be an effective labeling program for refillable squirt bottles that will help the user identify the product on a shelf and so make the use of dyes or other additives unnecessary. In addition, your company may be participating in noteworthy community activities around habitat preservation or environmental justice. Or perhaps your manufacturing facility has an exemplary energy/water efficiency design or a waste reduction program.

To assess the products, Battelle would find it helpful to receive any worker exposure monitoring data from studies conducted during use of any products. Include in the monitoring data the room size, room ventilation, method of application and duration of application.

Identify any other attributes of the product or manufacturer that may assist in the evaluation of the environmental preferability of your bid. No specific point value will be awarded to this information. The use of this information will be at the discretion of Battelle. Write a description of any "Other Environmental Attributes." Only one form is required, not a separate form for each product.



🔀 III. REPORTING FORMS

A) Custodial Product Reporting Form

(Make copies of this form for each product, attach back-up documentation by staple in upper left corner.)

Vendor Name______ Vendor Telephone ______

Vendor Address _____ E-Mail _____

Product Name _____ Product Category _____

CRITERIA	RESPONSE	BACK-UP DOCUMENTATION
1. Meets all mandatory Requirements Items 1-8	Yes/No (add in description as required for nos. 3 and 8)	Certify
9. Price/unit	Describe	
10. Aquatic Toxicity	Whole product single ingredient(s)(please list as attachment) Measure (e.g. LD50): Concentration (mg/l): Type of fish	MSDS other
11. Skin Irritation Index	None	MSDS other
12. Eye Irritation	None	MSDS other
13. Dilution range	Heavy duty: Daily use:	MSDS other
14. Product Container	Returnable/reusable % recycled content Recyclable plastic # Screened labeling Color coded labeling Other	
15. Product Application Compatibility	Describe any adverse effects on other products with which it will come in contact	Written description
16. Product Demonstration and Testing, Employee Training and Technical Assistance	Attached form	Written description - onlyone copy per bid is required
17. Delivery Time	Maximum of 5 days + occasional 24-hour delivery required	Written description - onlyone copy per bid is required
18. Disinfectants in cleaners	Identify disinfectants	MSDS other
19. Dyes	None Food grade	MSDS other
20. Added Fragrances	Food grade	MSDS other
21. Other Attributes	Describe	Written description - only one copy per bid is required

B) Product Demonstration and Testing Employee Training and Technical Assistance Form

A. Vendor Name:	
Telephone:	
Address:	
E-Mail:	

- B. Describe demonstration you would give for those products Battelle seeks.
- C. Denote willingness to leave free sample products for testing in the quantities indicated.
- D. Describe the training services available to Battelle staff in the City of Richland. Please address training goals, training methods, length of training and schedule, and the types

of training proposed for the various types of employees: custodians and supervisors.

- E. Describe our costs associated with different types of training, if any.
- F. List personnel who would be available to conduct on site training and their experience in the company.
- G. Provide a phone number for product questions and the hours calls will be answered:

Phone:	
Hours: _	

Contact: Sandra Cannon (sandra.cannon@pnl.gov)



CASE STUDY 4 Harvard Maintenance - Great River Energy

In 2007 Great River Energy began construction on a new headquarters facility in Maple Grove, Minnesota, a four-story, 166,000 square-foot building located on a 12.5 acre site in Maple Grove's Arbor Lakes development. The building, at a total cost of approximately \$45 million (land and construction) was designed to house approximately 350 employees. As part of the corporation's commitment to the environment, it was determined that the building would be constructed and maintained in accordance with recommendations from the LEED (Leadership in Energy and Environmental Design) council, and would commit to obtaining the LEED Platinum rating, the highest rating available. Great River Energy opened on Earth Day, April 22, 2008 as one of the most energy-efficient and sustainable buildings in the country and one of only a small number of such buildings in the world certified LEED Platinum from the US Green Building Council.

As an electric utility, Great River Energy is aware of its role in protecting the environment, while providing the reliable and affordable electricity required to maintain our economy. "We are seeking LEED certification as a way to measurably demonstrate our commitment to the environment and sustainability. Our plan is to showcase our new headquarters' energy efficiency measures," says Gary Connett, Great River Energy's manager, member services.

The Business Operations department was reorganized to include a manager of Facilities who would oversee the construction and maintenance of the building, focusing on the commitment to "green". The Business Operations group, in partnership with the Environmental department, was facing a large learning curve. Once the building was opened, it was important that the continuing focus be on sustainability. It was critical that the company providing janitorial service utilize techniques and products in the day to day maintenance that comply with the highest standards of sustainability and environmental protection. Based on recommendations from the architects, interviews with building service providers were scheduled. They were chosen for interviews based on their previous green experience, and their ability and willingness to train the staff members of Great River Energy.

The chosen supplier had to provide their own equipment for cleaning, green paper products and chemicals, and their own written procedures for proper cleaning techniques.

The choice of supplier was based on experience and a willingness to provide leadership in the area of sustainability to the staff of Great River Energy. Harvard Maintenance exhibited all of the characteristics that Great River Energy needed and was awarded the janitorial contract.

Harvard provides the appropriate documentation and reports to substantiate its activities in meeting the LEED requirements. These include inventories of products, chemicals, and equipment on site as well as documentation of purchases for the facility. Harvard also provides documentation of communications, training, equipment repairs, and inspections / audits as required. They work with property management to deliver these in a format that fits your LEED Submittal needs. This process is documented in their Site Specific Green Cleaning Manual which is created for each and every site being maintained in accordance with USGBC LEED Standards as well as the GS-42 Standard from Green Seal.

Harvard assigned a senior manager to the project who had a great deal of experience, and who then produced the documents and training manuals that were necessary for the Facilities group to comply with LEED certification requirements. In addition, he has worked closely with the leadership staff from the facilities department to transfer knowledge. Working as single point of contact, this manager's level of experience and expertise was critical to getting the program off to a great start within a very tight time frame.

Harvard maintains its own staff training programs, so it was not necessary for Great River Energy to hire and train staff. Harvard has provided its recommendations on the appropriate cleaning products for hand washing, floor cleaning and dusting, and utilizes the various electrical equipment that is needed to maintain compliance with LEED requirements.

HARVARD's pursuit of Green Seal GS 42 Green Cleaning Service Certification company-wide is a national major undertaking that affirms HARVARD's commitment to Green Cleaning, and, by extension, to the requirements of the USGBC and the LEED Rating System.

Interesting LEED facts about Great River Energy:

Solar cells on the building's roof will generate power, together with a 160-foot-tall wind turbine, that will generate 225 kilowatts of electricity. The headquarters will have a geothermal heating and cooling system that utilizes an adjacent lake. Rainwater will be captured in cisterns, and be used to flush toilets, and irrigate the restored native-plant gardens on 12.5-acre site. The goal is to cut overall energy use by half and reduce water use by 40 percent.

The construction process was also green: 90% of construction waste was recycled, and the structural concrete contains 60% fly ash, a byproduct of coal burning.

CASE STUDY 5 UNIVERSITY OF ALBERTA

Cleaning for a Healthy U

In the early 1990s, the University of Alberta began to substitute conventional cleaning chemicals with less-harsh alternatives. At the time, we were motivated by health concerns for cleaning staff and building occupants. These initiatives demonstrated that we could achieve environmental benefits while maintaining quality. Our early success provided the impetus for a continuous improvement process that has resulted in the Cleaning for a Healthy U program.

Cleaning for a Healthy U embodies the University's commitment to sustainable cleaning. It involves much more than purchasing environmentally

friendly cleaning chemicals and equipment. It is a holistic approach to providing healthy, high-performance cleaning services. Our objective is to lessen the impact we have on our immediate environment – the 13.9 million square feet of buildings at the U of A – as well as the global environment.

This comprehensive program serves to focus our attention on all aspects of services provided by the Buildings and Grounds Services Division. Twelve guidelines cover cleaning practices, chemicals, equipment, storage, matting systems, carpet & floor care, staff training & occupant awareness, low environmental impact pest control and recycling.

Cleaning for a Healthy U has been successful in its two major objectives: reducing the amount of volatile organic compounds (VOCs) going into the air; and trapping and removing airborne particulates from the air. Reductions in these air pollutants have been accomplished through the introduction of green cleaning chemicals and equipment, microfibre cloths, entrance matting systems and sustainable cleaning practices.

We have also made significant strides in enhancing productivity – proving that sustainable cleaning practices can be both high-performance and costeffective. U of A staff clean approximately 40,000 square feet per person, considerably above the industry average. Productivity gains have been achieved via the introduction of new methods and technologies for hallway cleaning, carpet cleaning, floor refinishing, and entrance matting.

The success of Cleaning for a Healthy U is due to the acceptance and participation of cleaning staff. All staff attend training and orientation sessions on sustainable cleaning. All new products and procedures are tested with staff. We have found



that early input from cleaning staff is critical to ensuring successful implementation. The program is integrating into the delivery of our services. The following shows how Sustainable Cleaning is not an add on but an integrated part of our service delivery model.

Cleaning for a Healthy U is a program that addresses the concept of sustainable cleaning

- the provision of cleaning services in a fashion that provides the best outcomes for the human and natural environments both now and into the foreseeable future. Although we developed our program for the University of Alberta, it is transferrable to any type of building in any type of industry. Moreover, the need for sustainable cleaning is not industry-specific. There are compelling reasons to focus on sustainable cleaning. Significant amounts of energy, electricity raw materials and water go into keeping a building clean.

Totals* for all buildings in North America in one year include:

- 5 billion pounds of chemicals
- 4.5 billion pounds of paper
- 36 billion plastic trash liners
- 20 million vacuum cleaners

*Widely cited by the US Green Building Council, the Ashkin Group and many more.

Another key issue facing all building managers is indoor air quality. On average, people spend 90% of their time indoors, much of this in air-tight buildings with poor air circulation. Contaminant levels indoors can be two to five times higher than outdoors.

By adhering to the principles of sustainable cleaning, we have shown that it is possible to enhance both the productivity of cleaning services staff and the quality of the indoor environment.

The Buildings and Grounds Division is putting considerable effort into promoting sustainable practices not only at our institution but at post secondary institutions across North America. One major outreach initiative was the hosting of a conference in June 2008: *Sustaining Our Buildings & Grounds - The Next 100 Years.* Over 70 individuals from 34 post secondary institutions from across North America attended and took part in sessions dealing with issues such as green cleaning, recycling, staff retention, pest control, residence cleaning. We believe that this conference was the first of its kind to focus solely on the provision of sustainable cleaning and grounds services at post-secondary institutions. Sessions provided participants with case studies on our operations and others, as well as the opportunity to share knowledge and experiences. It was an overwhelming success with two universities considering the hosting of a similar conference in 2009.

Cleaning for a Healthy U is the name we gave in 2005 to our continuous improvement process in cleaning services. In fact, the U of A began a sustainable cleaning program long before "green cleaning" became popular. For example, in the early 1990s we began to substitute conventional cleaning chemicals with less-harsh and more environmentally friendly chemicals. As it turns out, these are the chemicals that have now achieved green certification. The U of A was also one of the very first institutions to switch to microfibre cloths for cleaning. Although they did cost \$10/cloth at the time, we recognized their value as a chemical-free cleaning solution. Today, microfibre cloths are the standard in the cleaning industry for green cleaning.

Cleaning for a Healthy U embodies the University's commitment to sustainable cleaning. It involves much more than purchasing green cleaning chemicals and equipment. It is a holistic approach to providing healthy, high-performance cleaning services. Our objective is to lessen the impact we have on our immediate environment – the 13.9 million square feet of buildings at the U of A – as well as the global environment.

Cleaning for a Healthy U serves to focus our attention on all aspects of cleaning services: materials, methods, sourcing and implementing industry best practices, regulating the use of nongreen products, staff training, public awareness, pest control and recycling. It is a comprehensive program that has established twelve guidelines for all practices in these key areas. In addition, the Cleaning for a Healthy U program will contribute points toward the Canadian & U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certification. The LEED Rating System[™] is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. As the U of A continues to grow, new and existing buildings on campus will become LEEDS certified, and we will be ready to provide sustainable cleaning services to them.

It's important to note that the reason for embarking on this program is not a result of external pressures – whether they are LEEDS certification or government legislation. We are doing this because we know sustainable cleaning is the right thing to do. The U of A's Building Services Division is committed to helping safeguard people's health and safety, and protect the environment for future generations.

Cleaning for a Healthy U is designed to lessen the impact that cleaning has on the 13.9 million square feet of buildings looked after by the staff of the U of A's Buildings & Grounds Services Division. The program has two major objectives:

Reduce the amount of volatile organic compounds (VOCs) going into the air.

Concentrations of many VOCs are consistently higher indoors – as much as 10 times – than outdoors. VOCs are emitted by a wide array of products including paints, paint strippers, cleaning supplies, pesticides, carpets, furnishings, and office equipment

Trap and remove airborne particulates from the air.

Windblown dust, pollen from plants and sea salt are natural sources of particles in the atmosphere. Bush, agricultural, and forest fires also release smoke particles into the air. Both VOCs and airborne particulates can cause mild irritation and, in some cases, serious health problems. We are accomplishing reductions in both these air pollutants through the introduction of:

Green cleaning chemicals. We have been using green cleaning chemicals for 6 years. Most of the chemicals we use are certified as "green" by Environmental Choice (Canada) and Green Seal (USA) regulations. Green chemicals emit significantly fewer VOCs than conventional cleaning chemicals up to 90% in some cases.

We also purchase chemicals in concentrated format, which requires significantly less plastic packaging. For example prior to switching to concentrates, 8,480 kg of plastic was used to package our chemicals. Now only 640 kg of plastic is required. Since 2005, we have saved in excess of 23,000 kg of plastic. We also save the associated packaging and transportation costs. The containers themselves are recycled.

Green equipment.

Most of our equipment already meets or surpasses the Green Guard certification (North America) and is selected on the basis of reduced water and chemical usage or the case of vacuums for quietness of their operation and filtration levels. For example, all of our NACE canister vacuums are equipped with Hepa-like filters. They are capable of removing particulates as small as 0.3 microns.

Microfibre cloths.

One of the keys to our successful cleaning program is the use of microfibre for cleaning. Chemicals that are used for disinfection have a dwell time – the time that the chemical must be in contact with an organism to kill it. Dwell times range from 10-20 minutes. Our process for disinfecting relies on microfibre cloths treated with disinfectant. Microfibre cloths remove bacteria and viruses from surfaces; the germs are killed on the cloth. There is no need to have the chemical remain on the surface.



Sustainable cleaning practices.

These include: cleaning programs that use industry best practices for the cleaning of entryways, chemical storage areas, carpets and floors; guidelines for use of cleaning chemicals, disposable cleaning products and paper products; staff training sessions; meetings to gain input from staff; and awareness programs for building occupants.

Improper cleaning is estimated to lead to lost productivity of more than \$60 billion annually in the U.S. (U.S. EPA, 1989). On the other hand, proper cleaning methods and equipment can boost productivity. U of A cleaning staff clean 40,000 square feet per person, considerably above the industry average.

Specifically, we have made significant strides in enhancing productivity in some key areas:

Entryways. Studies show that on average 1000 people will track 10 kg of dirt into a building in a month; it costs \$1300 to remove one kg of dirt from a building. Consequently, a major initiative within Cleaning for a Healthy U involves investing time and money in stopping dirt at the door. We have had an entrance matting program for more than 10 years, developed with the assistance of 3M. This not only saves money in cleaning, it helps to improve overall air quality by controlling the dust coming into buildings.

Hallway cleaning. We have invested in state-ofthe-art Tennant T5 & T7 hallway machines that use environmentally friendly gel batteries (when available). These machines are equipped with FaST Technology, which uses about 30% less water and up to 90% less chemicals than traditional machines. They also increase floor traction by 21%. The use of these machines saves the University between 50-60,000 gallons of water annually.

Recently the U of A was one of three sites in North America selected for testing the new Tennant-ECO 2 hallway machine. This machine is unique in that it cleans with water alone, without the use of chemicals. We were so impressed with its performance that we have purchased two of these machines.

Cleaning products. We have managed to reduce the number of cleaning products we use to just four, not including floor finishes and carpet cleaners. This is important because it simplifies cleaning practices, and reduces the amount of time required for staff training. As these products are purchased in tamper-proof self-regulating containers, our usage rates are at optimal levels.

Floor refinishing. We have reduced the number of floor strip/refinishes from twice every 18 months to only once every year, significantly reducing the amount of VOCs introduced to the air in buildings. Additionally by switching to a green certified floor finish we have eliminated 250-375 kg of zinc from our waste stream annually. The stripping chemical and floor finish are purchased in a plastic-coated cardboard box, which is recycled.

Carpet cleaning. We have changed our carpet cleaning practices to eliminate VOCs. By using a green-certified pre-spray and rinsing with clean water we have dramatically improved air quality after carpet cleaning and greatly reduced occupant concerns. Most occupants with severe chemical sensitivities are now finding it possible to occupy their office immediately after carpets have been cleaned.

Cleaning for a Healthy U is more than a program that covers cleaning methods and materials. We have incorporated a number of initiatives to reach out to staff and building occupants:

Regular training sessions for staff. With the assistance of Wesclean and our other partners & suppliers, the Division developed a two-hour presentation on Cleaning for a Healthy U for in-house and contracted cleaning staff. It provides an overview of the program and covers



key cleaning practices. To date, over 300 people have attended the presentation, which has been extremely well received by in-house and contractor staff.

Staff input. We test all products and procedures with staff prior to choosing a product or changing a procedure. This is a formal process that asks specific questions about the method or product. Early-stage input from cleaning staff allows us to adjust programs as required, which is critical to ensuring successful implementation.

Customer awareness. Promotion activities for Cleaning for a Healthy U extend beyond our division and into the campus community. The campus community is encouraged to provide input into our services through our web site, posters in public areas and "Wash your hands" stickers in washrooms. Partnering. Another key to the development and success of our program has been partnering with major service providers such as Wesclean Equipment and Cleaning Supplies Ltd. This relationship has allowed us access to industry leaders such as Johnson Diversey, 3M, Kimberly Clark, Tennant and NACE equipment. These companies have not only provided insight into new products and procedures, they have participated in the development of the Cleaning for a Healthy U program and in the training of Division and contractor staff. We have extended this philosophy of partnering with industry leaders to other services such as pest control and recycling. Industry partners are playing a significant role in moving the Division forward to reach our goal of providing a sustainable environment for the next 100 years and beyond.

🔀 CASE STUDY 6

ADOBE SYSTEMS INCORPORATED

Green Cleaning, Improved Employee Morale, and Savings, Too!

In June 2006, Adobe's West Tower in San Jose, California became the first building in the world to be certified as a Green Building through the U.S. Green Building Council's permanent Leadership in Energy and Environmental Design program for Existing Buildings (LEED-EB) at the platinum level, the highest level possible. Since then, Adobe has achieved certification for four more of their buildings, including three more at the platinum level.

LEED certification is about reducing a building's environmental footprint: improving building operating efficiency, reducing energy and other resource use, decreasing building operating expenses, creating a healthier work environment, and minimizing negative impact on the environment. An important part of this process is Green Cleaning. Green cleaning includes use of safer cleaning chemicals, automatic chemical mixers, use of micro-fiber dust wipes and dust mops instead of disposable products, high-filtration, ergonomic vacuum cleaners, walk-off mats at building entrances, use of products with higher recycled content and less packaging, increased recycling, and careful control of what is introduced into the indoor atmosphere.

When we began, we met with our janitors; not just their management, but with the janitors themselves. We brought in a third-party expert to explain what green cleaning is, why we would like to employ it, and how it improves the janitors' own work environment as well as that of the other building occupants. We then asked for two volunteers to receive further training and then try green cleaning as a test. Two janitors stepped forward, we provided additional training, and they then tried green cleaning for two weeks. At the end of two weeks, we came back together. We asked our two volunteers how they liked their new microfiber wipes, their high-filtration, ergonomic backpack vacuum cleaners, and their green cleaning chemicals. They indicated they liked them a lot. We thanked them, and I then explained that we would now like to have those two volunteers go back to their former methods and we would like to have two new volunteers try green cleaning for two weeks. I had expected to do this testing several times with different janitors before attempting to switch.

Suddenly, however, I heard someone say, "She doesn't want to!" I looked up and one of the janitors who had been testing our new cleaning methods was looking down shyly and shaking her head "no". I asked her what she meant. She didn't speak English very well, but he janitor next to her said, "She likes her new vacuum cleaner and green cleaning. She doesn't want to give them up."

At that point, I said, "OK, based on that testimonial, how many would like to stop testing and just change over to green cleaning right now? Everyone raised their hands, it was unanimous. We ordered the equipment required, provided full training in green cleaning to all of the janitors, and transitioned to green cleaning.

We did one other thing, too. Since we were putting all of our janitors through a training program, we created certificates of completion for them; one for using the green chemicals and one for using the vacuum cleaners and micro-fiber wipes and dust mops.

At the end of the training, we held a graduation, janitors invited their families to attend, we presented the certificates, served refreshments afterward, and it was a very successful program.

A few weeks later, the representative from our janitorial company came to me with an offer. Our contract was soon to be up and he had a very good offer for me. He offered to pay for all of the



vacuum cleaners and microfiber dust mops and wipes and increase our contract only 1% per year in return for a three-year contract. This was a very good deal. I thought it was because the company was merging with another company and they were anxious to have a new contract in place to optimize the value of the company. And that may have been one of the reasons.

However, a few months later, we went to bid on the janitorial contract for Adobe's San Francisco properties. We sent Request for Proposals (RFPs) to five contractors including the same company that cleans our San Jose property. They were the low bidder. In fact, their bid was 20% below the next closest vendor and 30% below the then current contractor. They were so low, that I thought they might have made a mistake, so I asked them. I told them their bid was unusually low, and did they want to take another look at it and make sure they hadn't made a mistake. Their answer was interesting. They said they were quite comfortable with their bid. They had learned in converting to green cleaning on our San Jose property that green cleaning was so much more efficient, they could do the San Francisco property with two fewer people. In my 30 years of property management, I have never major contract change without some "hiccups". But this was the exception. We made the changeover almost three years ago, and it was seamless. There were no significant problems that I am aware of.

I have heard of buildings transitioning to green cleaning and being told that it would cost more. I can see that occurring if you go to your current vendor and ask them to change their methods. There is training for staff, new equipment to be purchased, and a period of transition requiring closer supervision. On the other hand, based on our experience I surmise that if you go out to bid and specify green cleaning in your RFP, you are likely to find that green cleaning is cheaper. At least that has been our experience.



CASE STUDY 7 ISSA CIMS CERTIFICATION

COMPANY:

Vonachen Services, Inc

HEADQUARTERS:

Peoria, Illinois

EMPLOYEES:

500

Certification Keeps Contractor Focused on Consistency, Improvement

When John Austin, vice president and CFO of Vonachen Services, Inc., and his operations team first heard about the ISSA Cleaning Industry Management Standard (CIMS) case study certification program, the concept sounded familiar.

SERVICE AREA:

SERVICE MARKETS:

Education. healthcare.

food service facilities

commercial, retail, industrial and

Illinois, Iowa, Mississippi

The Peoria-based janitorial service company had started the process of standardization internally three years earlier in order to remedy the same types of problems that CIMS targets.

"We started standardizing our processes and procedures three years ago because we found that we were having a difficult time providing consistent customer service," Austin explains. "We were losing clients. The main reason was a lack of consistency. We'd do well for a while, and then slip."

Austin explains that top management at Vonachen realized the company needed to improve consistency and better document policies and procedures to fix the problems it identified. "We looked at each job and asked ourselves: How should we be doing this? What are the best processes?" he says. "We needed to say 'Here's how to train cleaners' to make sure everyone is on the same page."

One way of ensuring consistency throughout the organization involved the development and implementation of a facility worksheet. For each job in a given facility, Austin's team created a worksheet that outlines what should be done on each shift. The worksheet includes easy-to-follow illustrations, written materials and crucial training information. "CIMS will improve the industry overall. It will be a way to differentiate between companies, highlighting who is doing the right things the right way. From now on, you can't just get a mop and a bucket and call yourself a cleaner. CIMS provides a higher bar."

> ~ John Austin, Vice President and CFO, Vonachen Services

"The worksheets serve as a maintenance log that shows exactly what has been done in a facility and when it has been done," Austin says. "It's a reminder or a checklist for employees, but it is also used by supervisors who can see exactly what their people should be doing."

So, having just gone through an extensive internal review of the organization's processes and procedures, CIMS came along at the perfect time. While the Vonachen team was pleased with their own internal scrutiny, they immediately identified CIMS as a key way to prove, via an outside, independent assessment, that they were raising the bar and doing the right things.

"We decided to use CIMS as a way to audit what we were doing," says company owner Jay Vonachen. And the CIMS process certainly taught them that there was much to learn and additional improvements that needed to be made. In preparing for CIMS, Vonachen discovered that the facility worksheets were not as effective as they could be and some documentation was either incomplete, inaccurate or missing altogether. "We require a workloading plan for each job somewhere on the job site,"Vonachen says. "Through CIMS, we found cases where we didn't have one, or they were outdated or the people didn't know where they were." conduct annual reviews of our organization," he says. "Running through the CIMS checklist internally on a yearly basis will serve as a way to make sure the changeswe've made will stick CIMS will help us make sure we're still doing what we're supposed to be doing."

Along with being the means by which Vonachen will audit its internal excellence, Austin adds that CIMS certification is also an important marketing tool.

"We are marketing this certification heavily to our customers," he says. "CIMS is a big deal and it gets people's attention."

BEST TIP FOR COMPANIES THINKING ABOUT CERTIFICATION: View preparing for CIMS certification as a way to provide improved service to your customers. Make the changes that will best facilitate meeting your customers' particular needs. There is no cookie-cutter solution. Every company is different.

"We also found that our environmental policy needed documentation and updating," says Austin. "We found that we didn't have it solidly in place, so we spent time putting it together."

Austin further believes the CIMS process has helped remedy problems the organization had in the past in terms of ensuring the delivery of consistent customer service. "Now when a customer calls and says, 'Hey, my floors don't look good,'we can go back to the facility worksheet and see exactly when the floors were done. If the customer thinks the floors don't look good despite us keeping to our plans, we can increase our floor cleaning schedule. Or we can see that the floors weren't done when they should've been, and fix that problem. It's a good way to keep us on track."

Just because CIMS certification has been achieved, it is certainly not the end of the process, Vonachen notes. He intends to use CIMS to continuously improve his organization. "CIMS will help us Given the internal auditing and external marketing value that it presents, Vonachen says his company will definitely renew its CIMS certification in two years.

Vonachen also believes CIMS will be a boon for the industry as a whole. "I think CIMS will become a pre-qualifier for sophisticated bidders in this industry," he says.

Austin agrees. "CIMS will improve the industry overall. It will be a way to differentiate between companies, highlighting who is doing the right things the right way. From now on, you can't just get a mop and a bucket and call yourself a cleaner. CIMS provides a higher bar."

About CIMS:

CIMS is the first comprehensive management and operations standard for cleaning organizations. Administered by ISSA and the American Institute for Cleaning Sciences, CIMS is a standard of excellence designed to help building service contractors and in-house service providers develop quality, customer-centered organizations.

The CIMS framework is built around five quality principles that have proven to be the hallmarks of well-managed, successful cleaning operations:

- Quality Systems
- Service Delivery
- Human Resources
- Health, Safety & Environmental Stewardship
- Management Commitment

Why should a company certify to CIMS? Daniel Wagner, director of CIMS for the ISSA, explains: "Implementation of the standard's elements affords an organization a tremendous opportunity to validate its management systems and processes. Professional, customer-centered cleaning organizations finally have a touchstone resource, a common rallying point around which all members of the industry can gather and work toward achieving an unprecedented level of professionalism and excellence.

ISSA

The Worldwide Cleaning Industry Association

For more information contact 800-225-4772 or visit www.issa.com/standard.



CASE STUDY 8

PACIFIC NORTHWEST NATIONAL LABORATORIES – PROCESSES

Operated for the U.S. Department of Energy by Battelle

GREEN CUSTODIAL PRODUCTS – SELECTION PROCESS AND RESULTS

Pacific Northwest emphasizes healthy working conditions for its staff. In addition as of January 1, 2001, Pacific Northwest's Chemical Management System showed an inventory of over 3000 custodial cleaning products stored in 109 locations in 46 facilities for an average of 33 chemical products per location.

Process

To reduce the number of products and to maximize worker and environmental protection, Pacific Northwest established a process to purchase "green" custodial products:

- Formed a team consisting of specialists in the areas of contracts, custodial work, environmental preferability, industrial hygiene, liquid effluents, waste management, and environmental releases and reporting
- Adapted the city of Santa Monica specifications for green custodial products to adequately address Washington State regulatory requirements and to fit the Pacific Northwest's situation and needs
- Sent out the resulting Request for Proposal
- Evaluated the over 70 ingredients in the roughly 50 products proposed by 8 vendors to ensure they met the 20 criteria specified in the Request for Proposal
- Invited the vendors who met the criteria to demonstrate the effectiveness of their products

- Had Pacific Northwest custodians test the products
- Selected 2 vendors:

Green Cleaning Products

Orison Marketing, L.L.C. Contact: Kevin Corley kcorley@orisonllc.com http://www.orisonllc.com/ Tel. 972-242-0129 2513 Blanton Drive Carrollton, TX 75006

Green Paper and Plastic Custodial Products

Service Paper Company Contact: Dennis Adams DAdams7434@aol.com Tel. 800-829-0081 3902 E. Ferry Spokane, WA 99202

 Had the cleaning product vendor train the Pacific Northwest custodians in the use of the new cleaning products

Products Selected

- General all purpose biobased cleaner, which by changing the dilution can clean mirrors, sinks, floors, etc., and rid carpets of the toughest stains. The all purpose cleaner is derived from corn, oats, and soy, is neither flammable, hazardous, reactive, nor aquatically toxic, and is child safe.
- Glass and white board cleaner, which is the same composition as the general cleaner with the addition of alcohol to prevent smearing
- Disinfectant, which will be used up and not disposed of. Pacific Northwest encourages its custodians to limit the use of the disinfectant only to the necessary areas, such as the shower stall floors and toilets.
- Floor wax, stripper, sealer, and restorer, which

generate no hazardous waste and meet sewer criteria contained in industrial wastewater permits

- Toilet tissue, which is larger than normal and coreless. The new rolls save time because they do not have to be changed so often, reduce waste by eliminating the core and allowing use of the entire roll of paper (unlike the former style which often left an eighth of the roll unused), and contain the required 20% post-consumer recycled content.
- Toilet seat covers with 65% post-consumer recycled content even though we are not required to purchase them with recycled content
- Paper towels, which are dispensed in single sheets thereby reducing the waste of excess paper being pulled out. Pacific Northwest had to settle for paper towels with only 20% postconsumer recycled content because no other touchless towels have the required 40%, and we determined it is more environmentally preferable to avoid contact with germs than it is to have an added 20% recycled content.
- Wipers with the required 40% post-consumer recycled content
- Plastic sanitary and trash can liners with 30% post-consumer recycled content--20% more than required

Lessons Learned

- Information required of vendors is demanding.
 A longer than normal response time should be allowed.
- Many vendors did not submit all the required information. To encourage vendors to submit the information requested, hold teleconferences with the interested vendors prior to the submittal date.

- Evaluation process was very time consumingover 70 ingredients times 20 criteria. Pacific Northwest hopes others can piggy back on our evaluations and thereby save time and money.
- Proprietary information about the ingredients often was not contained in the standard product material safety data sheets nor available from the vendor. Pacific Northwest had to contact the manufacturer and sign nondisclosure agreements to obtain this information.
- Each state defines differently what is regulated, sewerable, and how certain materials may be diluted and dispensed. Anyone using the Pacific Northwest specifications needs to ensure the specifications meet their state's regulations.
- Some of the selected products required different dispensers. We donated our replaced paper towel and toilet paper dispensers

to community organizations, saving them over \$11,000. Finding a reuse source for replaced dispensers should be included in the planning process.

 Some of the new dispensers were a different size from the previous dispensers. Planning ahead for the space requirements of the new dispensers is important.

Results

From the Custodial Manager's viewpoint, the biobased product is exceeding expectations both in its performance and ability to prevent cleaning problems, such as calcium deposits. By switching to environmentally preferable products, Pacific Northwest is

• Maximizes worker protection. This includes the janitorial staff using the products as well as those in the facilities being cleaned.

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- Protects the environment
- Reduces the number of cleaning products used by staff from over 30 to 7 and thereby the time needed to load the carts and select the right product for the job
- Reduces the chemical inventories of cleaning products and time required to order, manage, store, and track them
- Reduces waste handling, shipping, and disposal costs
- Offers other U.S. Department of Energy sites the opportunity to piggy back on our results, saving them implementation time and costs
- Greatly lowers purchasing costs and saves the Lab untold dollars in reduced staff time. An example is if we tally the cost of purchasing one container of each cleaning product, the green cleaning products cost roughly \$1500 I ess. Multiply that times the number of purchases of each product throughout the year and the product cost avoidance alone is considerable.
- Contributed to the community by donating approximately \$11,000 worth of replaced towel and toilet paper dispensers.

Contact: Sandra Cannon, Tel. 509-529-1535



CASE STUDY 9 – BENTALL REAL ESTATE SERVICES

TENDER SPECIFICATIONS FOR GREEN CLEANING

Cheryl Gray, CPM

Senior Vice President, National Real Estate Services

Bentall Capital LP

Bentall Capital is a leading real estate advisory and services organization with over 83,000,000 sq. ft. of real estate in over 600 properties in Canada and the United States. Due to our size, buying power and high profile we understand that we can influence the industry in many ways.

A few years ago we began to think about environmental sustainability and how we could advance sustainability in office, industrial and retail real estate sectors. We believed in the principles of responsible property management and that it would reduce the environmental impact of the real estate that we operate on behalf of our clients, as well as enhance the well-being or our tenants and the communities surrounding those properties. We also saw it as a market differentiator as all stakeholders became aware of the benefits.

As a result, we developed a "Sustainability Strategy" that would help us articulate our objectives with stakeholders.

The Sustainability Strategy will synthesize Bentall's philosophy, and outline the framework for sustainability practices related to real estate services. Our Sustainability Strategy is intended to preserve and enhance asset value through responsible environmental stewardship that is fully aligned with our stakeholders' expectations and with Bentall Capital LP's commitment to Corporate Social Responsibility and Sustainability. More recently, we branded our initiative as ForeverGreen – a declaration of Bentall's commitment to strategically develop and continually improve environmental best practices with regard to our managed properties and the impact they have on the communities in which we do business.

Articulating strategies and branding our approach help us communicate our intentions, but the hard work was changing our procedures to move towards sustainability.

As a real estate services firm Bentall is both a provider and purchaser of services. As such, we understood from the outset that, in order to be successful we had to involve our suppliers. A major category, of course, is cleaning services. We work with large national business service contractors (BSCs), as well as more regional providers. At that time, in early 2006, few of them were aware of green cleaning and even fewer had programs in place to implement green cleaning practices.

We decided to incorporate our environmental objectives into our vendor tender (RFP) process. We began by researching the state of the art in the industry. We turned to industry organizations and companies to see what could be adapted to our organization. We found that a few facilities services contractors, such as UGL Unicco, already had wellestablished protocols and procedures and were willing to advise us. We also discovered The Ashkin Group, a green cleaning consultancy that helped us put the program together.

Since not all BSCs were at the same point, and, given our wide geographic distribution, the scope of properties in our portfolio, the range of national, regional and local contractors that we deal with, we could not stipulate a single solution. As a result, we designed a set of green cleaning specifications that would be both a goal and an education tool.

We also addressed the concerns of our local property managers by defining a program that would be evolutionary. In this way they would understand the reasons for the changes and it would be easy for them to incorporate and enforce the green cleaning specifications. Consequently, in-house education was a major part of the process for us.

The approach we adopted was designed to be as simple as possible for everyone involved. Our objective was to implement green cleaning – not to create special rules that would be confusing for our property managers and suppliers and be costly to implement. We developed a rollout strategy for green cleaning with the following elements:

- Create a separate addendum for ease of use with existing specifications
- Create tiered specifications to accommodate various property profiles
- Test each market tender one or two properties
- Analyze costs challenge service providers
- Monitor with field
- Be flexible allow for staged implementation

The separate addendum proved to be key for us. It gathered all of our green cleaning requirements into one section of the tender that clearly detailed our expectations. It is designed for all of our markets and relies heavily on industry-approved standards and associations. In this way, we are also instructing our vendors on how they can obtain additional information and directing them to the sources they need for approved chemicals and equipment.

The addendum is divided into six categories:

- Chemicals
- Paper
- Liners
- Equipment
- Standard Operating Procedures & Training
- Communications (to inform and educate occupants on the benefits of green cleaning)

The addendum itself directs BSCs to Environmental Choice in Canada and the U.S. Green Building Council and Green Seal in the U.S. It also cites the Canadian National Office of Pollution Prevention, California Code of Regulations, and the Carpet and Rug Institute (CRI) -- organizations that have issued certifications and guidelines.

A sample specification for chemicals reads:

1: Chemicals

OPTION 1A: Cleaning products shall meet the Standards as applicable for the given product category under Canada's Environmental Program.

OPTION 1B: Cleaning products shall meet the LEED-EB/Green Seal Standards as applicable for the given product category.

 Other cleaning products shall meet the Canadian National Office of Pollution Prevention (http://www.ec.gc.ca/nopp/voc/ en/secCP.cfm) or the California Code of Regulations (http://www.arb.ca.gov/ consprod/regs/cp.pdf) for the appropriate product category.

OPTION 1C: Cleaning products shall meet at least one of the following product Standards as applicable to the given product category.

- All + Anticipated revisions to LEED-EB Requirements
- Other cleaning products shall meet the Canadian National Office of Pollution Prevention (http://www.ec.gc.ca/nopp/voc/en/ secCP.cfm) or the California Code of Regulations (http://www.arb.ca.gov/consprod/ regs/cp.pdf) for the appropriate product category CCD-110 for Cleaning and Degreasing Compounds.

Reporting on Chemicals: Vendors must provide documentation on a quarterly basis on individual product certifications, Material Safety Data Sheets and/or Workplace Hazardous Materials Information

System (WHMIS) documentation. In addition, based on these purchases, the vendor will provide a calculation of the fraction of covered materials purchased that meet one or more of the specified criteria (on a cost basis).

The wording for the addendum enables us to conform to accepted, well-publicized and wellunderstood industry practices, while holding our vendors to the highest standards. By requiring continued adherence to "All + Anticipated revisions" in industry sustainability practices in the addendum, we ensure that our program continues to evolve, while encouraging our vendors to keep pace with the most up-to-date chemicals, equipment and practices. This approach has proven to be highly successful for Bentall. Since making the commitment to environmental sustainability, we have 181 buildings that are certified or committed to Canada's Go Green program and 17 U.S. projects related to LEED. The active involvement of our cleaning contractors has been an integral part of this success.

Of course, we continue to monitor compliance, which requires the ongoing attention of our property management and corporate staffs. In the process, we have created a viable, dynamic tender and oversight process that works well and will continue to work for the foreseeable future.



CASE STUDY 10 A FEW WORDS ON CLEANING RESPONSIBILITY FROM FBG SERVICE CORPORATION

Introduction

A company's greatest asset is its people, and, their greatest investment. Doesn't it make sense to find better ways to protect that most valuable of assets? For over 50 years, it has been FBG's mission to create cleaner, safer and healthier workplaces for people. When people feel better about their work environment, they feel better about their work.

Becoming a pioneer in the green cleaning movement seemed only natural. Given that FBG was founded in Nebraska, the concepts of sustainability and ecology aren't anything new to us—we've seen them used for generations on our family farms. With a strong Midwestern work ethic established in 1960 when the company was founded, FBG constantly strives to enhance the practical applications, results and efficiencies of our cleaning and maintenance programs. For us, thinking in green terms remains as much economical as ecological.

Case Study in Cleaning Responsibly (aka Cleaning Green)

Though FBG operates nationwide with many high profile companies, a good case study on our performance can be found right in our own back yard. At 633 feet, our local bank's headquarters ("The Tower") is the tallest building between Chicago and Denver and the focal point of the downtown Omaha skyline. The skyscraper is home to a 130-year-old company with nearly \$17 billion in managed assets, more than 7,500 employees and a very high profile in the region.

Not surprisingly, traffic through the tower is very heavy. This demands a twice daily sanitizing of frequently touched surfaces like doorknobs, handrails, elevator buttons, restroom fixtures, and high traffic areas like the main lobby. FBG's Cleaning Responsibly regimen is used in nearly 100% of the building. The tower's state-of-the-art HVAC system helps support excellent air quality and makes our use of microfiber on hard-surface cleaning, dusting and mopping even more effective.

This level of experience helped FBG remain proactive in its approach. In anticipation of cold and flu season, FBG began writing a pandemic plan for the bank to reinforce effective viralprevention processes. FBG employee owners are trained to focus on details like the sanitization of frequently touched areas—even providing individual workspace sanitization for employees who have gone home with a cold or flu—preventing the spread of germs and providing a clean workspace for returning employees.

Philosophy

This customer exemplifies our approach. FBG understands and embraces the benefits that Cleaning Responsibly offers—both environmentally and economically. We have modified our training program to adopt JohnsonDiversey's Healthy High Performance Cleaning program.

As an employee-owned company, FBG takes its commitment to clean, safe and healthy environments personally. This is one of main reasons FBG made the move towards compliance with ISO 14001 Environmental Management guidelines years ago.

As an ISO 14001 compliant company, FBG provides Environmental Management Systems that benefit our customers' triple bottom line -- the social, financial and ecological impact facilities create. As an industry leader, it's FBG's policy to implement strong, sustainable programs that produce results for our customers with minimal impact on the environment. By employing advanced technologies, innovative cleaning strategies and Green Seal® certified or equivalent products, we



continue to sustain both the health of our business and the health of the environment. Underscoring this commitment to environmental responsibility, it is FBG's policy to:

Purchase products and equipment that minimize or eliminate any harmful impact to the environment.

Ensure that the products we use and our operations are safe for our employees, customers and the environment.

Reduce, or prevent, the environmental impact of any products we use whenever possible.

Meet or exceed the requirements of all environmental laws and regulations.

Continually assess our environmental technology and programs, and monitor progress toward environmental goals.

Ensure that every employee understands and is responsible and accountable for incorporating environmental considerations in daily business activities.

Approach

When first introduced to JohnsonDiversey's Responsible Solutions program at the BSCAI trade show in 2004, representatives from FBG immediately recognized the program's potential. While demand for green products and processes was low at the time, FBG quickly noted the opportunity to improve its current green cleaning offering by implementing:

- Green Seal certified products
- Microfiber cleaning systems
- Healthy High Performance Cleaning (HHPC) program
- Advanced Hydrogen Peroxide (AHP) technology

The company utilizes JohnsonDiversey resources to help communicate the message and benefits of its Cleaning Responsibly program to customers. JohnsonDiversey representatives also provide detailed product and green cleaning technique training. In addition, FBG works with each customer to develop a customized program to reduce energy and water consumption in their facilities. This includes techniques such as mechanical floor polishing, using Alpha-HP as a carpet cleaner (instead of detergent) and day cleaning. FBG has also developed a specific program for schools that recognizes the impact of indoor air quality (IAQ) on student health and test scores and takes action to reduce the negative impact of cleaning on IAQ in schools.

As members of WasteCap Nebraska, FBG conducted an internal waste audit to measure the amount of discarded waste and now have a program that allows the company to recycle a full spectrum of mixed consumables. FBG also:

- Recycles all electronic items
- Has a cell phone-reuse program for donating unused cell phones to the YWCA
- Has moved all timekeeping and payroll processes online, reducing paper usage by 65%
- Encourages invoice payment through Electronic Funds Transfer systems

Elements

Chemicals

Green Seal Products: GS-37 (secured by JDI) basically contains no VOCs, is readily biodegradable, has superior cleaning ability, no hazardous fumes, pH neutral, along with chlorine free Paper and Liners

Tools & Equipment

Floor Strippers

HEPA filters in vacuums

Microfiber dust cloths and mops

- Eliminates cross contamination of water
- Reduces mopping chemicals by up to 95%
- Reduces labor, worker's comp claims, can be laundered hundreds of times

Programs & Procedures

- Strategic directives like pandemic planning Innovative Waste Management and
- Recycling programs
- Integrated Pest Manageme
- Ongoing procedural training for all employee owners (through FBG University)

Goals

For Employees:

- Limit workers' exposure to chemicals
- Improve IAQ and overall health of working environments
- Increase productivity and staff morale

For Companies:

- Reduced number of sick days, Worker's Comp claims and associated healthcare costs
- Lower operational costs through decreased chemical and equipment use
- Reduced labor costs through effective training and procedural efficiencies
- Limited liability risks by creating safer, healthier indoor environments
- Protecting and enhancing the market value of the building

Maintain the highest possible community image for each customer

Overall:

- Higher Satisfaction Ratings
- Lower operational expenses
- Safer, more productive workplaces
- Healthier environments—both working and global

Results

As an example of the results of our efforts: A building that typically demanded 1,200 hours/year for stripping and recoating its hard-surface floor areas. With the adoption of a mechanical hardwood floor polishing system, FBG has reduced chemical usage significantly (stripper and finish); cut overall labor costs by 58% and achieved better results for our customer. The floors now retain a higher gloss, protect against scuffmarks and prevent soil buildup. All of which contributes to the longevity of the floor, the building and the relationship with the customer.

For carpet care, we use JohnsonDiversey's Alpha-HP. The benefit to this product is that it doesn't leave a detergent residue (which retains dirt, makes it easier to leave foot prints and requires more frequent cleaning). With Alpha-HP, a clean carpet is easier to obtain and maintain, saves on chemical use and water, all of which contribute to the longevity of the carpet.

Overall, FBG's total chemical usage has reduced by 31% from 2007 costs.

We achieved an internal labor savings of 25% through CONNEXION, an e-business solution software program from JohnsonDiversey. The program has helped FBG streamline purchasing processes, monitor inventory and become more efficient overall.

Our teams realized a 2% reduction in labor costs from enhanced productivity and reduced absenteeism.

FBG's dedicated Green Schools Program receives continuous "excellent" report card ratings from school superintendents, resulting in an expansion of the directive.

Our company received Friends of the Environment Award from the Sierra Club in 2007.

FBG was one of 15 nationally nominated for Sam Johnson Leadership in Sustainability Award in 2008.

We were a joint winner of the Environmental Leadership Award for commercial operations presented by Minnesota Local Technical Assistance Program, the Fresh Water Association, University of Minnesota and the Minnesota Pollution Control Agency in 2007.



CASE STUDY 11 HARVARD MEDICAL SCHOOL

GREEN CLEANING AT HARVARD MEDICAL SCHOOL

A Case Study

The Goal:

In an effort to further expand its commitment to a cleaner and safer working environment, the Harvard Medical School Custodial Department made the commitment to switch over to green cleaning products and cleaning processes.

Green Cleaning, what is it:

It is cleaning to protect the health of people without harming the environment through the use of less toxic chemicals and improved cleaning processes.

Implementing Group:

The Harvard Medical School Custodial Department was responsible for the transition and was assisted by The Harvard Green Campus Initiative, an environmental sustainability group utilized by Harvard University.

Facilities Description:

Harvard Medical School is a research and teaching facility located within Boston, MA. The campus is made up of 18 buildings comprised of approximately 2.5 million square feet. The Custodial Department is responsible for the daily cleaning of all buildings on campus.

Strategy:

The strategy was to make the switch to Green Seal Certified cleaning chemicals and improved cleaning processes three buildings at a time. In conjunction with the vendor, Eastern Bag and Paper, the Custodial Department set up a transition plan whereby the "non green" chemicals in the affected buildings were moved to other buildings and the Green Seal Certified chemicals and new dispensers were brought in. At the same time as this transition, the vendor set up an onsite training program from Johnson Products called The Healthy High Performance Cleaning Program for the custodians.

Project Time Frame:

The time frame for the complete transition to Green Seal Certified cleaning products was set for July 01, 2006 through December 31, 2006. The reasons for the six month time frame were twofold. First, there were simply too many custodians (125 workers) to train all at once. The fear was that the quality of the training would suffer with too large of a group. The second reason was the quantity of non certified stock on hand; the inventory needed to be drawn down.

Vendor Choice:

In order for the program to succeed, both the right choice of chemicals and the support of the supply vendor was necessary. In the Medical School's case the vendor was coming up to the end of a multiyear contract and was willing to work with the Medical School to maintain the business. Eastern Bag and Paper had a line of Green Seal Certified cleaning products from Johnson Wax, as well the training programs and personnel to assist in the transition. These advantages meant that the Medical School did not have to spend the time or money to set up the new program. There were no cost savings incurred with the switch to the green cleaning chemicals. Note: Within the last six months the Medical School put all of the custodial supplies and paper products, valued at \$400K, out to bid among six vendors and the existing vendor came in with the best overall pricing package.

Logistics:

Training: Utilizing the new chemicals required training of the custodial staff. This was done just prior to the Green Seal Certified chemicals being installed in the buildings. It was necessary for the custodians to understand why and how the new chemicals would be used. Eastern Bag and Paper utilized an onsite, hands on training program and supplied backup support. Custodians in the affected buildings were first brought in for a quick class room training session and then brought to work stations and custodial closets for hands on training.

Compensating for the language barrier:

Interpreters were used to help train the custodians.

New stock set up for buildings:

Supervisors and crew chiefs stocked the affected buildings with the new Green Seal Certified cleaning products.

Dispensing equipment setup:

New portion control chemical dispensers were installed in the custodial closets throughout the campus. Eastern Bag and Paper took back the old dispensers and installed the new dispensers at no cost to Harvard Medical School. There was no need to change any of the existing cleaning tools.

Rotation of the non Green Seal Certified cleaning chemical stock:

The non green cleaning chemical stock was rotated to the unaffected buildings with an established draw down phasing plan.

Inventory reorder/credits:

As part of the ongoing program, the Custodial Department would track usage of the new chemicals focusing on changes in the usage and cost changes.

Tenant notification:

As part of the transition, tenants were made aware of what the Medical School was doing. This was accomplished by use of various campus newsletters. The Harvard Green Campus Initiative included information in their quarterly Green Campus Report and The Green Tip of the Month newsletter. A notice entitled "Green Cleaning at HMS" was sent out by Human Resources to the tenants notifying them of the switch to green cleaning products. The acceptance and feedback from the tenants was very positive. Throughout the transition, the day to day impact to the tenants was negligible. Everyone understood the positive health and environmental impacts of the new program. Note: There was total buy in for this effort from all levels of management. Everyone had a positive attitude.

Cleaning Impact to the Buildings During the Transition:

In the transition period there were no cleaning disruptions to the buildings.

Cost Impact:

The overall cost impact of changing our chemical cleaning purchase program and going to a more efficient chemical purchase program utilizing Green Seal Certified cleaning products works out to an \$11,700 a year cost savings. The actual cost savings are not due to the switch over to Green Seal cleaning products per se, but are more attributable to a consolidation of the types of chemicals we now use. We now do the same or more with fewer products.

Prior to the Medical School's initiative to go to Green Seal Certified cleaning chemicals, \$29,700 was spent a year spread out over twenty-five different cleaning chemicals. By switching over to Green Seal Certified cleaning products the Custodial Department now spends \$18,000 a year, spread out over seven cleaning chemicals.

Lessons Learned:

Nothing remarkable came about with the switch to the Green Seal Certified chemicals. The new Green Seal Certified cleaning chemicals do not appear to do a better job. Cleaning efficiencies and the quality of cleaning did not improve with the use of the new chemicals. These are results that come with proper custodial training, supervision and work ethic of the custodians.

Making the switch three buildings at a time was effective as was training the custodians in smaller groups. The custodians had an appreciation of Harvard Medical School's commitment to go to Green Seal Certified chemicals since they face the most exposure to the cleaning chemicals.

Post Green Cleaning Observations:

The Custodial Department took the opportunity to decrease the amount of cleaning chemicals used on the campus. They went from six different types of non green seal chemicals to three types of Green Seal Certified cleaning chemicals and one LEEDs certified cleaning chemical. Quality of Green Seal Certified chemical strippers and waxes were found to be lacking in durability. As a result, the Custodial Department reverted back to non green seal strippers and wax for now. The company that supplies these products, Durawax, is planning on coming out with a new line of Green Seal Certified strippers and sealers in the near future.

Related Green Initiatives:

In mid 2007, Harvard Medical School made the switch to 100% recycled toilet tissue and paper towels. Also in 2007 the Medical School installed hand sanitizing stations throughout the campus

Green Seal Certified Cleaning Product Descriptions:

The following is the list of the Green (Green Seal Certified) cleaning chemicals utilized on the Harvard Medical School campus. This line of products is supplied by Johnson Wax through their Johnson Diversity line. All chemicals are LEEDS certified.

- Virex 256: disinfectant cleaner (although LEEDS certified it is not a Green Seal Certified cleaning product)
- Crew Bathroom Cleaner
- Glance: non ammoniated glass and multipurpose cleaner
- Stride: general purpose neutral cleaner
- Alpha HP: multipurpose cleaner
- Foam Shampoo: used in conjunction with a rotary scrubber for carpets
- Freedom Stripper: stripping of floor wax

Costs to Switchover to Green Cleaning: Labor:

Training time needed to teach custodians the new system: 1 hour per worker.

Labor cost per hour per custodian: \$16.00/hour.

Total custodians affected:

125 full/part time workers (83 in-house custodians,42 contract cleaners).

Downtime lost:

Ttotal 187.5 hours (1 hour training + $\frac{1}{2}$ hour travel time to and from training site).

Buildings affected: 18.

Total switchover costs:

\$3,000 (187.5 hours * \$16.00 labor rate/hour).

The Training Rationale:

The training was set up to allow the custodians enough time at the beginning of their shift to clean the primary areas of the buildings (bathrooms, kitchen areas, and common areas). They were then sent to the training site (usually in close proximity to their work area). Once training was complete the workers returned to their assignments and finished out their shifts.

Harvard Medical School maintains three shifts of cleaning for the buildings. Based on a full three shift cleaning program (6:00 AM to 2:30 PM, 2:30 PM to 10:00 PM and 10:00 PM to 6:30 AM) the instructor was brought in two hours into each shift to train the workers. Part time cleaners did not return to their assignments after training. For the one day of training there was an abbreviated level of cleaning. Supervisors walked the buildings to check the level of cleaning and address any immediate concerns. For the one day very little backfilling was required.

Follow-up training:

As required, union crew chiefs and supervisory level management spot checked the workers and provided follow up training as required.



Note: Building occupants were informed of what to expect from the custodians due to the one day of training.

Green Chemical Cost Calculator:

The use of cleaning chemical dispensed from a dilution controlled dispenser, whether wall mounted or portable, has proven to be a cost effective means of providing cleaning chemicals. As a rough measure of comparison a quart of glass cleaner from a dilution controlled dispenser is \$ 00.25/quart vs. \$1.50 per quart for ready mixed window cleaner.

The following is a guide the Medical School used to figure out the cost per gallon/quart for four of the seven cleaning chemicals used on campus. As can be seen below dilution control dispensing is quite cost effective. Robert Christiano Associate Director, Campus Operations Harvard Medical School Robert christiano@hms.harvard.edu

Product Stride GP Cleaner	Yield 339.46 gal.	Cost/Gallon \$0.11	Cost/Quart \$0.03	
Virex II 256 Cleaner	339.46 gal.	\$0.09	\$0.02	
Crew Bathroom Cleaner	15.06 gal	\$3.44	\$0.86	
Glance Glass/Surface Cleaner	32.49 gal.	\$0.92	\$0.23	



🔀 CASE STUDY 12 – VIVE VERDE

Vive Verde

Lake Worth, Florida

Contact: co-owner Nancy Romano

Background:

Vive Verde is a LEED certified new construction development that was begun just over two years ago; the first phase is now almost complete. EcoCentre, the building's developer, is seeking LEED gold certification in the building and aims to be environmentally friendly building in every aspect. The four-story office building has retail offices on the first floor and an attached parking garage. It is considered a "living building" and is designed to affect the environment in the most positive way possible, unlike many buildings that aim solely not to harm the environment.

EcoCentre began in the planning stages by ensuring that every decision would reduce Vive Verde's carbon footprint and remain eco-friendly from top to bottom in every feature. From the recycling of water and reuse of gray water to hydrate plants to exterminating bugs and other creatures soundly, each option was weighed carefully.

In doing so, Vive Verde's design included a "living machine" designed to filter all gray, non-potable water in the development. It was important to keep this water free of pesticides or other harmful chemicals.

Current Initiatives:

With just a few weeks until its grand opening, Vive Verde hasn't begun to use any vendors. They have, however, planned extensively for the greening of their building from day to day. This required EcoCentre to research extensively the products and processes potential vendors might use. The first decision was to find a janitorial company that could clean the building in an environmentally friendly way, without using harsh chemicals or anything considered toxic to the ozone, animals or plants. It was important to management that different microfibers would be used for each specific surface (glass, walking surfaces, countertops) so there is no cross-contamination. Doing so also maintains the chemical integrity of each material and maintains the LEED credits for what EcoCentre has invested in the building

All of the cleaners used in Vive Verde will be from concentrate, which reduces packaging, and both Green Seal certified and registered with the USGBC. Management knows that it may cost a bit more in the long run to care about the environment by purchasing these products, but it's worth the investment to protect the people and wildlife in Vive Verde's building.

Looking for a LEED appropriate janitorial service was difficult. Vive Verde received proposals from "green cleaning companies" who claimed to use green product but could not substantiate their proposals. Vive Verde declined to work with them.

The development's water system is very sensitive because it is recycled. The "living machine" is a series of plants and special mica that purify the water, reused to irrigate our exterior and interior plans and fill toilets. The system cannot tolerate any kind of harmful chemicals or agents that would harm the delicate technology.

Knowing all of this, Vive Verde has contracted with Tim Wilson's Image Companies, based in Lake Park, Florida. As one of his main projects, Mr. Wilson assures the management that the building's cleaning process will be totally green in every aspect.

The janitorial service will send his proposal and records to Vive Verde's architect, who will in turn



submit it to the USGBC for LEED certification points. The documents will detail the amount of product used in every visit, why and a detailed checks and balances system maintained.

More than a "greening" initiative, the desire to be sustainable is a part of Vive Verde's culture. All of these decisions are integral to keeping the building alive and continuing the symbiotic relationships between the building's plants and the human tenants.

To keep the building's tenants informed of the sustainable initiatives in place, the building will have a "Green Screen" touch screen on all four floor so that tenants, tourists, visitors and employees at any time can get reports on every facet of Vive Verde's operations. Every tenant has to partake of the same initiatives, so management wants them to rest easy know that they are not breathing harmful chemicals or pesticides. If anyone wants to know more about the cleaning process, the thought behind any particular building material or the water filtration system, the "Green Screen" will be of use to them. Everyone will have access to it.

Other aspects of Vive Verde that encompass its desire to remain green:

• Vive Verde has all-natural light coming in; it was designed so that every floor is filled with windows. The angle of the building was chosen specifically to maximize the outdoor light.

- Every employee's workspace will have a view of the exterior and the four-story atrium with plants, waterfall, living machine and fish in the ground-level pond.
- Counter tops are made from recycled crushed bottle glass. These countertops are nearly indestructible and will hold up well with chemical-free cleaning.
- Carpet tiles are made of recycled plastic.
 These can be easily replaced or cleaned with a dry system to extend the life of the carpet.
- Floors are tiled with Brazilian slate, which are maintained to respect the delicate nature of the slate. An impregnator will seal the floors to protect from any contaminants (even a soft drink, with chemicals that could stain) people may bring in.

The Future:

The second phase of Vive Verde is scheduled to begin construction within the next year. This additional building will include both solar and wind power, to provide energy for both of Vive Verde's buildings. Between the two, the development will be almost independent of city water and energy.



CASE STUDY 13 – GREEN CLEANING MASSACHUSETTS STATE OFFICE BUILDINGS

The Commonwealth of Massachusetts has been promoting the purchase of environmentally preferable products (EPPs) for many years. In 1994, the state's central purchasing office, Operational Services Division, established a special program charged with reducing the environmental and public health impact of state government and fostering markets for EPPs. While the initial focus of the program was on products made with recycled content, it gradually expanded its scope to address multiple environmental attributes, such as energy efficiency, toxics reduction, water conservation and waste reduction.

In 2002, the EPP Program, working in collaboration with purchasers from close to ten other green purchasing programs across the country, developed a set of specifications for green cleaning products. Members of the working group, coordinated by the Center for a New American Dream, included the City of Santa Monica, California; King County, Washington; Pacific Northwest National Laboratory and others. The specifications were based on the Green Seal standard for General-Purpose, Bathroom, Glass, and Carpet Cleaners Used for Industrial & Institutional Purposes (GS-37). Massachusetts was the first state to go to bid and award a contract based on these specifications, and its example was followed by many states, counties, cities and towns across the nation.

A year after the issuance of the contract, the Massachusetts EPP Program approached the Massachusetts Bureau of State Office Buildings (BSB), the Commonwealth agency responsible for managing the four primary state-owned buildings in Boston, to pilot the use of green cleaning products. As is common for many large office buildings, BSB administers such operations through a general cleaning contractor, in this case UGL Unicco. This relationship had been in place for several years, and conventional cleaners had always been used.

In order to obtain buy-in from both the agency and the contractor, the EPP Program brought all parties to the table to discuss the reasons for the pilot as well as the potential benefits that could be gained. They explained the process for issuing the state contract, provided pricing information that compared the cost of these products to those currently being used and discussed the performance measures in place for both the new products and the suppliers. As a result of the initial meeting, both organizations expressed their interest in giving green cleaners a try provided the products worked as well as the currently used chemicals and were cost-competitive.

With BSB's approval, UGL Unicco piloted four Rochester Midland cleaning products (general purpose, glass and bathroom cleaners and a neutral disinfectant) in the State House, which houses the state legislature, the Governor's Office and also serves as a museum. After several weeks of use, the results of the pilot were impressive enough to make the decision to introduce the new cleaners in a second building. The second site selected for the pilot was the twenty-one-story McCormack Building, which is the building in which the EPP Program is located. By the start of the following fiscal year, the custodial staff in the other two state-owned buildings (Lindemann and Hurley) had made the switch to green as well. As the buildings were coming on board, Rochester Midland was conducting product use and safety trainings for UGL Unicco supervisors and foremen to ensure that all staff understood the new products and any changes in practices.

Since that time, BSB has made a commitment to using only green cleaning products in these buildings for the cleaning of restrooms and other general cleaning applications. In 2006, the agency invited UGL Unicco to pilot yet another product aimed at making the cleaning operation even more environmentally friendly. The new technology, known as the ElectroCide System, uses an onsite electrolysis system to convert tap water and salt into two cleaning solutions that replace regular cleaning chemicals.

The first chemical the system produces is a solution of hypochlorous acid which has been proven to be 80% more powerful as a disinfectant at 50 ppm than chlorine bleach at 200 ppm, and yet it is harmless to the environment and people. The second chemical the system produces is a solution of sodium hydroxide that can be used as an effective detergent and grease cutter. The incentive to investigate this technology was the potential to eliminate the purchase, transportation and use and disposal of any other cleaning chemicals and packaging.

To implement the pilot, BSB installed the equipment in a janitor's closet on the 12th floor of the McCormack Building. The UGL Unicco staff used the process for close to six months and, for the most part, were very happy with the performance of the product. It was used on glass, porcelain fixtures, mirrors and for general cleaning purposes. According to cleaning staff, the product performed well, although it did not "shine" the aging porcelain sinks like the Rochester Midland bathroom cleaner, or the prior traditional product containing bleach. To address this, the strength of the acidic solution was boosted to provide a higher concentration. At first this caused a skin rash for some of the staff; but when the solution level was readjusted, the rashes disappeared and the sinks retained a better appearance.

Unfortunately, three other issues unrelated to product performance caused BSB to suspend the use of the ElectroCide System at the close of the pilot. One was the up-front cost of several thousand dollars to permanently install the system, but a second was a more damaging leaking incident. One evening, after several months of successful use, the equipment experienced a leak and flooded the area where it was installed. While it is not clear what caused the leak, BSB was grateful that it was discovered the next morning before any real damage to other areas was incurred. However, the incident created a concern regarding the potential for similar incidents in the future and the damage it may cause.

Finally, there was the inconvenience factor: in order to refill buckets with the electrolyzed water, the UGL Unicco staff had to repeatedly make visits to the 12th floor when the equipment was housed and carry their buckets back to the floor on which they were they were working. While it was determined that a cart system could be employed to assist this process, at this point it was viewed as an inconvenience and barrier to be overcome.

Although BSB and UGL Unicco were happy with the Rochester Midland products during the period of their use, last year, UGL Unicco as a corporation made a decision to begin using a range of products manufactured by Johnson Diversey, which has also achieved the Green Seal Certification. The products include Crew Bathroom Cleaner, Glance Glass and Surface Cleaner and Stride General Purpose Cleaner. According to Jose Bueso, Contract Manager in Massachusetts for UGL Unicco, the company is now committed to using a range of green cleaning products due to the fact that their performance is equal to the more toxic, bleach-based traditional products, while reducing or eliminating the health hazards for their custodial personnel. He also expresses an interest to work with the EPP Program this fall to continue to pilot cleaning products meeting the Green Seal or EcoLogo certifications for applications such as carpet cleaners and floor care systems.

The success of the BSB / UGL Unicco pilot project in Massachusetts provided the much needed credibility to jump start the switch to green cleaning products among agencies, municipal departments and schools throughout the Commonwealth. Prior to the project the state was purchasing just over \$300,000 in green cleaners and related products. In Fiscal Year 2007, this number has doubled and the suppliers on contract are noticing a much greater willingness among purchasers to embrace the change.

Since the issuance of the contract in 2003, the green cleaning market experienced unprecedented growth: from just a handful of products from one manufacturer at the time the contract was published to hundreds of products from dozens of manufacturers. The EPP Program believes that the increase in the purchase of green cleaning products may be even more significant in the future, when the current contract is replaced with a new one that enables vendors to offer a wider range of products. To make these products available to public entities across the Commonwealth, Massachusetts plans to issue a new contract bid in the early part of 2009.



CASE STUDY 14 – NICHOLS' COMMUNICATION PLAN

Communication Strategies - Important To a Green Cleaning Program

Implementing a comprehensive Green Cleaning program requires effective communication skills, tools and a strategy. This case study will look at several communication strategies that have been successfully implemented including:

- Forming a green team
- News stories, newsletters and press releases
- Communication tools such as posters, table tents, tenant guidelines
- Training and educational tools

A green team can be such an asset to goal achievement when implementing any of your green strategies. Cascade Engineering is a leader in engineered plastic systems and components, providing innovative expertise and intelligent solutions for the automotive, solid waste and industrial markets. Widely recognized for commitment to sustainability, innovation in material development, engineering and manufacturing, in addition to its management practices, The Cascade Engineering Family of Companies employs approximately 1,000 people – approximately 600 in the Grand Rapids, Michigan area.

Cascade's corporate headquarters has been designed and renovated to meet the standards of LEED-EB (Leadership in Energy and Environmental Design for Existing Buildings) and obtained LEED-EB Platinum in 2007, the first in Michigan.

Early on in this pursuit Marie Zeman, Facilities Project Manager along with the help of Nichols, the supplier of custodial supplies, formed a facilities green team. Invited to this team were all outsourced services such as their building service contractor, foodservice, landscaping, electrical, pest management, and their waste hauler. At first meetings were held monthly to keep the process on track. "Cascade's goals and expectations were shared upfront", says Zeman. She added, "I do believe this was very helpful when it came time to work on documenting our processes for LEED." "Setting the expectations early and encouraging our suppliers to start the research and learning on their own if they had not already been exposed to these type of requirements shortened the process," says Zeman.

Other benefits of meeting periodically as a team were realized also. These people typically do not interface with each other but yet everything they do within a facility affects others. What foodservice does affects custodial and possibly pest management; what landscaping can affect custodial. "Bringing their issues to the table for all to work through and make suggestions made my life much easier and I was able to push some of that burden to my suppliers, making them more valuable to Cascade," says Zeman. "So it was a in-win for all of us," she added. Two examples that came out of the green team meetings were:

- The landscaping company was not consistently sweeping off the main walkway to the front door causing soils to be tracked into the building. Just creating the awareness corrected the situation.
- The building service contractor identified areas in the building where there were consistent problems with carpet stains. Again, creating that awareness, educating people on why it was important to report spills immediately and even providing a simple cleanup kit reduced the problem.

The green team now meets once a quarter, to make sure everything is running smoothly and to explore what else can be accomplished. Cascade is now working on zero waste strategies throughout all of their manufacturing facilities. On September 6, 2007 a news article appeared in the Petoskey News Review announcing "Petoskey Schools Going to Green Cleaning." Petoskey Public Schools is located in northern Michigan, has eight buildings of which six are schools for a total of 600,000 square feet, a facilities staff of 20 including custodians, a groundskeeper, maintenance and Youngedyke as the manager. With the assistance of Nichols, their supplier of custodial supplies, a press release was written and submitted to the local media. Denny YoungDyke states, "receiving that positive media attention really elevated the respect of our custodial team not only to the school district but to the entire community." YoungeDyke added, "not only did our local newspaper print a story, a local television channel picked up on it also and did a spot in the local news broadcast about our efforts." The schools' green efforts were initiated by the Facilities Department and started with a pilot green cleaning program in one of the elementary schools. Soon the other custodians were asking to implement the program at their school. The Facilities Department also initiated a recycling program and has reduced their amount of waste by one third which led to a reduction in tipping fees with their waste hauler. Youngedyke has written a waste reduction plan for the upcoming school year, presented it to their school board, gained approval and met with the Student Council to launch the program that will start this fall. The students will champion the lunchroom waste reduction challenges.

A similar situation occurred with Sault Ste Marie Schools which is located at the northeastern tip of Michigan's Upper Peninsula. On December 27, 2007 an article appeared in the Sault Sunday News promoting that "Sault Area Schools Gone Green." "The ultimate goal of implementing a green cleaning program was for the students," says Larry Perron, Facilities and Transportation Director. "We wanted to be recognized for the good things we were implementing as a school district, not just for our department," he adds. "We formed what we called our Stewardship Team and invited teachers, students, parents, staff and our suppliers to make sure all stakeholders had a voice in the success of this program," Perron stated.

Waters Corporation is a premier developer and manager of high quality office properties with 535,000 square feet in Grand Rapids, Michigan. Waters has earned its reputation through fair dealing and intensive property management that have combined to give them the highest tenant retention rate of any office building owner in the Grand Rapids region. One of their most recent strategies was to implement Green Cleaning to create a healthier and more productive work environment for their tenants. "Grand Rapids is a leader in promoting green practices when it comes to buildings whether they are pursuing LEED or not," says Lynette Becksvoort, Director of Tenant Services. "Waters Corporation was an early adopter of implementing green cleaning and we required that our building service contractor and any contractors doing special projects on any of our buildings to use green practices," she added. "We got some resistance but after educating them on the benefits not only to our organization and tenants, but their staff, that resistance went away," Becksvoort said. "After implementing Green Cleaning, our supplier, Nichols, provided us with tools such as posters, table tent cards, helped us write an article for our tenant newsletter, and provided us with a "Greening Your Space, a Tenants Guide to Greening Workspace and Lowering Operating Costs," Becksvoort added. Communicating what Waters was doing helped engage their tenants to also green their own leased areas. Recycling efforts have increased since the communication. Becksvoort also added, "communication of our goals, forming our green team, where we also included our tenants, and then following up with other communication reinforced that we are serious about changing the culture in our buildings."

Calvin is a Christian, liberal arts college with 4200 students located in Grand Rapids, Michigan. Fifty two percent of its students are from Michigan and 48% are from out of state or other countries. Green Cleaning was on the radar screen prior to their Bunker Interpretive Center being built, which received LEED Gold in 2005. The Bunker Interpretive Center, at the Calvin College Ecosystem Preserve provides approximately 5,000 square feet of space which serves as a home base for formal programs, a study center for the college community, and an educational resource for visitors to the preserve. One purpose of the new facility was to help visitors understand their role in the world as stewards of creation. Toward that end, it was decided early in the design of the new building that it should express responsible stewardship in both its construction and its operation.

Ada Castle, Director of Building Services, understood the importance of doing the right thing for their college community. She also understood that the success of a green cleaning program would take engaging her staff in the process, educating and training them properly. Not only did she engage her staff in the process which also consists of students hired by the college to be part of the custodial staff, the program was also extended to engage all students housed in the college's dormitories. Green cleaning chemicals were made available to the students encouraging them to use in their dorm rooms and return for refills. Recycling containers were made available at each dormitory to make it easy for students to recycle. Castle stated, "being good stewards of our environment is in our mission at Calvin, it was only natural to communicate this goal for our housekeeping department and invite them to participate." "It was well received and we continue to make more improvements to our program," she added. There is a section in the Residence Hall Living booklet on Waste and Recycling to this effect.

Execution of a few good communication strategies can make a huge difference in the success of a green cleaning program. Engaging others, such as suppliers, green team members, staff, and in an educational setting, students and teachers, will help identify the passionate people that will want to help move a program forward.

Nichols is a Michigan based distributor of custodial and packaging supplies. We formalized our Green and Clean program for our customers in 2004 and have been assisting organizations in the following market segments to implement a comprehensive green cleaning program: health-care, education (higher education and K-12), manufacturers, lodging and government facilities.

Submitted By:

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CASE STUDY 15 – GREEN CLEANING – CAN YOU AFFORD NOT TO?

By Beth Bittenbender President, Elliott Affiliates, Ltd.

Can every organization afford to implement green cleaning? If it's just green chemicals, equipment, or a recycling program, maybe not. However, green cleaning goes far beyond green chemicals and recycled products. The goal is maximizing operational efficiency while minimizing environmental impacts. Chemicals, equipment, and recycling are just the tip of the iceberg. Maximizing operational efficiency is the massive part of that iceberg that most organizations don't tackle, since they don't recognize the need, so they miss the largest benefits of green cleaning. The question then becomes: can organizations afford NOT to go green?

To increase operational effectiveness, organizations must measure. Data gives structure to every improvement effort, and without accurate historical data, management decisions are based on intuition. Cleaning is a science, and it must be treated as such. The scientific method - come up with a hypothesis, test it, and then measure the effect of the change - is rarely if ever used when it comes to cleaning. Why? Because cleaning is hard to measure, especially from the perspective of the cleaning provider.

More and more, facility owners and managers are measuring maintenance, operations, and improvements to their buildings on a consistent scale. Cleanliness also needs to be defined from the customer's point of view, measuring results of the cleaning program, not the efforts. That's the only way to know whether green initiatives have any effect on operations – good or bad. Purchasing "green" vacuums isn't the only thing that makes an organization green. Making sure the vacuums are actually being used, being used properly, and keeping buildings as clean or cleaner than before is being green.

Often, an organization implements a new policy or procedure (green or not) and then moves on without understanding the effect of the change. There is a cost to those changes, so understanding the impact is necessary when deciding what to keep because it makes your operation more effective, and what to discard when it doesn't.

Lehigh University, located in Bethlehem, PA, is a facility that has used a formalized program for focusing on the operational effectiveness of their cleaning systems for 15 years. It does what all green cleaning programs must - process improvement by concentrating on preventing those problems most important to customers. It's only recently been considered an element of 'green cleaning", but to Lehigh it's become an integral part of the janitorial services culture.

Gary Falasca, Director of Facilities, arrived at the University in 1988. His responsibilities included managing cleaning contracts for more than 100 buildings. When asked "How are they doing?", the answer generally was "Well, we don't get a lot of complaints, and the buildings look OK, so I guess we're doing OK." That was no way to manage a multi-million dollar effort, so he and his team looked for a way to inspect and hold accountable their contracted workforce.

In May 1991, a baseline inspection of the campus was conducted with Elliott Affiliates, a pioneer in performance-based management. The concept was simple but unique - assess each room without judgment, like a camera would, to collect all relevant information on the results of the cleaning operation. Careful data interpretation occurred after, not during, the audit. The acceptable target range for cleanliness was 70-75% out of a possible 100% - and the University scored 59.5%.

That baseline score was the impetus for all that followed. 10.5% below target doesn't seem like

much, but it wasn't where the University wanted to be. "A goal of our facilities department is to make occupants happy and preserve assets" says Falasca. "We needed to know where our effort was best spent to get the most value for our dollar."

Elliott Affiliates helped Lehigh develop a performance-based contract and secure betterthan market pricing with a qualified contractor. Then the real work began – improving the cleaning systems. A team of managers from Lehigh facilities, the vendor, and Elliott met to discuss the monthly audit report, set priorities and develop action plans. The first goal of the process was to achieve consistency. Where are services being executed well, why and how? That's best practice, and it needs to be implemented everywhere. Once consistency is achieved, the contractor can try new methods, chemicals, and processes, knowing that the measurement system will tell them if it worked.

The performance based contract began in July 1992 and cleanliness scores began moving toward target ranges, and the team and customers noticed changes. A survey conducted as part of the inspection showed customer satisfaction improved by 14% in the first contract year.

One key component is an incentive/deduct program. "It makes contractors work to be as efficient as possible" Gary maintains. "We've ratcheted up the targets over time without significantly raising cost. Couple that with the incentive program, and you can make significant improvements". Since they can't raise the price, the only way a contractor can improve their performance to reach higher targets is to become better at what they're doing. Getting creative with the incentive/deduct program has allowed the University to continually raise expectations, and focus on priority areas that otherwise might get overlooked.

Obviously, there's a cost associated with all of this measurement – is it justifiable? Instead of looking

at it in that way, Lehigh asks "Does the benefit outweigh the cost?" Definitely.

"At one point, the University needed to cut budgets, and one of the largest we have is janitorial" Gary recalls. The goal was \$300,000, about 7 FTEs. "Because we had historical scores by building, we knew the buildings that were consistently overachieving. We could feel comfortable cutting staff there, knowing that performance will fall, but will still be at required levels. That ensures that the decision isn't intuitive or subjective, it's objective". Happily, the scores did not drop significantly. "Most of the campus probably didn't even know the cut happened in terms of cleanliness" says Falasca.

Scores have continued to climb as the vendors operated more efficiently. Falasca considers the system "a management tool that allows us to have a say over how the contractor is performing, and how to improve it. Monthly, it's a good snapshot of conditions, but the value is really getting the data over a long period of time." Further, expectations are clearly understood by all so that if there is a complaint, "the first thing we look at is the reports". When the custodian follows up, they can explain the standards, and explore what the customer expects that's different.

By maintaining a focus on operational effectiveness, with each new cleaning contract Lehigh's scores have increased or stayed the same, while costs have decreased. In 2006, the janitorial contract for the main campus was re-bid. It included the same janitorial services as the previous contract, with union staff, for approximately 3,064,190 square feet. Prior to the re-bid the janitorial cost was ~\$5.15 million annually, or \$1.68 per square foot.

Each bid was reviewed for best practice cleaning processes, equipment, and supplies. The winning bidder, ABM/OneSource, was awarded a 3-year contract for ~\$4.8 million per year, a 7.11% annual reduction, reducing cost per square foot to \$1.56.

The impact of the system was even more dramatic

with the fraternity houses. The 1996 audit included 27 houses, which were cleaned by house occupants. The cleanliness score was 25%. At that level, improving the cleaning process wasn't an option, it was crucial.

The University tested a variety of strategies to see which achieved the desired effect at the best price. Occupants no longer clean the buildings, and two contractors compete to see which can be most effective. The level of cleanliness achieved has far exceeded most expectations, with scores consistently above 70%. As of May 2008, a new cleaning contract went into effect mandating green chemicals, supplies and equipment.

OneSource has made many changes in the last few months, and everyone will be looking closely at Augusts' report to see what the impacts are. For example, they've purchased recycled mops, made of plastic bottles, with bamboo handles, which are lighter and more environmentally friendly than traditional wood handles. "If we implement a change, you can usually see the effect within the next one or two inspections. We'll look to see whether streaks are a problem" says Pedro Ortiz, OneSource's General Manager at Lehigh. "If so, we may need to adjust dilution ratios, take a look at training issues, that sort of thing." Jim Hantz, Project Manager for OneSource, has worked at the University since 1979. "It's an ongoing process that requires flexibility. It keeps you on track."

Preventing the customer's problem – that's the core concept behind operational efficiency. Green cleaning is the ultimate expression of that principle, since customers are driving the movement, demanding healthier, more environmentally friendly workplaces. Compared to everything they've already done, getting greener should be a natural transition for the facilities team at Lehigh. Investing in developing the best management system over the years means they're now actually ahead of the green cleaning curve.



🔀 CASE STUDY 16 – CRP ABILITYONE

A nonprofit cleaning agency in the AbilityOne Program

The evolution from traditional business practices to environmentally preferable—or "green"—products and processes is growing. The federal government and an increasing number of companies in the United States now view environmental responsibility as part of their corporate strategy and critical to their future competitiveness.

In the Washington, D.C. area a large, cleaning nonprofit agency, in 2002, began a process of changing from conventional cleaning over to green cleaning. This cleaning agency was a nonprofit organization working through the federal government's AbilityOne Program, the largest source of employment for people who are blind or have other severe disabilities in the United States.

The following story outlines the experiences and lessons learned by this nonprofit agency that now successfully manages more than two dozen green janitorial service contracts with government agencies throughout the Washington, D.C. metropolitan area, Maryland, Delaware, Northern Virginia, Pennsylvania and New Jersey, while at the same time providing jobs for hundreds of people with severe disabilities.

Until 2002 the cleaning agency provided traditional janitorial cleaning services. When the first discussions of "going green" began, the Director of Operations said, "Our sinks and toilets are clean, all our products have been approved. Everything is fine, so why should we change? Green cleaning is just some sort of environmental extremism!"

Making the Switch

In August 2001, the agency was invited to present a janitorial services proposal to the Department of the Interior (DOI). Since DOI was "green" compliant, actually having developed a comprehensive Green Cleaning contract that specified requirements for environmentally preferable supplies, equipment, paper towels, cleaning materials, cleaning processes, etc., the cleaning agency that would receive that contract would have to be compliant with all the terms of the contract from day one.

After the agency's first proposal was completely rejected, it went back to the drawing board and learn all it could about what green cleaning entailed. This learning process was done through the cooperation and involvement of DOI's building managers, the agency's distributor, the manufacturers of the green cleaning products and supplies and an outside consultant provided by the AbilityOne Program.

They nonprofit agency learned that switching over to green cleaning involved much more than using new chemical products. All cleaning tools were analyzed to evaluate whether or not they are environmentally preferable. For example, maid carts ideally should be composed of recycled plastics, mop buckets, wringers, trash liners and other items also should be made from recycled materials. Conventional wiper clothes and mops could be replaced by micro-fiber products. The agency re-submitted its proposal and won the contract at DOI.

With the DOI green contract successfully implemented the agency decided to turn all the rest of their janitorial operations green.

The agency faced two major hurdles in making the switch to agency-wide green janitorial services. First, they had to convince onsite managers and front-line employees that the new system would meet performance requirements. Next, the organization had to be certain contracts would stay within budget.

The first hurdle was accomplished by having its supplier demonstrate products to managers and onsite cleaning staff. By doing so, the supplier and the building manager could address any special cleaning issues specific to the building.

To everyone's surprise, meeting budgetary constraints turned out to be a relatively easy task. Using environmentally preferable cleaning products was actually no more expensive—and in some cases, less expensive—than the products previously used .Also, the organization kept costs down during the transition by phasing in the new products and returning some of the old products back to distributors.

Benefits

The agency is now all green and proudly highlights its program and the advantages to green cleaning. "It has been very satisfying to see the initiative come to fruition," the Director of Operations said. "It's the right thing to do and it works. The floors shine and the fixtures look beautiful. It's a partnership. Our employees and building occupants realize more attention than ever is being paid to their health."

The Director of Operations now proudly says, "We decided we wanted to be leaders and not followers with this initiative and we are proud to make that happen."



CASE STUDY 17 – TROUTMAN SANDERS LLP

Yvette. Taylor, CFM

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Background

Troutman Sanders LLP is a law firm with offices situated globally, including a practice in Atlanta, GA. Its Atlanta office occupies 13 floors of downtown office space in the Bank of America Plaza. As part of the Plaza, Troutman Sanders shares facilities responsibility with owners Bentley Forbes and Cousins property management.

Troutman Sanders began an initiative this year to become more proactive in greening its offices. Though it is not yet an organized strategy, the organization is working in several different areas by recycling equipment and toners, changing to some environmentally friendly cleaning products, and investigating energy efficient lighting. Currently, they are investigating what process changes will have the most immediate impact: reducing paper use, employing Rent-a-Crate for moves and MilliCare's dry cleaning system for carpet. Their 2009 initiative is to be more specific and to determine the areas we want to hone in on.

Troutman is the largest tenant in Bank of America plaza, and as such wanted to take a leadership role on the environmental front. In conjunction with the building owners and property managers, Troutman felt this was an opportunity to kick off a sustainability initiative and set an example for the building.

Troutman's facility manager Yvette Taylor said, "We now believe it's not an obligation but a responsibility - we've got to care. We don't have definitive policies in place but we are moving in that direction." Even with a firm plan, Troutman has begun the process in small ways knowing it will lay the groundwork for future improvement.

Current Initiatives

Bentley Forbes Properties owns the Bank of America Plaza and Cousins property manages the property. Beginning in April 2008 the property instituted a building-wide recycling program; within one month, the building recycled 450 tons of paper, plastic and aluminum cans.

As an organization, Troutman has also instituted some of its own recycling programs. Putting recycling bins in kitchen areas, moving to recycled content copy paper and instituting a two sided copy policy and a toner recycling program have had an immediate impact on the firm. Results have been visible both financially and in the support of attorneys and staff.

By formalizing and measuring these programs, even in the most basic ways, Troutman can measure immediate results and forecast future savings. While the firm's desire to be a leader on the sustainability front is partially a cultural issue, measuring value is also critical.

By July 2008, Troutman Sanders began formalizing and measuring the following events and processes:

- Earth Hour participation in national program
- BOA Recycling participating in building program
- Computer Equipment Recycling
- Toner cartridge recycling/reimbursement
- Staples Green Vendor Fair
- Wooden coffee stirs
- RENTACRATE for office relocation
- MilliCare Carpet Cleaning green products and limited water usage
- RIPAX Paper Use from Unisource
- 36th floor old carpet recycling
- 36th floor -chairs and lateral file cabinets refurbished and reused
- Copper recycling from 36th floor



- 45th floor old carpet recycling
- Exit Signs replaced with LED signage
- Service Centers and Copy Center 2-sided copying
- Zip Car account opened
- Eco Wash at Allen Plaza recommended for staff usage

Even this small measurement process has yielded big results. Troutman is seeing reduction in the cost of paper purchase due to policy, the reduction in water uses based on MilliCare carpet maintenance and a reduction in disposal cost as a tradeoff recycling. Additionally, they use Williamson restoration to refurbish and refinish all of their many wood furniture pieces. Williamson uses water-based process so they can come in during the day without employees smelling any chemicals or being exposed to them.

Using vendors such as MilliCare and Williamson allows work to be done with employee-friendly products and processes that can be done even while employees are in the building. This process reduces overtime work for crews and enables earlier shutdown of the building, which saves overall energy usage.

The programs have also begun to engage employees. Facilities management at Troutman has seen a share increase in suggestions for additional programs that could be implemented in the future.

The Future

The 2008 initiatives are the ground work for future projects. 2009 will see formalized measurement, particularly on the energy efficiency front. Building management company, Cousins, is looking to go to energy-efficient lighting beginning first quarter of next year. One of Troutman's goals in 2009 is to begin the conversion process to 100% energy efficient lighting. While full conversion is not expected to be complete before 2010, the firm is taking steps to move themselves along. Facility Manager Taylor explains, "We make these small changes and as time goes on we anticipate that each step will be easy to build on year by year. Right now we're just jumping in to projects we know will show immediate results and that we can build upon."

Internally, the firm is seeing great support for the changes. Employees and the firm's partners are engaging and providing suggestions for further improvements. The other attorneys and staff members have been extremely participative and supportive. They ask questions, engage, and make suggestions.

But there are still hurdles to overcome, like control of processes.

Through their lease, Troutman is provided in-house cleaning services. And despite building wide initiative such as the recycling programs, other processes are more difficult to change. As example, air drying systems have not replaced paper towels in rest rooms and there are no water usage restriction devices in place. "We have a long way to go," said Taylor.

Troutman Sanders is excited to continue this venture; it is an ever-evolving process and their facility's leadership is very engaged. "I continue to learn more each day and am glad to have IFMA's help," said Taylor. "They give us so much material to read, substance and information that can help us."

Troutman Sanders is beginning their 2009 budget review and will critically evaluate what initiatives they will tackle for the next three years. Prioritization and measurement are the foremost issues on the facility manager's plate.

See attached Excel spreadsheet for current measurement processes.

Contact Debbie Michalak for any additional information debbie.michalak@millicare.com 706-880-5477



CASE STUDY 18 MCMASTER UNIVERSITY

GREEN CLEANING FOR HEALTH

Challenge

More than 50 percent of the facility services staff at McMaster University is older than the age of 50. On a campus with 19 health and safety committees, the facilities services department wanted to ensure it was doing all it could to ensure the safety of its workers. To help create the best work environment for its staff and reduce worker strain, the department looked for new ways to improve traditional cleaning processes, including implementing a green cleaning program.

Solution

McMaster University's green cleaning program was phased in over a two-year period. Before implementing a new product, cleaning staff were asked to test the new system to ensure buy-in.

The first phase of implementation was the introduction of ergonomic tools and equipment. The department invested in several new ergonomic tools such as cart systems, mops and other cleaning tools shaped to fit the motions associated with common tasks. These tools help reduce worker strain and eliminate pains associated with frequent motions and heavy lifting.

The next step was the implementation of microfiber cloths and flat mopping systems which helped reduce heavy lifting associated with traditional mopping systems.

Last October, McMaster announced its conversion to green cleaning chemicals. Through its

partnership with their key supplier, the University integrated a green cleaning program into its operations. Representatives from their supplier assisted in thoroughly training staff on the new products and system, which has substantially reduced the number and type of chemicals previously used. State of the art chemical dispensing systems were also introduced, which helped reduce heavy lifting. Several new standup floor machines have also been purchased.

In addition to green cleaning, many other measures are being introduced on campus to help reduce the impact of campus activity on the environment. This year, McMaster will develop a rain-water harvesting program by reutilizing a 400,000-gallon underground tank that was once a former storage tank for chilled water and used more than 40 years ago. The harvested rain water will be used to supplement the University's irrigation system, cooling towers and toilet water. A vertical-access windmill also supplies some energy to the campus.

Enhanced recycling programs have also been rolled out. Yard waste such as fallen branches and dead trees are put into a shredder and used as mulch in gardens and pathways.

Results

- 50 percent reduction in days lost to workers' compensation claims
- No complaints regarding exposure to chemicals
- Reduced total number of chemicals used in general cleaning applications from 35 to eight
- Currently have two LEED certified buildings on campus; awaiting a third certification
- A comprehensive energy reduction program resulting in \$1.5 million annual savings



GREEN SUCCESS STORY – MAINTEX

For over fifteen years Maintex, a Los Angeles based chemical manufacturer and cleaning supply distributor has been the primary supplier to Servicon, a large Southern California based contract cleaning organization. Maintex is a strong advocate and developer of Green Cleaning programs. They manufacture a full line of Green Seal certified chemicals and proudly distribute innovative cleaning equipment and supplies that reduce chemical consumption and product waste.

The two companies have collaborated to develop a complete green cleaning program. Green products, equipment and supplies from Maintex are utilized with healthy cleaning practices from teams of highly trained Servicon employees.

Servicon focuses their cleaning operations in aerospace, commercial, healthcare and industrial cleaning market segments. Their mission statement is reflective of their green cleaning goal. "It is not our intent to be the biggest company in the industry, but to strive to be a great company, one that invests wisely in its people, grows strategically, is highly regarded for its quality and has a positive impact on the workplace and outside environment." Green cleaning is the only way that Servicon performs their work.

Their website articulates their Green Cleaning commitment. "We centered our company goals around GREEN CLEANING and sustainable practices because we are passionate about being part of the solution. Our passion is not only for the environment, but for the health and wellness of the adults and children who come in contact with the chemicals and processes used during cleaning everyday. We are paving the way to make GREEN CLEANING a well known solution to indoor air quality, productivity in the work place, minimizing the negative effects on the environment and furthering a great cause."

Maintex was the perfect partner choice for Servicon. Their goal is to be the supplier of choice by offering innovative products, programs and services which create a cleaner, healthier environment. The two companies worked together to develop marketing and training materials which support the green cleaning initiative. Green cleaning is more than just products. It is about changing attitudes and behavior. It evolves only through a strong partnership between distribution and contract cleaning firms. Servicon relies heavily upon Maintex for training and on-going training to reinforce the values of their Green Cleaning Program.

The results have been added revenue for both organizations and reduced costs for Servicon. Potential new clients are seeking green cleaning for their facilities and they realize that they have an experienced dedicated green vendor in Servicon. They have recently been named by Inc. magazine and the 5000 index as one of the fastest growing businesses in 2007.

Work injury costs although always low have continued to decline. Continuous training coupled with constant reinforcement has delivered the desired results. Utilizing safe scrubbing equipment (NSFI certified), touch free chemical dilution systems with non-toxic and non-hazardous chemicals resulted in lower workplace injuries.

Client testimonials reflect the positive aspect of green cleaning. One satisfied client stated, "From a green consultative standpoint, Servicon has helped us review our own work processes and see where we can become more environmentally friendly which is very important to our organization. "

Another client stated the following: "Learning about the extensive green cleaning and initiatives Servicon implements was an added bonus when we were considering them as our janitorial contractor. Servicon has also been very proactive in maintaining quality cleaning and resolving issues as they may arise. Greening our buildings is very important to our ownership and our management. We are constantly required to seek new ways to make the property more energy efficient and 'green'. We wish all our vendors approached this initiative in the same manner as Servicon."

Everyone is a winner when an effective Green Cleaning program is implemented. Building occupants and visitors spend their time in a healthy, safe environment. Morale and worker health is positively impacted. Cleaning personnel work with safe products, reducing injuries and improving their health. The environment is positively impacted through waste reduction and utilization of sustainable products. The overall results are positive for everyone.



CASE STUDY 20 – METRO HEALTH / NICHOLS

Metro Health's Sustainable Strategies Improve Health and the Bottom Line

Written by: Renae Hesselink, Vice President of Sustainability, Nichols Paper and Supply, Supplier to Metro Health

Date: July 2008

Metro Health's beginnings date back to 1942. Located in the Greater Grand Rapids Michigan area, it was originally known as Grand Rapids Osteopathic Hospital. Growing from 28 beds to over 208, one name change and relocation already in its history, a 2005 name change to Metro Health was helping to prepare them for a second move to a new, advanced, state-of-the-art facility which opened in 2007. Metro Health evolved from a single hospital to a health care system including physician organizations, neighborhood outpatient centers, managed care services, a philanthropic foundation and more. The new Metro Health Hospital however remains its largest endeavor.

Metro's mission is to improve the health and well-being of their community. Values are deeply rooted in their commitment to the environment, the community, their organization and each other. They easily adopted healthy and progressive business practices to contribute to these values. So the decision to integrate green development strategies into their new hospital was easy.

Several of these green development strategies include:

- The pursuit of LEED (Leadership in Energy and Environmental Design) not only for the new hospital but for any building located in the Metro Health Village.
- Established a Recycling Program for a wide variety of products including computers, paper, I ight bulbs, cardboard, X-ray films, batteries, and corrugated materials.

- Eliminating the use of all medical equipment containing mercury
- Switching to reusable needle box containers which reduced their annual medical waste by 7.8 tons
- A full, comprehensive Green Cleaning program
- Lubricants and adhesives made from biobased materials
- Changing to compostable food service wear in their cafeteria
- Implementation of an Environmental Management System which identifies and eliminates the use of harmful chemicals.
- Implementation of a hospital-wide "Lean" program to decrease waste and redundancy.
- Private patient rooms, healing garden and park areas. A lot of natural light.
- Rain Gardens to help with storm water filtration as well as a 48,500 square foot green roof
- Energy Star appliances throughout

The transition to a Green Cleaning program took place before the move to the new hospital to ensure that the best green practices would already be part of the daily routine. The transition began in 2002 and Nichols Paper and Supply, a Muskegon, MI based distributor of custodial supplies, was chosen as a partner in this process. An analysis was conducted in 2007 by a group of sustainability students from Grand Valley State University. The results of this implementation and data have been gathered from interviews and primary data sources provided by Metro Health and Nichols. Specific measurable gains to Metro's bottom line have been achieved including:

- 21% decreased cost of cleaning from 2002 to 2007 in the old facility
- 23% cleaning cost avoidance in 2008 in the new, larger hospital
- 3% reduction in water usage annually

The analysis shows that the majority of this savings results from implementing a different floor

maintenance process that included new entry mats, eliminating dust mopping, switching to micro fiber mopping system and using more durable floor finishing products combined with more efficient equipment.

The new floor maintenance program was examined and highlights of those findings are:

- Economic impact: Comparing the cost of cleaning 100 rooms at Metro, it was estimated an 8% savings using microfiber mops and Green Seal certified cleaners compared to a traditional string wet mopping system.
- Economic and Environmental Impact: The new mopping process uses an estimated 3% of the water and chemicals that the old process used to clean the same number of rooms
- Social Impact: Changing to microfiber mops significantly reduced physical strain and contributed to simplifying the process.
- Environmental Impact: Disposal of the packaging materials would decrease by up to 97% due to the decrease in use of chemicals

Changes in Floor Maintenance Process Entry Mats

The impact of proper use of matting systems at all entrances is difficult to measure but industry studies show that up to 80% of soil is tracked in by people entering the building. Exact gains at Metro Health were not calculated, however proper matting systems undoubtedly lowered the amount of soil entering the building therefore decreasing the frequency of floor cleaning.

Dust Mopping

Metro Health was able to eliminate dust mopping in patient rooms all together. Environmental Services estimated that switching to the microfiber process and eliminating dust mopping would save up to ten minutes of labor per room. Robert VanRees, Director of Facilities commented, "it also eliminated the hassle of managing multiple processes, simplified training and reduced the number of dust mops purchased and maintained." This also significantly reduced the dust particles circulated in the air which benefits the patients and staff.

Traditional Wet Mopping versus Microfiber Mopping: Annual savings of 8%.

The traditional process, use of a string mop is described as follows: each staff member retrieved two mop buckets, each containing three gallons of water and approximately 33 ml of Quat Disinfectant. Once the staff person reached the desired area to be cleaned, they soaked the string mop in the cleaning solution, wrung it out, and mopped a portion of the floor until the mop needed to be rinsed out. This process continued until four, 150 square foot rooms were cleaned. Then both mop buckets had to be emptied and refilled with fresh water and chemical. The new process with microfiber mops is described as: a staff member gathers 20 microfiber mop pads and places them in a specially designed bucket. The bucket is filled at a pre-mixing station with 44 ml of a neutral cleaner and approximately five quarts of water. The bucket is then capped and turned upside down for about 30 minutes, during which time the mop pads become saturated or "charged" with cleaning solution. A staff member then attaches the bucket to a cart and proceeds to the area desired for cleaning. A "charged" mop head is attached to mop handle and frame and mopping begins. The microfiber mops are designed to feel differently indicating when the "charge" is gone or the mop is ready to be replaced. Each mop pad is able to clean approximately 150 square feet. The 20 microfiber mop heads clean approximately 3,000 square feet. A good microfiber mop head can then be laundered and reused up to 500 times.

Floor Maintenance Process Summary:

The initial investment for microfiber mops was higher, a reduction in water and chemical usage was experienced, and the new mopping process allowed 2.75 average rooms to be cleaned per hour versus 2.5 rooms with the traditional system. Metro did not reduce the number of staff; the new hospital is 225,000 square feet larger and they did not have to add more staff.

A number of other green cleaning strategies were implemented:

- Dispensing Systems using concentrated chemicals provided the correct measurement of products as well as the reduction in the amount of chemicals, packaging materials, transportation and disposal impacts.
- Switching to Green Seal certified chemicals wherever possible providing positive benefits to patients, staff and visitors to Metro Health.
- Paper products reduced the number of SKU's from fifteen to three and changed to post-consumer, chlorine-free recycled products. Touch free roll towel dispensers were also installed contributing to a \$2,000 annual savings.
- Motion activated faucets were installed in public restrooms and the nurse's work areas in patient rooms.

"One of the most difficult things to accomplish was to document the changes for measuring the financial impact especially with the move to a new, state of the art facility," says VanRees. He also added "One of the easiest things was to get our staff to understand the importance and benefits of implementing green cleaning. We held training sessions at the very beginning making them part of the process, talking about the benefits and goals of Metro Health and that paid huge dividends."

Besides pursuing LEED certification for the new hospital, Metro has also been acknowledged with other environmental honors:

- Clean Corporate Citizen by the Michigan Department of Environmental Quality. Metro is the first health system in the state of Michigan to receive this designation.
- Michigan Business Pollution Prevention Partner
 in 2006
- Hospitals for a Healthy Environment (H2E)
 - Partners for Change Award (2005 & 2006) – given annually to facilities that have made significant progress toward waste, preventing pollution, and eliminating mercury.
 - Making Medicine Mercury Free Award (2005) A one-time award given to facilities that have met the challenge of becoming virtually "mercury free."



CASE STUDY 21 – ISSA CIMS CERTIFICATION CASE STUDY

COMPANY:

University of Michigan - Ann Arbor Campus Plant Building and Grounds Services Department (PBGS)

LOCATION: Ann Arbor, Michigan **EMPLOYEES:** 440 Managers and FTEs

CIMS CERTIFICATION HELPS PHYSICAL PLANT DEPARTMENT LIVE UP TO UNIVERSITY MOTTO

"CIMS may very well become the lay of the land. By doing it now, your department gains the full benefits and prestige that comes with bringing this cutting-edge program to the table, rather than ending up at the back of the bus when it becomes a directive from someone else."

> —Darryl Betts, Area Manager University of Michigan Ann Arbor Campus Plant Building and Grounds Services Department

For years, the University of Michigan's Plant Building and Grounds Services Department struggled with proving that, as a department, they not only live up to the University's well-known motto: "The Leaders and Best,"but embrace its philosophy and values. The management and 440 employees of PBGS truly believed that their department was operated in an efficient and qualitymanner,but it was not until Darryl Betts learned about the new ISSA Cleaning Industry Management Standard that the department was able to prove that it was a leader, not only within the University, but amongst other in-house and contracted cleaning organizations as well.

"We saw CIMS certification as one way our department could exemplify that philosophy and gain the respect our staff deserves,"said Betts, area manager of PBGS. "Too often in this industry, you know you're at the top of your field, but you have no way to independently prove that belief. Now we do, and that has tremendous value."

While other service departments within the University have won industry awards or are Energy Star certified, Betts identified CIMS as the first certification program that looked at an entire department and required the department to meet a set of management expectations that range from how you train employees to how you interact with customers.

"The University clearly demonstrated during the assessment that their comprehensive management program is not just talk,"said Dan Wagner, ISSA Director of CIMS. "They truly believe in and have put to work the quality management principles that are required by the Standard. The University has shown precisely the kind of top-down commitment we were striving to promote during the development of CIMS."

The Process of Complying

Betts, a 20-year veteran with the department, lead the PBGS team through the process of documenting compliance with the five core

sections of CIMS (quality systems; service delivery; human resources; health, safety & environmental stewardship; and management commitment), to prepare the department for its assessment of management and operational follow- through. After documentation and on-site evaluation by an independent, third-party assessor, the department was recommended for CIMS Certification.

While Betts lead the program, the entire PBS team participated in the process. Janet Allen, PBGS technical training coordinator, spent two months gathering and documenting policies and other requirements of CIMS to demonstrate compliance. Allen immediately recognized that the task would not be an easy one, but came with great benefits and promised to be quite enlightening. "You may startout feeling like there is too much to compile and that you don't know where to begin, but I found that it was manageable if you are organized and take a systematic approach when working through the checklist of compliance items,"she advised. good understanding of one another's areas and their impact on overall operations,"he said. "CIMS compelled us to go to everyone from OSHA representatives to human resources and gather knowledge."Gentles further stressed that such gathering of information helps deal with situations where someone may be absent or may have left the University by making sure that there is no information gap.

Allen agrees. "For instance, some of us were not as familiar regarding the University's procurement processes, so it was a good learning experience to better understand that aspect of our operations,"she adds.

Due to their efforts complying with CIMS, PBGS now has what the team refers to as "management in a box"– a set of seven comprehensive binders that can be referenced by anyone in the organization. Further, PBGS plans to place all the management and operations material on a CD for easy access, updating, mobility and sharing within

Best tip for companies thinking about certification: To use CIMS to improve internal morale, gain buy-in from your entire team during the process. To do so, encourage team review of appropriate sections, as well as input when editing plans, policies and procedures to comply with the Standard.

"Wediscovered that we had tremendous resources within our department and elsewhere in the University that had never been pulled together into a single document for easy access." Lukeland Gentles, Business Manager for PBGS, was also involved in the process and was struck by how CIMS promotes information sharing across an entire organization and provides ready access to management information. "Often times you have different individuals responsible for different aspects of an organization and may not have a

the department, the University and amongst peers in the industry.

The Value of CIMS Certification

PBGS found the certification process useful not only in identifying areas where they are successful but also areas that could be improved, reinforcing the need to standardize and simplify processes. The team's efforts found that some things as simple as personnel disciplinary form letters differed from area to area, and the department is now working with the Human Resources department to make employee communications more consistent. The group also had engaged in past discussions regarding the need to standardize and simplify equipment procurement and their CIMS preparation efforts reaffirmed the need to move forward.

"The ISSA certification process was certainly an informative and positive experience," said John Lawter, PBGS Associate Director. "It reinforced our beliefs in what we feel we are doing right, as well as identified areas for improvement. It was a nice opening act to our next round of strategic planning."

"We've already started addressing additional improvement because the certification process brought a lot of discussions to the forefront that were logical next steps in continuous improvement," said Gentles.

One possible area that PBGS expects to focus on involves the use of workloading software. According to the team, going through the CIMS certification process helped them see the value of workloading tools being used by more decision makers in the organization. PBGS, therefore, expects to expand the use of such software to include, not only upper management, but supervisors as well.

PBGS also sees CIMS certification and the fact that it applies equally to in-house operations and contract cleaners as valuable in creating a level playing field. "When you're always under the microscope and the common perception is that someone else can do your job more efficiently, it is invaluable to be able to hold the same certification that is available to contract cleaners," said Betts.

Gentles notes that the international credibility ISSA brings to the table also can have a significant impact when communicating with internal clients, upper management and peer institutions. Achieving certification from the worldwide cleaning industry association lends terrific support come budget time, he adds. "If a global organization says your department is operating as efficiently as possible in these cornerstone areas of management and customer focus, then you'll be taken a bit more seriously the next time someone considers cutting your budget,"Gentles advises.

About CIMS:

CIMS is the first comprehensive management and operations standard for cleaning organizations. Administered by ISSA and the American Institute for Cleaning Sciences, CIMS is a standard of excellence designed to help building service contractors and in-house service providers develop quality, customer-centered organizations.

The CIMS framework is built around five quality principles that have proven to be the hallmarks of well-managed, successful cleaning operations:

- Quality Systems
- Service Delivery
- Human Resources
- Health, Safety & Environmental Stewardship
- Management Commitment

Why should a company certify to CIMS? Daniel Wagner, director of CIMS for the ISSA, explains: "Implementation of the standard's elements affords an organization a tremendous opportunity to validate its management systems and processes. Professional, customer-centered cleaning organizations finally have a touchstone resource, a common rallying point around which all members of the industry can gather and work toward achieving an unprecedented level of professionalism and excellence.

ISSA

The Worldwide Cleaning Industry Association

For more information contact 800-225-4772 or visit www.issa.com/standard.



🔀 CASE STUDY 22– GOING GREEN AT UNIVERSAL STUDIOS-ORLANDO, FL

Universal Studio-Orlando has an average of 18,000 guests walk through their park everyday, and many more that enjoy the City Walk dining and entertainment area at night. Obviously, they are one of largest single users of janitorial chemical and disposable products in North America. For 15 years, Universal has purchased these products from Unisource Worldwide the largest North American janitorial distribution company.

Universal Studio's Director of Park Services, Brian Colley, came to Unisource with a desire of making the park a more environmentally friendly facility. His reasons were simple: Can we make the park a safer, healthier place, for all those who visit or work in the park? Also, Universal's parent company is General Electric, so making the park greener fit in with GE's "eco-Imagination" campaign".

Unisource pulled together a team of six people, who would then tour all three sections of the park: City Walk, Islands of Adventure, and Universal Studios Florida. We set out in two separate teams in order to cover all that square footage in one day. The plan was to use the LEED Certification check list in order to make sure each team was compiling the same data as they each toured each facility. Brian had also had two members of his staff available, which helped us move through the park much more efficiently. They also were able to answer specific questions about the cleaning staff, procedures, and timing of all cleaning procedures.

As we toured the park we compiled the following data:

1. Restrooms:

- a. Tile composition- type and condition
- b. Hand Care- controlled dispensing or not
- c. Towel and Tissue-type of dispensing system and recycled content of the product
- d. Janitors Closets- auto-dilution systems, proper instructions in two languages, type

products being used.

e. Receptacles-were that overflowing, did the bag fit properly and did the thickness of the bags meet the need

2. Stores and Restaurants:

- a. Floors: Carpet, tile, or wood, and is what condition
- b. Entrance ways- interior and/or exterior matting

3. General Park Survey:

- a. Over all cleanliness
- b. Exterior receptacles- how many, properly placed, over flowing or not
- c. Recycling Containers- were they easily visible and clearly marked for proper usage.

4. Warehouse:

- a. Review all products in order to cross reference to more environmentally friendly product where possible
- b. Equipment- type and condition

Upon completion of the tour, we sat down with Brian and his team to find out what they were looking for in the way of recommendations. While their commitment to green was quite, the desired outcomes were quite simple.

- 1. How green are we today?
- 2. What products are we using now that can be switched to a greener alternative?
- 3. If we change products, what type of training will be required?
- 4. Are there long term potential big dollar projects that would have to be budgeted to complete?

We took a month to review all the data and build our presentation. We structured our recommendations into three categories, what is relative easy and inexpensive to complete? What will take time and planning? What are long terms projects that would have to be budgeted and signed off on? We presented to Brian and his team of supervisors. This ensured the message would be clear and his supervisors would know first hand how and what to communicate to their respective staffs. To answer the first question, Universal was already considerably environmentally friendly. In their restrooms they used all recycled products that met EPA guidelines. All restrooms had automated foam soap dispensers. Chemicals were dispensed through dilution systems wherever possible. The dilution systems were complete with instructions in two language silk screened spray bottles, and a user's manual. Next to all systems, Universal had installed eye wash stations in case of emergency. The inspection of their warehouse found 5 chemicals, which could be switch to a green seal or environmentally friendly product. Unisource crossreferenced those products, and built a training and testing profile to measure the results.

An area that provided some improvement opportunity in Universals environmental profile was can liners. They were largely using a one size fits all philosophy instead of matching the bags to the containers. The same bag was used for the external trash receptacle as was used in the restroom. The bags were far too large for almost all the restroom containers. The bag was also a 15 micron bag which was way too heavy for the need. Especially considering that the cleaning staff emptied the restroom containers every few hours. Most bags were barely half full when discarded. Unisource selected several smaller and lighter bags to test, which is taking place this summer. Both the chemical and can liner conversions fit into less expensive and easy to complete category.

As for the second phase which would require some planning and time to complete. Given the size of the park, Universal is a large user of equipment. Unisource reviewed Universal's equipment program to determine the condition of all the equipment and the preventative maintenance program being used. The best in class equipment from each category was selected and will be what Universal buys to replace their older equipment. The transition will take several years given relative ages of the equipment and that Universal can only budget a certain amount of money each year for new equipment.

As for the long term more difficult initiatives, floor mats an area that created a significant opportunity and challenge. There was very little internal or external matting throughout the entire park. The result is more dirt is entering the restaurants, rides, and stores, especially considering the amount of traffic. The challenge is many of the entry ways are decorative, depicting a particular Universal theme. Making changes here will involve representatives from many departments at Universal. Marketing and design will certainly have to be involved if any of the parks themes are to be altered. Therefore, the expectation is most of the matting will have to be internal. Unisource has partnered with a matting company for this project. The goal is to measure the present state of the cleaning program and if the introduction of matting will reduce the frequency of the cleaning. If a reduction in either the frequency of the amount of resource needed to keep the facilities safe and healthy then we will have found a solution that affects all three parts of the Triple Bottom Line.

Lastly, Universal recycling program was relatively new and not as developed as it should be. There were too few containers, and often they were poorly placed and not well marked. It was easy to tell and a refuse of the trash containers found many drink bottles that had not found a home in a recycle container. To their credit, Universal already had plans in place, but had been struggling with how to fund the more than \$500,000 investment to get the program they wanted. Presently, Unisource is using it resources to work out a leasing arrangement to assist Universal on this initiative. At the same time, Universal is measuring the total pounds recycled with today's program, so they can measure the success after the new containers have been installed.

CASE STUDY 24– SHELL CENTRE, CALGARY, ALBERTA

DCS DAYLIGHT CLEANING SYSTEMS INC.®

Situation

Oxford Properties portfolio in Calgary, one of the largest commercial real estate portfolios in Canada, is run by an industry leading and award winning operations management team. Oxford knows that good environmental decisions can be good business decisions. They are committed to environmental stewardship and to pursuing sustainable business practices. Consequently, they continually review their business operations in order to minimize environmental impacts while achieving lower operating costs through reduced energy consumption.

In 2004, Guy Priddle, General Manager Oxford properties, engaged DCS Daylight Cleaning Systems Inc.[®], to undertake a Feasibility Study to identify the benefits and any potential savings associated with instituting a day cleaning program in the Shell Centre building located in downtown Calgary, Alberta. As the home to Shell Canada, this 640,000 sq.ft office tower, built in the 1980's, is typical of Calgary's office inventory. Over half of the building is occupied by its namesake tenant and the balance of the space multi_tenanted.

Key Elements of the initiative

Oxford Properties and Hallmark Housekeeping Services (the janitorial contractor) were experiencing a challenging time with respect to being able to maintain a consistent workforce in the building. With Calgary's unemployment rate sitting a 3%, it was next to impossible to hire and retain staff. As a result, the cleaning quality and tenant satisfaction were challenging to keep high. DCS daylight Cleaning Systems® has developed a proven system for transitioning commercial building from evening cleaning to Daylight cleaning.

The overall objectives of the program were to:

- Reduce the turn high over rate of night time cleaners (+600% in the calgary market)
- Deliver a high quality cleaning program, thus increasing tenant satisfaction specific to

Cleaning

- Reduce tenants operating costs by reducing energy consumption in the building
- Improve the overall security in the building
- Reduce the environmental footprint of the buildings operations

Stakeholders

Principle stakeholders associated in the project

- Shell Canada (principal tenant)
- Oxford Properties Group Limited (property manager)
- Hallmark Housekeeping Services Inc. (janitorial contractor)
- DCS Daylight Cleaning systems Inc[®] (janitorial consultants)

All stakeholders were very involved through out the various stages of the project. The project was kicked off with DCS preparing a feasibility study which included forecasting the energy savings, operational specifications and a complete business case. The entire stakeholder team was involved from the initial business case analysis to the actual roll out of the DCS Daylight Cleaning Systems[®]



program in the building. The process focused on detailed planning, tenant communications, cultural change, expense review, training, ROI analysis, and more communication.

Project Challenges

The key challenge of converting to a day cleaning service is managing the culture change. Much time and attention was given to the planning, the tone of the communications and in the delivery of the program. Designing the communications to address 'what was happening' and 'how it was going to happen' and garnering tenant "buy in" has been determined to be the most critical factor for all key stakeholders. They need to know what the program is, what the benefits are and how it will affect them.

The Communications plan was incorporated in all of the stages of the program. From the onset in gaining corporate support, to the tenant lunch and learns, and finally to launch day, where the cleaner's training was a critical element to the success of the program, communication was the key element of success.

"The biggest element we had to over come was the change. Everyone resists change to varying degrees, so we knew that we must make it our first goal to be open and responsive to all (tenants) concerns. It (cleaning) becomes a very personal issue; people are in your office cleaning around you.

Effective communications is the key – no surprises for your tenants. They have to feel confident you know what you are doing"

Randy Burke, President & CEO Daylight Cleaning Systems Inc.®

Business Benefits Then and Now

Oxford Properties reports being on target to achieving their goals associated with DCS:

Building Cleaning Services	Significant Improvement
Energy Savings	7.8% Annually (Confirmed By 3rd Party Energy Consultants, Solutions 105
Tenant Satisfaction Rating	Increased 68%
Dcs Score Card Rating 96%	Achievement Of Key Performance Indicators



Energy Savings

Shell Centre - Electricity Savings Report 200412.

Shell Centre - Daytime Cleaning Summary

Background

The Oxford Properties Group ("Oxford") has recently emisted the services of Daylight Cleaning Systems, Inc ("DCS") at the Shell Centre location. One of the biggest banefits of DCS is a lower energy bill due to decreased electrical consumption. To ensure that the DCS program is lowering electrical consumption and to measure the dollar impact on the Shell Centre's electricity bill, Oxford has commissioned Solution 305 Consulting Ltd, to put together this electricity surges report.

December Consumption Discussion

Consumption for the month of December was well below normal levels. After educating Shelf's electricity consumption model for the effects of weather, Shell used 111,958 kWh or 7.9% less than expected. The graph below shows the normal consumption pattern against actual consumption.

Since July, consumption has been 748,249 kWh lower than anticipated.



Examining the hourly profiles for the month, the following statements can be made:

 Nighttime consumption has dropped dramatically compared to normal levels. In general the decrease is about 500 kW and occurs between the hours of 6pm and 10pm. This is due to the daylight cleaning service that started on July 6.

Deptime consumption levels were a little lower than normal also. Although we have no direct answer why this may be the case, it could be a result of lenants being more proactive in regards to being energy efficient. Slightly lower

More Consumption Discussion...

The graph below shows an example of a day that enhibits characteristics from the points outlined in the hourly profile discussion.



December Cost Discussion

Costs for the month of December were well below normal levels. After adjusting Shell's electricity consumption model for the effects of weather and using current utility rates, Shell spent 5.11,736 or 7.8% less than expected. The graph below thoses the normal cost pettern against actual cost. Note that the budgeted costs have been reforecast to lower levels due to downward changes in utility rates.

Since July, costs have been \$79,444 lower than enticipated.



Prepared by Solution 105 Consulting Ltd.

2005-01-07

Unforeseen Benefits

• Reduction in green house gas emissions (GHG's)

This benefit was not an initial goal for converting to Day Cleaning[™]. Shell Canada identified early on that by reducing their GHG's assisted them in delivering on objectives contained within their corporate responsibility model to reduce GHG output.

- Offering of full time employment to housekeeping staff, reduced cleaning staff turn over from +600 % to 8%
- Personal relationships and trust levels developed between cleaners and tenants
- Hallmark Housekeeping employee winner of the Daylight Foundation Scholarship two years running

"By implementing Daylight cleaning we made some BOLD promises to our tenants. We did not launch the program on a trial basis... we launched it permanently because it makes sense."

Guy Priddle, General Manager, Oxford Properties Group Ltd.

Next Steps

Today, several years later, Shell Centre is operating the DCS Daylight Cleaning Systems very successfully. Oxford Properties reports that the DCS program has achieved its goals and the Calgary Oxford Properties Group is currently preparing to launch another 860,000 sq.ft. building (as seen in the photo background) to the DCS Daylight Cleaning Systems program.

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