

Pretty Purifiers

Plants Can Enhance Indoor Air Quality

By Mike Sawchuk

In the past, office and institutional buildings rarely housed plants. Rather, these buildings were designed to emphasize the formidability of concrete and steel.

The 1970s ushered in an environmental movement and new attitudes. Plants were installed in lobbies, offices and common areas as facilities managers attempted to bring more green inside. Around the same time, researchers started reporting evidence that rooms with plants had cleaner, healthier air.

Some studies found that plant-filled rooms contained as much as 60% fewer airborne moulds and bacteria compared to rooms without plants. The plants also absorbed and converted volatile organic compounds (VOCs), carbon dioxide and other toxins into healthy air.

The 1980s saw something of a step backward, perhaps because building owners/managers questioned the expense of selecting and then maintaining the vegetation. It is certainly true that plants, especially large plants, can be costly and their life span in interior settings can be relatively short. Plants might also take up space that could otherwise generate revenue as leasable office area, shops or kiosks.

More recent research helped reestablish other priorities. In 1998, Professor Tove Fjeld of the Agricultural University in Oslo, Norway, began a series of studies on indoor air quality.

The studies were conducted in 51 different offices and buildings, and 13 common varieties of indoor vegetation were installed throughout the locations for a fixed period then removed from the locations for a comparable time. The same participants were involved in both studies, and no other changes, structural or otherwise, were made in the facilities other than the removal of the plants for the study.

Researchers discovered:

- Participating workers reported 20% less fatigue where the plants were installed;
- Headaches were down by 30%;
- Respiratory problems including coughs and dry or sore throats declined by as much as 40%;
- There were 25% fewer complaints of dry facial skin; and
- Overall, where plants were installed, there was a 23% reduction of 12 different health-related symptoms or complaints commonly reported in the buildings and offices.



Environmentally aware facilities managers are now increasingly interested in cleaning with plants and other bio-renewable resources. These products are made from such plant items as soy, corn, coconut, parsley, citrus, lavender and a few other plant sources. They emit few if any VOCs or other chemical ingredients that can harm indoor air quality.

The various plant types are effective in different cleaning applications. For example, soy-based products are often used for hard-surface cleaning, metal polishing and even removing graffiti.

Canada's EcoLogo™ program has established standards and criteria for bio-renewable products under its certification criteria *CCD-110 Cleaning and Degreasing Compounds Biologically Based*. Facilities owners who want to be confident of compliance with these standards should look for Green-certified products. **PMR**

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PEARLING THE AIR

Pearls are made when a foreign substance slips into an oyster's shell, causing irritation. The oyster encapsulates that irritant and the secreted natural substance eventually turns the irritant into a pearl.

Indoor vegetation does much the same thing with airborne toxins. Plants absorb pollutants into their leaves and transmit the toxins down to their roots where they are turned into a food source.

Using these impurities as a source of food, the plant produces new leaves and the process of photosynthesis begins. During this process, in which the leaves absorb light and convert it to energy, the plant releases oxygen into the air.