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## A Green Clean

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By Robert Kravitz

In the professional cleaning industry, green cleaning has been much discussed in the past few years. Usually, the information pertains to the many reasons why a green cleaning program should be started, the steps involved to get the program off the ground, and the potential benefits.

However, although many facility managers and school administrators may realize there is more to “greening” a building than just cleaning, they may not realize that green cleaning itself is more complex, encompassing much more than just using environmentally preferable cleaning chemicals.

The goal of green cleaning is to minimize cleaning's effect on facility occupants and workers, as well as the environment. In addition to chemicals, this protection requires a variety of tools, products and equipment. And working together, they play key roles in a green cleaning program.

### Green components

High-performance entry mats play a vital role in green cleaning. As much as 85 percent of the soil entering a facility is “walked in” on the soles of people's shoes. Using high-performance matting systems — 12 feet to 15 feet at all entries and other key locations inside and outside a facility — helps capture dust, dirt and other contaminants, “storing” them for later removal by vacuuming or cleaning of the mat.

In addition to high-performance matting systems, vacuum cleaners play a significant role in green cleaning. Traditional upright vacuum cleaners can release dust and debris through the bag and other openings in the machine, harming indoor air quality. This problem usually increases as vacuums get older.

Selecting more technologically advanced, high-filtration vacuum cleaners can minimize this problem. Also, selecting a vacuum cleaner that is HEPA-filtered — the casing of the machine as well as all hose connections are sealed — further protects the indoor environment.

Another major component of green cleaning involves methods used to clean carpets. As part of any ongoing maintenance program, most educational facilities have their carpets “deep” cleaned two or more times throughout the year. This helps remove embedded dust and soil, which can harm carpet fibers and, if they become airborne, negatively affect the indoor environment. Most experts agree that hot-water extraction is the most thorough way to remove these soils and clean carpets.

The problem — and what has prevented many carpet extractors from being included in a green cleaning program — is that some older machines use a large amount of chemical and water in the extraction process. In fact, some models may apply as much as 3 to 5 gallons of water and cleaning solution to the carpet per minute.

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If the extractor has poor vacuum capacity, this can result in overwetting, which can create other problems. The carpet's backing may separate, its coloring or dye may bleed, shrinkage may occur, and potential health problems for the facility may increase.

### **Wet, wet, wet**

The problems associated with over-wet carpets are intensified in a heavily used educational setting. Over-wet carpets require longer drying times. This can cause large sections of a building to be blocked off for extended periods. Especially in a school, this can lead to serious safety issues. Teachers and students walking from a wet or damp carpet directly onto a hard-surface floor can slip or fall. Also, wet carpets that are walked on usually resoil more quickly. This is because the chemicals and moisture act as a magnet, pulling dirt and debris into the carpet fibers.

Of much greater concern, the long drying time increases the likelihood that mold and mildew will develop, seriously jeopardizing indoor air quality and potentially harming occupant health.

With longer drying times, and if traditional carpet cleaning chemicals are used, there is a greater possibility that gases and volatile organic compounds (VOCs) will be released into the air. This can cause allergic reactions and respiratory problems, especially for young children.

According to the U.S. Environmental Protection Agency, carpets should be completely dry within 48 hours of extraction to prevent mold and mildew. However, LEED-EB (Leadership in Energy and Environmental Design — Existing Buildings) suggests that carpets be dry in less than 24 hours, and some experts believe even this is too long.

### **A low-moisture solution**

One way schools can prevent overwetting and reduce the amount of chemicals used in carpet extraction is through the use of low-moisture carpet extractors. Using these machines also will help green carpet cleaning.

Low-moisture carpet extractors are relatively new to the professional carpet-cleaning industry, and only a few manufacturers are producing them. Some of the machines look like traditional portable extractors; others resemble large, upright vacuum cleaners.

Low-moisture extractors use about 1 gallon of water per minute, considerably less than older extractors. With low-moisture extractors, carpets can dry in as little as 30 minutes, depending on the weather and other environmental conditions.

Other green features of low-moisture extractors:

- **Reduced water and chemical usage**

In addition to extractors with tanks that use significantly less water, some low-moisture portable machines are “tankless.” This means they have hoses that connect directly to water outlets and drains, and incorporate an automatic fill and dump system. The chemical is mixed automatically. These systems help reduce water and chemical usage because only as much water and solution necessary to clean the carpets is used — a key component of a green cleaning system.

Another benefit of tankless extractors is that they help improve custodial productivity. It takes about 15 minutes each time a cleaning worker must go to a janitorial closet to add or dump cleaning solution. This is time that can be used much more productively by cleaning.

- **Improved vacuum system design**

The vacuuming systems on some low-moisture extractors have been improved simply by the way they are designed. Vacuum motors are installed closer to the unit's base so that moisture is moved inches — not feet — from the carpet area being cleaned. This also helps speed drying time.

- **Heated solution**

Another green component of some low-moisture portable extractors is their ability to heat the cleaning solution. As the temperature of the water and cleaning solution increases, chemical reactions occur at a greater speed. Once the water temperature reaches more than 200°F, this speed doubles with each 18-degree rise in temperature.

Often, this reduces the amount of chemical needed. High-temperature cleaning also has been found to improve drying times in both traditional and low-moisture extractors.

#### **NOTABLE**

##### **48**

Suggested number of hours within which carpets should be completely dry following carpet extraction, according to the U.S. Environmental Protection Agency.

##### **24**

Suggested number of hours within which carpets should be completely dry following carpet extraction, according to LEED-EB (Leadership in Energy and Environmental Design — Existing Buildings).

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