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Building a Healthier School Environment for Children – our Future Generation

Canadian children spend a significant amount of time in schools. Students spend approximately 1600 hours per year in primary and secondary schools. With kids in school for an average of 18 years, one can only imagine the time spent inside a school environment during their formative years. We need to ensure that all schools are free of indoor environmental pollutants and irritants that could affect the health and productivity of students and staff. A school's environment possesses great potential to impact the health and futures of the individuals within them, and the strength and productivity of society itself. Therefore, it is critical that schools provide a healthy environment for learning and growing.

It is estimated that 25 percent of the chemicals used in traditional cleaning products are toxic. With students spending so many hours in school, they are at risk when exposed to these toxins. Because the organ systems of school-aged children are still developing, inhaling harmful chemicals and toxins can cause respiratory problems such as wheezing, worsening of asthma, nosebleeds and nasal congestion. Exposure can also lead to other symptoms, including headaches, nausea, fever, muscle aches and skin rashes. In a recent CTV news report, a half-dozen children at an Ottawa elementary school suffered burns to their backsides after their skin came in contact with residue from a solution used to clean toilets, desks and other surfaces.[1]

As children grow and spend most of their time in schools, they can be exposed to a wide variety of chemicals. Different chemicals can affect different organs, hormonal systems and biochemical pathways. Those chemicals that act as endocrine disruptors will have a variable effect depending on the child's age and stage of hormonal development. A child's 'dose' per body weight is likely to be much higher than adults, and children are not uniformly exposed to environmental risk factors.[2] Children are different from adults in the composition of their body, blood, and organ size, which means that children are less able to handle toxins. Low body fat combined with proportionally larger organs in children leads to greater distribution and storage of toxins. Furthermore, children have higher respiratory and energy metabolisms. Chemical compounds are broken down in the body into metabolites. Some of these metabolites are more toxic than the parent compound. Children's pathways are immature and may not be able to metabolize the same chemicals that are also found in adults. Children often remain vulnerable to these toxic exposures through young adulthood. Unfortunately, most government standards aimed at limiting exposures are based on adult exposures, and there are many questions about the scientific accuracy of these standards and whether they are protective enough even for adults. In addition to being exposed to airborne chemicals, children have frequent hand-to-mouth contact, which can lead to accidental ingestion of harmful chemicals found in cleaning supplies. Switching to green cleaning products in schools can reduce these child health concerns, and often eliminate the symptoms brought on by chemicals found in traditional cleaning products.

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[1] http://www.ctvnews.ca/canada/ottawa-schoolchildren-burned-by-school-toilet-seats-1.1153595

[2] IMPACT OF ENVIRONMENTAL TOXINS ON THE HEALTH OF CHILDREN, Written by Dr Sharyn Martin for ASEHA Qld Inc 2005

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There's a growing body of evidence making a connection between how well children perform in school and life and toxins in their environment. Lead poisoning, for example, has been shown to lower IQ and shorten attention spans. Children with high levels of lead in their body have more trouble concentrating and following directions, and tend not to do as well in school. They are also more prone to impulsivity and antisocial behavior, including violence.

Indoor Air Quality (IAQ) Problems

According to the Canadian Centre for Occupational Health and Safety, occupants of buildings with poor Indoor Air Quality (IAQ) report a wide range of health problems which are known as Sick Building Syndrome (SBS) or Tight Building Syndrome (TBS), Building-Related Illness (BRI) and Multiple Chemical Sensitivities (MCS).

The term Sick Building Syndrome (SBS) is used to describe cases in which building occupants experience adverse health effects that are apparently linked to the time they spend in the building. However, no specific illnesses or cause can be identified. Building-Related Illness (BRI) refers to less frequent (but often more serious) cases of people becoming ill after being in a specific building at a certain time.

Figures are hard to come by, but studies have estimated that a third or more of Canadian schools have mold, dust and other indoor air problems serious enough to provoke respiratory issues like asthma in students and teachers. A national survey of school nurses found that 40% knew of children and staff who were adversely affected by indoor pollutants.[3] Indoor air affects more than health. A growing body of research suggests students also perform better in schools with healthier air.

Indoors, factors such as mold, mildew, dust, asbestos and formaldehyde can affect indoor air quality and trigger various allergies and asthma. Asthma alone accounts for 14 million missed school days each year. The rate of asthma has risen by 160% in the last 15 years and today, one in every 13 school-age children has asthma.[4] Indoor air contaminants can originate either within the school building or be drawn in from outdoors. If pollutant sources are not controlled, IAQ problems can arise, even if the heating, ventilation and air conditioning (HVAC) system and other building components are properly operated and maintained.

According to the Statistics Canada National Population Health Survey Overview, the top three chronic illnesses among Canadian children are non-food allergies (which affect 14% of children), asthma (11%), and food allergies (6%). The dominant allergens and respiratory irritants which are known to be associated with these chronic conditions are frequently found in indoor environments where children spend, on average, 90% of their time.

Unfortunately, asthma has increased steadily in Canada over the last 20 years, especially in children. Studies suggest that this increase is due, at least in part, to increased exposure and sensitivity to indoor allergens. Exposure to these contaminants is especially high in Canada with long cold winters that increase the need to stay indoors and the need for well-insulated indoor environments.

[3] http://www.gotmold.ca/2012/02/should-canadian-school-boards-be-concerned-about-mold/

[4] http://worldasthmafoundation.org/asthma-facts

Asthma is the leading cause of absenteeism in school children in both Canada and the U.S. Frequent, short absences from school due to asthma seem more detrimental to academic performance than occasional long absences for other reasons.

Other specific health risks associated with traditional cleaning chemicals include eye and skin irritations, and even cancer. Recent research suggests that between 10-16% of cancers can be related to known cancer-causing substances in conventional cleaning products.[5] These conditions were found in indoor environments where there was inadequate ventilation, where man-made synthetic materials were commonly found (including carpets), and where traditional cleaning supplies were used. In addition, indoor air pollutant levels can vary by time and location within the school building, or even within a single classroom.

Each school should consider developing policies on fragrance-free products in consultation with provincial and territorial authorities. Symptoms associated with poor IAQ include classic irritation symptoms - headaches, dizziness, hyperactivity, fatigue, memory loss, short attention span, and moodiness.

Facility flooring plays an important role in IAQ. IAQ improves when hard-surface floors are maintained with a program that includes daily sweeping, cleaning, and maintenance to capture and remove dust particles from the indoor environment. Hazardous chemicals found in conventional cleaning products can also trigger asthma and allergy attacks. Whether it is skin or odour sensitivity, these factors do not help the students and/or teachers while they are in school.

These symptoms, at the very least, are believed to interfere with students' concentration and ultimately their school performance. At a time when the number of students with asthma has reached new highs—and when cities and school boards are increasingly focused on the importance of maximum attendance—the emergence of new, greener cleaning technologies including sustainable floor care products and processes for cleaning and maintaining schools are now making it possible to provide significantly healthier buildings for students and staff. And it can be done without burdening school budgets.

Choosing cleaning products

Taking the time to do your research will enable you to find the right cleaning program to suit your needs and budget. For example, look for third-party certifications. UL Environment UL(Ecologo) is widely known as the premiere mark of environmental standards. Also, it is important to review each product's Material Safety Data Sheet (MSDS) for ingredients that may harm the user. The MSDS sheets are important in that they provide you with instructions regarding proper handling and storage of the products, how to protect yourself from exposure, and the type of measures and clothing to use for personal protection. MSDS act as a tool to gauge how sustainable a product really is. Finally, ask for proper training from your cleaning solution provider.

[5] Examining the Relationship between Conventional Cleaning Chemicals and Human Health (and Environmental) Risks – A technical white paper – TerraChoice Environmental Marketing for Avmor Ltd. Copyright 2008.

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A regular sanitation program is necessary to ensure high IAQ as it helps to remove contaminants from the building environment. Cleaning not only gives your school a positive aesthetic, but it is essential to ensure the optimal performance of students, as well as teachers, administrators, custodians, and other school staff.

To fully reap the rewards of a sustainable sanitation program, safer alternatives to traditional cleaning products should be used. In addition to benefits provided by traditional cleaning, green cleaning promotes health, safety and social consciousness. When choosing green cleaning products, it is important to be aware of the different options on the market, as not all green cleaning products are created equal. Therefore, it is important to do the research in order to ensure that you have chosen the best products for your needs. The products you choose should meet the following criteria:

- ✓ **Performance** – Saves time while cleaning effectively and ensures the pristine appearance of your educational institution.
- ✓ **People** – Safeguards the health and safety of students, teachers and staff.
- ✓ **Planet** – Raw materials should be biodegradable and meet the highest environmental standards for safe storage, transportation and disposal. More specifically, materials used should be safe on our water systems and aquatic life.
- ✓ **Price** – Priced competitively when compared to conventional cleaning products in the same categories.

It is worth noting that even “green” chemicals can be harmful if not used properly. For example, most of the exposed limits included in the UL (EcoLogo) Standard is based on an assumption that products will be diluted properly. If they are not, some of the UL (EcoLogo) certified products – or the products certified by other rating organizations – may be hazardous. For this reason, it is important to look for products with dilution control systems. By providing accurate dilutions, the products will perform at their optimal level, thereby maximizing effectiveness by preventing wastage, and making cleaning easier and safer on your employees.

Outstanding customer service, support, and training can be as important as the right cleaning solution. Look for a company who offers added value, tools and support in the form of hands-on training, sanitation programs, wall charts, proper labels and MSDS. These tools are an integral part of the process of going green because the products you choose will enable you to be a responsible leader in your community without compromising your health, the health of those around you, and that of future generations.

About Avmor Ltd.: Headquartered in Laval, Quebec, Avmor is Canada's leading manufacturer of professional cleaning solutions aimed at the Facility Maintenance and Foodservice markets. Avmor holds a GMP (Good Manufacturing Practices) license, which is a prerequisite to be able to manufacture hand soaps that include disinfection claims and a DIN (Drug Identification number) provided by Health Canada. Avmor offers a full range of hand care products. Avmor’s complete line of cleaning products include Cleaners/Degreasers, Floor Care, Washroom Care, Food Service Care, Hand Care, BioMaxx, Disinfectants and others. Some of Avmor’s signature brands are **Av-mixx Dilution Control System**, **Biomor Biological Cleaning Solutions**, Quick Stuff Food Service Cleaning System, Synergy Floor Care and **EcoPure**, its new environmentally responsible sanitation program which features over 50 certified Ecologo products. For over 60 years, Avmor has remained at the industry forefront, defining product performance standards and striving for the safest and most cost-effective cleaning systems for professional use. Avmor Ltd. is a privately held company.

References:

1. Examining the Relationship between Conventional Cleaning Chemicals and Human Health (and Environmental) Risks – A technical white paper – TerraChoice Environmental Marketing for Avmor Ltd. Copyright 2008.
2. IAQ: A Guide for Building Owners, Managers and Occupants, Worksafe BC. www.worksafebc.com. Copyright 2005
3. http://www.todaysdietitian.com/newarchives/tdapril2008pg50.shtml

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