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The Greening of Carpet Cleaning

by Robert Kravitz
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Without question, carpet is a preferred and widely used floor covering. There are almost 200 billion square feet of carpet currently installed in more than 100 million buildings in the U.S. In 2004, 21 billion square feet of carpet was manufactured and delivered to homes, offices, schools, health centers, and office buildings, according to statistics published by the Carpet and Rug Institute in Dalton, Ga.



Not only is carpet widely used, it is also safe, according to Dr. Michael Berry, a research professor at the University of North Carolina at Chapel Hill. Berry has researched carpet manufacturing, cleaning, and maintenance extensively and has published several reports and studies for the CRI.

Berry says studies going back more than 30 years consistently find carpet to be a healthy product as long as it is maintained properly. “[In fact,] with so much carpet installed around the world and given the large population exposed to carpet,” he writes, “it is remarkable that there are no studies presenting evidence that exposure to carpet in any environment causes an adverse human health response.”

However, as the industry has become increasingly aware of the potential harmful effects some traditional cleaning chemicals and products have on cleaning professionals, building occupants, and the environment, concerns about how these billions of square feet of carpeting are cleaned and maintained have increased as well. To better understand the situation and the “greening” of carpet cleaning, we asked three industry experts for their views.

Stephen Ashkin: Making a Carpet Maintenance Program Green



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Our first priority in any carpet maintenance program is to keep carpets clean. Dirty or improperly maintained carpets may become contaminated with mold, pesticides, lead dust, dust mites, and other allergens. These can cause serious health problems especially for the young in schools, the elderly, or those with weakened immune systems. A side benefit of keeping carpets clean is that proper maintenance prolongs the life of the carpet, which in turn reduces the environmental impacts associated with the manufacture and ultimate disposal of carpets.

Consequently, an efficient carpet cleaning strategy begins with daily and interim cleaning processes. For this, it is essential to select a vacuum cleaner that not only removes dust and other contaminants that may be found in carpets but also captures the contaminants, preventing them from becoming airborne.

Spot cleaning is also crucial to an effective carpet care system. The strategy here is to clean up spills as soon as possible and minimize the chance for a stain to “set” into the carpet. This reduces the need for powerful cleaning chemicals and spot removers, which can be harmful to the user and the environment.

Interim cleaning also requires the use of a low-moisture or dry-powder system to minimize the chance for mold growth and to maintain the appearance of the carpets. Periodic deep cleaning with a low-moisture, hot-water extractor is also required, based on traffic patterns and carpet use.

The goal of a green carpet care program is to incorporate all of these steps but to reduce the associated environmental impacts of some of the chemicals and products used. Thus, systems that use safer cleaning chemicals, reduce water consumption, minimize the use of chemicals and energy, and other measures are what make a carpet care program “green.” However, there are other elements as well, including:

- Installing pollution-prevention and source-control strategies such as effective entry matting systems. Minimizing the amount of soils and contaminants entering a facility in the first place is the best way to reduce the environmental impacts associated with carpet maintenance.
- Reducing carpet cleaning’s impact on people and the environment by employing cleaning chemicals that have been derived from bio-based ingredients and have been certified by such independent testing organizations as Green Seal or the Environmental Choice Program.
- Using spot removers made from hydrogen peroxide or biological/ enzymatic cleaners.
- Selecting carpet extractors that further reduce water, chemical, and energy consumption, as well as those that are quieter with enhanced ergonomics.
- Educating building occupants that cleaning, including carpet cleaning, is a “shared

responsibility” and that they must do their part by reducing spills, covering liquids, and knowing how to best respond when a spill occurs.

Stephen Williams: The Role of the Carpet Extractor

The type of carpet extractor used in carpet cleaning plays a crucial role in environmental health and “greening” the process. In fact, some extractors can even cause more health-related problems for a facility because they may overwet carpets. Overwetting often occurs when older or poorly adjusted extractors put too much water into the carpet or have poor vacuum capability. This can increase drying times and the possibility that mold and mildew will develop, marring indoor air quality and harming occupant health. Additionally, if traditional carpet cleaning chemicals are used, there is a greater chance that gases and VOCs (volatile organic compounds), which can cause allergic reactions and respiratory problems for occupants, will be emitted into the air.

These risks can be eliminated by using low-moisture carpet extractors. Depending on weather and other variables, carpets can dry in as little as 30 minutes with a low-moisture extractor, compared to 12, 24, or even 48 hours with a conventional machine.

Additionally, some low-moisture machines are designed with the vacuum system just inches from the base. This means that water is moved inches—and not feet—from the carpet area being cleaned, also improving drying times.

Finally, another “green” component of some low-moisture portable extractors is their ability to heat the cleaning solution. Heat improves carpet cleaning by increasing the chemical’s cleaning action—thus, less cleaning chemicals are necessary, and high-temperature cleaning can improve drying times as well.

Mike Sawchuk: Carpet Cleaning Chemicals

As we see in this discussion, Green carpet cleaning has several components, including instituting an effective and healthier carpet cleaning program, using vacuum cleaners that trap dust and contaminants, and using low-moisture extractors that speed drying times and use less chemicals. The types of chemicals used in carpet care are critically important as well because some of these are the most powerful—and potentially harmful—chemicals used in the professional cleaning industry.

Many are highly alkaline, and some have high VOCs and aggressive odor eliminators and disinfectants. For instance, a standard carpet cleaning or spotting formula may contain ingredients such as trisodium nitrilotriacetate, n-methyl-2-pyrrolidone,

isopropyl alcohol, cocamide diethanolamine, diethanolamine, diethylene glycol monobutyl ether, propylene glycol monomethyl ether, d'limonene, sodium metasilicate, 2-butoxyethanol, 2-propanol 1-butoxy, sodium phosphate, and sodium tripolyphosphate.

The bottom line is that these chemical ingredients, especially if used improperly, can cause damage to the central nervous system, kidneys, liver, and blood. They can trigger asthma attacks and seizures in children and adults. And, if the wastewater is improperly disposed of, they can eventually enter waterways, harming other living things and making their way into the food chain.

Certified-green carpet cleaning chemicals are available that are proven safer for cleaning professionals, building occupants, and the environment. And, these products are effective, which has been a big concern for many carpet cleaning professionals. In fact, if they have been certified, they are not only effective, but cost-competitive as well.

More specifically, carpet-cleaning chemicals certified by Green Seal or the Environmental Choice Program must meet these criteria:

- Performance comparable to traditional cleaning products as to efficacy, lack of resoiling, and effect on carpet color.
- Limited toxicity for aquatic and other organisms.
- Readily biodegradable.
- Few or no ingredients that are considered likely to contribute to have environmental impacts such as indoor air quality, ground-level ozone formation, and depletion of stratospheric ozone.
- Limited waste and resource use.

Protecting the Indoor Environment

In one of the studies he conducted for the CRI, Dr. Berry concludes that effective carpet cleaning could result in “improved environmental quality and a reduction of health complaints, especially in sensitive environments.”

At the time Berry conducted his research in the late 1980s, the benefits of environmentally preferable cleaning tools, equipment, chemicals, and products were not as well understood as they are today. Now we do have cases and studies that document the benefits of green cleaning, including green carpet cleaning. Proper carpet maintenance along with green carpet cleaning can result in even more improved environmental quality, reduced health complaints, as it further protects the health of cleaning professionals, building occupants, and the environment.

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