



GREEN SEAL™ PROPOSED ENVIRONMENTAL STANDARD FOR RESIDENTIAL CLEANING SERVICES (GS-49)

BACKGROUND DOCUMENT

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THE MARK OF ENVIRONMENTAL RESPONSIBILITY

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List of Acronyms

CRI. Carpet and Rug Institute

dBA. Decibels

EPA. United States Environmental Protection Agency

GHS. Globally Harmonized System of Classification and Labeling of Chemicals

ISO. International Organization for Standardization

IARC. International Agency for Research on Cancer

IRIS. Integrated Risk Information System

LEED. Leadership in Energy and Environmental Design

NTP. National Toxicology Program

OSHA. Occupational Safety and Health Administration

PPE. Proper Personal Protective Equipment

SOP. Standard Operating Procedures

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SCOPE

This Standard establishes requirements for residential cleaning service providers. The establishment of this standard can help a provider create a residential green cleaning program that protects human health and the environment and recognize those that have such a program established. For the purposes of this standard, services that clean indoor residential facilities are included, such as services that clean residential kitchens and bathrooms, dusting, and floor cleaning.

Single time or limited-services are not included such as carpet cleaning or mold removal services. Carpet cleaning operations are linked to indoor air quality issues and have been identified as a contributor of high amount of waste and non-biodegradable materials in sanitary sewer systems.¹ Reduction in the amount and types of volatile organic compounds found in cleaners is a key environmental and human health leadership issue, as is minimizing the amount of residue left on the carpet after cleaning. Currently, Green Seal Standard GS-37 Industrial and Institutional Cleaners and GS-8 General-Purpose, Bathroom, Glass, and Carpet Cleaners Used for Household Purposes address the environmental and health issues relating to the carpet cleaning products. However, minimizing environmental and health impacts from carpet cleaning operations is equally as important as minimizing the effects from cleaning products. Hence a separate environmental standard is proposed to effectively address all issues pertaining to the carpet cleaning services.

The environmental and health impacts of institutional cleaning services are currently addressed in Green Seal Standard GS-42 and therefore are excluded in the GS-49 standard. This is because there are several key differences between institutional and residential cleaning services. At the most basic level, institutional cleaning services work in office or other commercial buildings, whereas residential cleaners perform their services in homes (apartments, condominiums, townhomes, single family homes, duplexes etc.). This most basic difference dictates much of how the cleaning service is performed. With regards to the actual services provided, institutional cleaners perform their services five to seven days a week (essentially each day that the building is used) whereas residential cleaners perform services in longer intervals (most commonly weekly or bi-weekly). Thus, it is common that institutional cleaners are the only individuals cleaning the buildings they service, unlike residential cleaners, who generally alleviate most, but not all, of the burden of cleaning tasks from the building occupants (residents). With residential cleaning services, it is virtually expected that the building occupants will also be performing certain cleaning tasks in-between cleaning visits from the service, using products and equipment they personally select and purchase. Residential cleaners must also be mindful of pets that may occupy the buildings they clean, in addition to humans, while pets are typically not a consideration in institutional buildings.

¹ <http://www.epa.gov/iaq/pubs/airclean.html>

Institutional cleaners generally include floor polishing and carpet cleaning among their regular tasks whereas residential cleaners provide these services as optional "extras", subcontract this work to others or, more commonly, do not provide this service at all. Institutional cleaners, then, operate an array of power equipment not generally found in the residential cleaning industry. Institutional cleaners generally serve buildings where the occupants are tenants, or employees of tenants, and occupancy rates are usually dramatically higher than occupancy in residences. Institutional cleaners clean during non-business hours and residential cleaners operate during business hours. Residential cleaners do not generally handle trash except to collect trash and place it in a central container. Residential cleaners do not furnish trash can liners but rather use those provided by the building residents. Residential cleaners do not have any jurisdiction over trash management (e.g. recycling) for the homes they serve.

OPERATIONAL REQUIREMENT

Standard operating procedures. Standard Operating Procedures are important in the cleaning industry for health, environmental, and property protection reasons. Standard operating procedures dictate uniform practices including the dilution and mixing of cleaning chemicals, the application of these cleaning chemicals or solutions to various surfaces in the customer's dwelling, and the operation and maintenance of powered and non-powered tools and equipment. If specific guidelines and criteria for green cleaning processes are not established and adhered to via standard operating procedures, the health and efficacy benefits desired through green cleaning may not be attained. Furthermore, using incorrect products, incorrectly diluted products, equipment and procedures, even if infrequently, can damage human health, the environment, and even the cleaning surfaces, or lead to an ineffective cleaning. Standard operating procedures help to insure that green cleaning practices are implemented in each customer's home, during each cleaning visit, by each member of the cleaning staff. Without standard operating procedures that follow specific guidelines and criteria, green cleaning standards become meaningless. To be certified as a residential green cleaning service provider, a set of Standard Operation Procedures (SOPs) must be developed and maintained as defined in Section 3.1. The SOP describes the general cleaning methods and organizational procedures performed by the cleaning service organization. For example, the SOP typically includes subjects such as chemical tracking, equipment maintenance, communications, and training. These SOPs should be reviewed and updated to reflect the use of new equipment and procedures on a regular basis. The SOP shall include all the aspects of the other criteria in the standard.

Tools and equipment. Functional and effective tools and a good maintenance plan are necessary for a green residential cleaning plan as defined in Section 3.2. Tools and equipment must be certified as functional by the equipment manufacturer or a qualified third party. In addition, a quarterly inspection and maintenance program requires written documentation of compliance. The Standard also draws on requirements established by Leadership in Energy and Environmental Design (LEED), the Pennsylvania Manual, the Carpet and Rug Institute (CRI), and the California Air Resources Board (CARB). The CRI sets minimum requirements for vacuum cleaners and carpet extraction equipment. Based on these criteria, for example, equipment sound level can be no more than 70 dBA. The standard prohibits the use of brooms, feather dusters and paper for cleaning activities

as these spread dust and other particulate matter contributing to poor indoor air quality, and may require more water in performing certain cleaning activities. Green Seal recommends the use of microfiber cloths and mops because microfiber products dislodge and grab fine particles and oils resident in surface crevices where normally regular cotton cloths, sponges and scrub pads cannot reach. Microfiber also requires less water, can be used multiple times and last longer than conventional string mops or cleaning cloths. In order to prevent cross contamination between different surfaces in the residential facility, a color coded system is recommended. The system prevents for example the use of tools intended for cleaning bathrooms to be used in cleaning surfaces in the kitchen and hence preventing contamination.

Cleaning Products and Supplies. An integral part of green cleaning is the use of environmentally preferable cleaning products, tools and equipment. These products not only reduce the risk to workers and the environment during their intended use, but also reduce the life-cycle environmental impacts associated with their manufacture and ultimate disposal leading to a more sustainable society.² For example, More than 30 articles over the last several years have documented the increased incidence and prevalence of asthma among janitors and other cleaning workers in many countries³. Over the past 15 years, professional cleaners have emerged as one of the high risk groups for work related asthma in industrialized nations⁴. This adverse effect is not limited to individuals who professionally perform cleaning tasks; cleaning products also affect other building occupants and bystanders⁵. Case reports and epidemiologic studies have documented asthma among individuals who use spray cleaners at home⁶. Green Seal's standards (ex. GS-37) prohibit chemicals known to cause asthma. Other harmful or toxic chemical are not used in environmentally preferable cleaners, such as carcinogens, mutagens, or reproductive toxins. As a result, certified, environmentally preferable products for which a Green Seal or a comparable standard has been established, must be purchased where available, as specified in Section 3.3 of the Standard. These products include general-purpose cleaners, bathroom cleaners and glass cleaners.

It is the intention of the Standard that environmentally preferable products, tools and equipment be used whenever possible. However, it was recognized during the development of this standard that environmentally preferable cleaning products or equipment may not yet be available in the market for every cleaning category or function (for example, oven cleaners). In acknowledgment of this reality, the Standard requires that, for all other categories where environmental standards and certified products are not available the residential cleaning service provider must demonstrate their efforts with documentation that they have pursued due diligence in obtaining an environmentally preferable product of that product category. If in the future an environmentally preferable product becomes available in that product category, within a reasonable time frame the

² <http://isse.utk.edu/ccp/projects/projects.html>

³ Rosenman, K. 2006. "Cleaning products-related asthma." *Clinical Pulmonary Medicine*. 13(4):221-228.

⁴ Henneberger, P.K. 2005. "How "clean" is the cleaning profession?" *Occ Environ Med*. 62:586-587.

⁵ Nazaroff, W.W., Weschler, C.J. 2004. "Cleaning products and air fresheners: exposure to primary and secondary air pollutants." *Atmospheric Environment*. 38:2841-2865.

⁶ Zock, J-P, Plana, E., Jarvis, D., Antó, J.M., *et al.* 2007. "The use of household cleaning sprays and adult asthma: An international longitudinal study." *Amer J Respir Crit Care Med* 176:735-741.

residential cleaning service provider must switch to using that product. Powered equipment is required to meet all of the criteria established in Section 3.2. The equipment-based criteria reflect the existing requirements of LEED, CRI, CARB, and other credible sources, for the purchase or operation of equipment. All powered equipment must meet this requirement.

Site-Specific Cleaning Procedure Requirements. In a multiple-story home, it is recommended that cleaning begin on the top floor in the bedrooms; progressively, the cleaning personnel will move downstairs as rooms are completed. This standard follows the principle of cleaning top to bottom, back to front to prevent the re-contamination of already cleaned and sanitized areas of the bathroom. The use of colored microfiber tools is encouraged as this will prevent cross contamination between different surfaces and areas in the residential facility. In addition, all dry cleaning should be performed prior to any wet cleaning to prevent contamination of already cleaned surfaces. For sanitary reasons, equipment used to clean the restroom should be dedicated solely for that purpose and clearly labeled to prevent the unintended spread of organisms and other bathroom contamination throughout the building. The Standard calls for using only EPA-recognized disinfectants or disinfection devices only when necessary. Because disinfectants are inherently designed to kill living organisms, they may pose a threat to human health if used incorrectly. Label directions explaining the proper preparation and dwell time should be followed. Prior to disinfecting, the surface should be cleaned to allow for proper disinfection. The handling of contaminated or unclean surfaces, followed by the subsequent handling of food prior to ingestion, can be a significant route of human exposure leading to sickness. As a result, particular emphasis must be placed on cleaning and sanitizing all surfaces routinely in contact with food or with human hands. It is assumed that all relevant local, state, and federal laws must be followed.

Vulnerable Populations. It is now clear that some of the chemicals that are part of our daily lives are having profound impacts on our health. Studies show that some common cleaning products contain ingredients that can cause new-onset asthma or provoke asthma episodes. A study documented wheezing and decrements in lung function in children whose mothers had high domestic cleaning chemical exposure during pregnancy⁷. While eliminating ingredients that cause asthma will reduce the number of new cases of asthma (such as using environmentally preferable cleaners), this change will not necessarily prevent the exacerbation of symptoms among those with preexisting asthma. People with reactive airways may have further airway obstruction (through bronchospasm) triggered by viral infections, exposure to irritants, cold or exercise.

A procedure for identifying and providing early warning to individuals that may be sensitive to cleaning products or certain cleaning operations is therefore necessary. These include the recognition of vulnerable populations (children, pregnant women, pets, and asthmatics); the selection, use, and disposal of cleaning chemicals and supplies that use the least amount of cleaning chemical; and the proper cleaning methods to achieve the

⁷ Henderson J, Sherriff A, Farrow A, Ayres JG. 2007. Household chemicals, persistent wheezing and lung function: Effect modification by atopy? *European Respiratory Journal Express* (online prior to publication) 10.1183/09031936.00086807 [Accessed 31 October 2007].

best results. In addition, residential owners must be informed of the type of cleaning chemicals that are being used in the residential facility so that persons requiring special consideration can be notified.

Chemical handling. Chemical tracking is a vital component of the plan. Cleaning procedure requirements highlight the minimal, appropriate, and preferred use of chemicals and non-chemical products. As already mentioned, wherever available, certified environmentally preferable cleaning chemicals and products shall be purchased.

TRAINING REQUIREMENTS

This Standard acknowledges the importance of owner and employee training, not only as a critical aspect of green cleaning, but also as a factor contributing to a professional workforce and higher employee retention. Compliance with existing regulations is a prerequisite for certification.

Upon hiring, all employees are trained in the proper use of personal protective tools and equipment, and standard safety and OSHA training. In addition, training requirements shall address training for chemical use, cleaning procedures, tools and equipment maintenance, and chemical dispensing systems. In addition, all employees must undergo training in order to qualify as a green cleaning service provider. Training may occur onsite before work has commenced, but new personnel may not work independently without receiving the required initial training. Thereafter, cleaning personnel are required to have 8 hours of annual training or education, with updates on green cleaning procedures, changes in dilution control systems, and the use and maintenance of tools and equipment. As new technologies are introduced and changes in environmental standards occur, annual training will address changes in the field. Supervisors must receive 8 hours of additional training annually. The training of each employee must be documented in order to fulfill this requirement.

ISSUES NOT SPECIFICALLY COVERED IN THE STANDARD

Cleaning operations often involve the use of chemicals and equipment that can pose an inherent risk of injury to cleaning personnel if the PPE is not used. PPE include safety glasses, chemical goggles, rubber gloves, respirators, dust masks, exterior garments, or other personal safety equipment that is specified by law. Although PPE is not mentioned specifically in the Standard, to be certified by Green Seal, residential cleaning service provider must follow all applicable and existing federal, state, and local laws and regulations in order to be in compliance with the Standard. Pest management is another important facet of green custodial care that is not dealt with specifically in this Standard. The development and implementation of an integrated pest management program is the best way to control pests within the built environment while minimizing the unnecessary use of pesticides. The development and implementation of this type of integrated approach is often beyond the scope of services of the residential cleaning service provider.

Despite this fact, cleaning in a manner to prevent the infestation of pests is a critical part of any pest management program and should be considered in virtually every phase of

green cleaning, especially where food and food waste are present (e.g., trash collection and recycling). Though residential cleaning service providers are not required to design and manage a pest control plan, they are required to be knowledgeable about any plan that is in place and they are required to report, through the appropriate communication channels, the presence of pests when discovered. In addition, they are required in various places throughout the Standard to perform cleaning in a manner that will limit or discourage pests (e.g., cleaning waste containers in food areas).