

Improving Indoor Air Quality

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Although Indoor Air Quality issues are now frequently discussed, concerns about the effects of poor IAQ is a 30-year-old issue.

Soaring energy costs from the oil crisis in the 1970's forced construction of new office buildings, medical facilities, schools, universities and other building types to use techniques to reduce energy consumption. The goal: make them energy-efficient and less vulnerable to fluctuating energy markets.

A major cost containment strategy was to reduce the amount of outside air entering the facility, which would reduce the need and costs of inside temperature and humidity control. But this reduction in the quantity of fresh air resulted in the concentration of several undesirable substances, including volatile organic compounds (VOCs), which can affect health, occupant performance, the environment and the building itself.

Conversely, studies indicate that when IAQ is improved in the educational setting there can be several positive results. For instance, one study conducted at Frank Porter Graham Child Development Center on the campus of the University of North Carolina at Chapel Hill, N.C. for the U.S. Environmental Protection Agency (EPA) found healthier IAQ and indoor environmental quality resulted in: Airborne dust was lowered by 52 percent; VOCs were reduced by nearly 50 percent; Bacteria decreased by 40 percent; and fungi decreased by 61 percent.

To address the IAQ problem and improve the indoor environment, architects, contractors and engineers have retrofitted many older buildings and now design new ones that allow more fresh air to enter the facilities without compromising energy efficiency. They also use construction materials, carpets, furniture, adhesives, paints and other products, which have been developed with lower VOCs and have a less negative impact.

Cleaning and cleaning systems too have been changed to help improve IAQ, including taking such steps as preventing contaminants from entering a facility, transitioning to Green Cleaning and the use of environmentally-preferable cleaning products.

STOPPED AT THE DOOR

Industry studies indicate that over a 20-day period, up to 24 pounds of dirt can be "walked" in to a facility by just 1,000 people. And, research shows that 90 percent of all dust and dirt entering a facility walks in through the front door. These soils can become airborne, marring IAQ and the use of inefficient cleaning tools and products can exasperate the problem.

To help trap dirt at the front door, more efficient matting systems are mandatory. Studies indicate that soils accumulate most frequently within the first 10 to 20 feet of a door. This means that at least 15 to 20 feet of highly-efficient matting should be placed inside and immediately outside entries.

Additionally, because their efficiency depends on a variety of conditions, such as foot traffic and weather conditions, these mats should be checked throughout the day and, on a set schedule or as they become soiled, they must be cleaned, vacuumed, and replaced.

We now know that cleaning products, tools and equipment can

harm as well as help improve IAQ.

The use of Green Cleaning products are safer, healthier for building occupants and have less negative impact on the indoor and outdoor environment compared to traditional products. However, we must also realize that Green Cleaning and improving IAQ have several components, besides the mere use of "Greener" products, and to be consistent and effective, all of these components must be put into place.

According to Greg Norris, PhD with the Harvard School of Public Health, "a single stripping and waxing of a floor can equal or exceed the amount of VOCs emitted during the entire life of the flooring itself. "And, when we consider that we may be stripping and recoating these floors -even the new Green flooring materials- one to three or more times per year, the opportunity to reduce total VOCs by focusing on the maintenance side of the equation is substantial.

Similarly, the benefits of using Green Cleaning chemicals can be lost if the other tools used for cleaning, such as vacuum cleaners, carpet extractors and floor machines, are not also Green. Fortunately, many major manufacturers in the Jan/San industry have jumped on the "Green bandwagon," producing environmentally-preferable products, including many that are certified by such organizations as The Environmental Choice Program™, Green Seal®, GreenGuard Institute™, Scientific Certification Systems (SCS) and the Carpet and Rug Institute (CRI).

IN YOUR ARSENAL

Approved vacuum cleaners bear the CRI Green Label, for example, and are certified to have high-filtration systems that better trap contaminants to prevent them from being released into the air. For hard surface floor machines, although no certification program has been established, Greener machines are available that use vacuum systems to trap the dust generated when polishing floors, dust that would otherwise become airborne. Microfiber products are now available that can significantly reduce the use of chemicals and the associated VOCs, as well as do a superior job removing particles.

A final component improving IAQ that cannot be overlooked is training. Training cleaning professionals how to use environmentally-preferable products has two important benefits: effective use of the products and it also helps workers realize the important role they play in keeping building occupants healthy. This understanding often results in more thoroughly-cleaned facilities that are not only healthier, but have an improved appearance as well.

A 25+ year veteran of the cleaning industry, Steve Ashkin is the author of *Green Cleaning for Dummies* and a tireless advocate for environmentally preferable cleaning products. Often referred to as the "father of green cleaning," you can get more information at www.ashkingroup.com.