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Prescribing cleaner air in health care facilities

While the new science of Healthy Building Management is addressing these more chronic maintenance problems, other developments are leading the way towards using the indoor environment as an additional healing tool, both through design and aesthetics and through improved indoor air quality.

By BRUCE M. SMALL, P.Eng.

While some health facilities are slowly coming to grips with the possibility of healthy building management (Hospital News, Feb. /98), others are taking the trend toward better indoor air quality in health care facilities one giant step farther, towards creating a true 'healing environment'.

For the most part, existing health facilities of all kinds are still struggling to overcome typical building deterioration that can lead to indoor health problems, including mould and mildew growth, as well as inadequate ventilation and buildup of volatile contaminants in indoor air. One primary factor leading directly to building-related illness is restricted maintenance budgets. Low budgets indirectly allow compounding of poor conditions, such as ongoing water leakage and mould growth from cracked foundations or buildup of soil on floors and in carpet.

Many facilities haven't even inspected their air-handling ductwork since it was installed, let alone cleaned the ducts properly on a regular basis. It is also common to have a mix of new and aging HVAC equipment, often badly adjusted and haphazardly controlled, causing a wide variation of environments within a facility, from hot and stuffy to cold and drafty.

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Nowhere is this demonstrated more dramatically than by the shifts in attitude towards the use of carpeting in health care facilities. Some hospitals have had such bad experience in the past with traditional forms of carpeting (including strong odours on installation, soiling, poor wear and quick deterioration in appearance) that they are fighting hard to eliminate carpeting in any new renovations. Other health facilities, such as the Loma Linda Medical Center in California, the St. Elizabeth Community Health Center in Lincoln, Nebraska, and Buchanan Lodge in New Westminster, B.C., have turned to extensive use of Interface health care carpeting and have increased the percentage of area that is carpet-covered, thereby imp roving the aesthetics, noise reduction, upkeep costs and general healing environment for their patients.

Interface Flooring (Canada) Inc.'s C.E.O. Claude Ouimet emphasizes that the revolution in floor covering will continue. Interface Canada of Belleville, Ont. has achieved the world's first low-pollution Envirodesic carpeting, designed to withstand the rigorous demands of the health care environment while avoiding the offgassing and mildew growth problems that are common in more conventional carpet products.

Other manufacturers have also created new products that make it easier to create a healing environment. Virox Technologies Inc. of Mississauga, Ont., has pioneered the development of Accelerated Hydrogen Peroxide Technology as an alternative to more toxic chlorinated and quarternary ammonia based cleaners and sanitizers. Designed to work with either hard floors or health care carpeting, the cleaners contain no volatiles, and work by oxidizing the micro-nutrients present in carpet soil, breaking them up and allowing them to be flushed away. During the cleaning stage, the peroxide-based products have impressive antimicrobial properties. After extraction, there is sufficient hydrogen peroxide residual to inhibit mildew growth during the drying stage. This is the time when conventional carpeting is in danger of growing mould. The backing of Interface's health care carpet also contains Intersept, a compound which further inhibits microbial growth without contributing to indoor air pollution.

Selective use of local HEPA filtration is being pioneered to reduce flu virus transmission in chronic care and nursing facilities. Americair Corporation's Jim Woods notes that high-efficiency particulate filtration can provide basic protection from airborne transmission, both in densely occupied spaces such as group dining rooms, and in individual rooms adjacent to infected residents. At Americair's Mississauga, Ont., plant, its manufacturing staff produces a variety of portable and in-line filtration units. Some can also incorporate charcoal filtration for full reduction of indoor volatiles.

The goal in the winter season is to reduce the spread of airborne virus within chronic care facilities, and to improve the general air quality for residents so that they have a better chance of resisting or fighting the flu viruses if they are exposed.

The indoor environment revolution also extends to medical and dental offices. A southern Ontario dentist, motivated by increasing illness and malaise during office hours, has instituted a variety of changes in office materials and procedures to lower volatiles and decrease extraneous chemical contamination of the air. Manufacturers like Virox Inc. are now assessing the need for a variety of replacement products, including nontoxic sanitizers and disinfectants without volatiles, to reduce the hazards for patients and dentists alike.

Still leading the pack is the Nova Scotia Environmental Health Centre, under the guidance of Administrative Team Director Dr. Roy Fox and Research Director Dr. Michel Joffres. While this clinic has gone to greater lengths for indoor air quality than are required in most other facilities, the design principles that they have used and the experience they are gaining in treating people whose health has been impaired by poor building environments will help manufacturers in their design of new products for all health care facilities.

And while new technology is making it easier, the social pressure from the baby boomer generation for healthier surroundings is ultimately driving the trend towards using air quality as a proactive healing tool in the complex health care environment.

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