

# Guide To

# GREEN CLEANING

## Healthier Cleaning & Maintenance

## Practices and Products for Schools



Healthy Schools Network, Inc.

[www.healthyschools.org](http://www.healthyschools.org)

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### SCHOOL CLEANING AND MAINTENANCE ARE TOUGH JOBS!

*The number of children in classrooms, hallways, cafeterias, gymnasiums, locker rooms, and other areas creates huge cleaning and maintenance challenges.*

Schools are four times as densely occupied as commercial office spaces and children are not known for neatness. More children have asthma and allergies than ever before and constant foot traffic stirs up dust and tracks in mud and debris. Some over-crowded schools have adopted split sessions, some provide breakfasts, after school programs, sports activities, and summer school sessions. Some school buildings and grounds have become “centers of community” and are used for evening and weekend programs. The bottom line: schools have more users for more hours than ever before.

The combination of numerous occupants, more than full-time use, lack of storage space for instructional materials or student projects, back-logged school building repairs, materials or furnishings that collect dirt or require special cleaning, and maintenance staff cut-backs can be overwhelming for facility directors and their staff.

Industrial strength cleaning products and room deodorizers some schools use add to indoor air pollution. These products can be risky to use around children—especially those with sensitive airways or other health problems—and hazardous to the cleaning staff who handle them directly. While schools should be cleaned more frequently and more effectively, the cleaning itself should not contribute to the problem.

#### PARENTS:

##### **When to suspect an environmental problem in the school**

- ◆ Your child starts most days healthy but develops headaches or nausea during the school day.
- ◆ Your child comes home from school sick, tired, ‘itchy’ or angry.
- ◆ Your child uses more asthma medications on school days.
- ◆ Your child shows new or worsening health or learning problems only on certain days or as the school heating season starts.
- ◆ Your child comes home with odd odors clinging to his/her clothing.

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*You will not necessarily know if pesticide applications or renovation projects are taking place during school hours: you will need to ask or to visit.*

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**Take these health signs seriously!  
School personnel and unions do.**

#### SCHOOLS OFFICIALS:

Chronic illnesses can make anyone miserable, but they also affect student attendance, performance, and life-long attitudes towards learning.

#### STATE/LOCAL ELECTED OFFICIALS:

See page 7 of this Guide for links to New York State’s Executive Order and law requiring all state agencies and all schools to use green cleaning products.

## CHILDREN, LEARNING & POISONS DON'T MIX



While no one in school should be exposed to dangerous chemicals, children are especially vulnerable to environmental health hazards.

Medical research shows that children's organ systems are still developing. They proportionally eat, drink, and breathe more per pound of body weight than adults. Their behavior exposes them to more environmental threats and they are least able to identify or protect themselves from hazards. Air pollutants can cause respiratory ailments such as nasal congestion, shortness of breath, wheezing or worsening of asthma, nosebleeds, a cough, or other symptoms such as itchy, watery eyes, headaches or dizziness, fatigue, nausea, rashes, fever, muscle aches and more.

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### HOW CHILDREN ARE EXPOSED TO TOXIC CHEMICALS IN SCHOOL

Whether a product is freshly applied or mis-applied, mixed improperly (some common cleaning products, when mixed together, can give off deadly gas), used in an undiluted state, stored in an unventilated hall closet, or leaves a heavy residue, there are three exposure routes.

**Inhalation:** (children breathe more air per pound of body weight than adults) Aerosols, vapors, fumes, or dusts can be inhaled causing breathing problems, and/or absorbed into the bloodstream and carried to other body organs.

**Skin contact:** (children are less able to identify and avoid hazards; they have immature systems that may not detoxify poisons) Residues from chemicals can damage skin by burning skin tissue or by being absorbed through the skin and carried to body organs, resulting in dryness, redness, or dermatitis.

**Ingestion:** (children play on the floor or ground, put their hands in their mouth, and rarely wash their hands before eating lunch or snacks) Can accidentally eat chemicals via hand-to-mouth contact.



## CHEMICALS USED TO CLEAN AND MAINTAIN SCHOOLS TODAY

Of the 85,000 synthetic chemicals in commercial use today, only a small fraction have been individually tested for toxicity.

Tests on various chemicals acting in combination with one another is practically non-existent. Despite this, a wide variety of toxic or hazardous products are routinely used for cleaning homes and offices. Schools are no different, except the majority of school occupants are children, packed very closely together. Adult exposure limits are negotiated in a federal regulatory process. But new research on children and their vulnerability gives reason to urge preventive measures to protect children.

### NEW YORK BANS CAKE TOILET

**DEODORIZERS.** New York law bans the use of cake toilet deodorizers in schools that contain paradichlorobenzene. See Section 401G of State Education Law.

### Indoor Air Quality (IAQ), Sick Building Syndrome (SBS) and Building Related Illness (BRI)

Sick Building Syndrome is used to describe situations in which building occupants experience acute health effects that appear to be linked to time spent in a building when no specific illness or cause can be identified. The complaints may be localized in a particular room or zone or may be widespread throughout the building.

Building Related Illness is a term used when symptoms of diagnosable illness are identified and can be attributed directly to building contaminant. (Source: EPA Indoor Air Facts, No. 4, April 1991). The use of cleaning and maintenance products containing toxic chemicals has been directly linked to IAQ, SBS and BRI (EPA Tools for Schools, 2002).

# TWO STEPS TO HEALTHIER SCHOOL HOUSEKEEPING

## 1. PREVENT dirt and grime

- ❑ Keep walks and parking areas clean and swept or shoveled so shoes stay clean and dry, avoid road salt.
- ❑ Place 2-3 'walk-off' mats at each entrance (as wide as the doorway and twice as long, often 6x12)
- ❑ Use trash cans at entrances to reduce litter in the halls.
- ❑ Provide cubbies or student lockers for storage of personal items and have regular locker clean-out days.
- ❑ Restrict all snacks, meals and food storage to one or two designated areas in a building.
- ❑ Have easy-to-find and tightly sealed garbage cans and recycling bins, away from the building's fresh air intakes; keep cans and dumpsters clean.
- ❑ Use only durable, hard surface, easy-to-clean materials for floors and walls.
- ❑ Ban new or used (donated) upholstered furniture and carpeting in classrooms & hallways.
- ❑ Ban the use of cleaning chemicals brought from home (ex: teacher's own aerosol can of desk cleaner).
- ❑ Maintain the heating and ventilating system to reduce or eliminate airborne contaminants such as bacteria and molds, or other problems such as dead animals in the duct work.
- ❑ Damp (not wet) mop or auto-scrub floors instead of dry-sweeping floors to keep dust down; change the water frequently.
- ❑ Have a written plan for school cleaning and maintenance that protects health and environment as top priorities.
- ❑ Establish an Environmental Health & Safety Committee on which parents, community, employees and student representatives serve— also create a system for dealing with questions or complaints.



## 2. PURCHASE healthier, safer cleaning products.

### Environmentally Preferable Purchasing

Environmentally preferable purchasing (EPP) takes prevention seriously. EPP means “products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw material acquisition, production, manufacturing, packaging, distribution, re-use, operation, maintenance, or disposal of the product or service.” (Presidential Executive Order 13101; definition also used by US EPA and generally accepted by industry.)

### CAVEAT EMPTOR

*(Let the Buyer Beware)*



Many manufacturers and retailers are using terms such as “environmentally safe”, “green”, “non-toxic” and similar phrases to boost sales. Some of these claims are valid; many are not.

**Choose products that are rated “green” by independent, third party organizations.**





# PURCHASING CHECKLIST

## HEALTH AND ENVIRONMENTAL CONSIDERATIONS:

### □ AVOID HAZARDOUS INGREDIENTS.

Choose products that contain lowest Occupational Safety and Health Act (OSHA) defined hazardous ingredients. **Both OSHA and SARA information can be found on 1) the Material Safety Data Sheet (MSDS) under the section on “hazardous ingredients,” and; 2) on Product Labels:**

#### 1. Material Safety Data Sheets

**(MSDSs).** MSDSs are the manufacturer's summary of the potential hazards of a product. They include information on health effects, safe use, handling and storage and emergency procedures to follow in the event of a spill or leak. Manufacturers are required by OSHA to Create and distribute MSDSs for products that may present an occupational hazard. Parents can ask for copies to learn more about hazardous products at school. Since one of the purposes of the MSDS is to aid in emergencies, they must be a accessible. If you are refused, you may use the Freedom of Information Law (FOIL) to obtain copies.

**Health Hazard Ratings on MSDSs.**  
Each MSDS will contain a “Health Hazard Rating” number.

**0= insignificant**

**1= slight**

**2= moderate**

**3= high**

**4= extreme**

**Choose products with the lowest ratings.**

**2. Product Labels.** OSHA also requires that warning labels be placed on containers of hazardous materials in the workplace. Labels must provide names of chemicals in the product and the physical and health hazards.

### 2. Product labels, cont'd;

Some products use “signal words” such as:

**CAUTION= mild/moderate hazard**

**WARNING= moderate hazard;**

**DANGER= very flammable/corrosive, highly toxic**

**POISON= highly toxic**

Choose products that have the lowest hazard potential and are not known, probable or possible carcinogens, do not affect the nervous system, reproductive organs, lungs, liver or kidneys.

### □ WATCH OUT for specific chemicals used in cleaning and maintenance products:

When choosing **MAINTENANCE PRODUCTS** such as **interior paint**, use water-based latex paints that 1) contain no solvents, and; 2) have zero or low volatile organic compounds (VOCs) and contain no heavy metals or other ingredients that are harmful to human health or the environment. Some ingredients to avoid in paints: lead, mercury, antimony, cadmium hexavalent chromium, methylene chloride, 1,1,1-trichloroethane, benzene, toluene, ethylbenzene, vinyl chloride, naphthalene, 1,2-dichlorobenzene, Di(2-thylhexyl) phthalate, butyl benzyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, diethyl phthalate, dimethyl phthalate, isophorone, formaldehyde, methyl ethyl keytone, methyl isobutyl keytone, acrolein, and acronitrile.

The list of hazardous chemicals which may be in the wide variety of specialized cleaning products (**general purpose, floor, toilet bowl, disinfectant, glass, etc.**) is too numerous to include in this Guide. Therefore, when choosing **CLEANING PRODUCTS**, consult the **Janitorial Products Pollution Prevention Project**. (see Resources) for information on the safe and effective use of common cleaning chemicals.

# OTHER SPECIFIC PRODUCT PURCHASING CONSIDERATIONS

## PROTECT HUMAN HEALTH

Choose products that:

- Contain no known, probable or possible carcinogens.
- Have neutral pH. High pH= caustics; Low pH= acids. Choose products with moderate pH (7).
- Are non-irritating to eyes & skin. If irritation information is not available, go back to neutral pH.
- Have no short-term (acute) or long-term (chronic) health hazards. Check the MSDS and product label.
- Are free of, or are low in, Volatile Organic Compounds (VOCs). VOCs are organic chemicals that evaporate easily. They contribute to indoor air pollution and may cause headaches, nausea, respiratory problems and may cause the formation of ground level ozone/smog.
- Use disinfectants only as required by state health laws. Disinfectants are designed to kill living organisms. They are rarely required.
- Avoid fragrances (odors) and dyes.
- Are non-flammable.
- Are non-reactive. Mixing should not create toxic gases, fire or other violent reactions.
- Are not packaged in aerosol/spray cans. Instead of pressurized propellants, they use pump-action dispensers.
- Provide dispensing systems that minimize exposure to concentrated solutions. Dispensing method should be designed to eliminate exposure to the concentrated solution and reduce waste.



## PROTECT THE ENVIRONMENT

Choose products that:

- Are biodegradable.
- Contain no ozone-depleting chemicals such as chlorofluorocarbons (CFCs) and chlorinated solvents.
- Are not disposed of as a hazardous waste.
- Can be used for more than one task (multi-purpose cleaners) to reduce waste containers and the need for use and storage of several products.
- Are made from or contain ingredients from renewable resources such as corn (corn starch), coconut oils and orange peels.
- Are sold with reduced packaging for both the product and shipping container.
- Are packaged in a refillable or recyclable HPDE or PET container. (Make sure the product meets school or local recycling system requirements.)



# BACKGROUND : Advocates and Purchasers

## VENDOR, PRICE & PERFORMANCE CONSIDERATIONS:

**Vendor Reliability.** Will the seller demonstrate products or offer staff training? And will they have sufficient staff to meet training requirements? Will they supply MSDSs with bid and with delivery? Will they deliver on time and give a telephone number for technical assistance?

**Price.** Be careful: price should mean the whole cost of the product from delivery to storage to disposal, not just the up-front purchase cost. While in the past environmentally preferable products were more expensive, today these products are often cost-neutral and, in combination with a “prevent dirt” approach, they are of comparable or even lower prices than their more toxic competitors. Schools, by the way, are willing to spend money on things they believe are important, say, expensive lighting for the football field.

**Performance.** Does it actually clean up spills or heel marks? Is it easy to use? Does it affect the user’s health or add to indoor air pollution?

## HOW SCHOOLS BUY CLEANING AND MAINTENANCE PRODUCTS

**Public school purchasing is often regulated by state law and local school district policy.**

Districts specify product characteristics, then choose the lowest responsible bidder that meets those specifications.

Schools need reliable products. Poor performing products or hard-to-use products can create hidden costs in labor, handling, air pollution or disposal.

School boards designate a staff purchasing agent who may keep bidders’ lists, circulate requests for proposals, buy locally or buy from state contract. Product “specs” can include chemical composition.

School purchase year-round, but usually stock up just before vacations when heavier cleaning and repairs takes place. Check with your Facility Director or look in your school board policy manual for the district’s purchasing policy and the designated purchasing official. Make sure that health and environmental criteria are part of the school board purchasing policy and actual specifications.

## RESOURCES: Where to Find Products

- ◆ **Healthy Schools Network Starter Package.** Includes companies and products that have been evaluated by independent third-party agencies and organizations: (518) 462-0632.
- ◆ **Center for New American Dream (CNAD),** list of products, <http://www.newdream.org/cleanschools/safelist.php> CNAD, 6930 Carroll Ave., Ste 900, Takoma Park, MD 20912, 301-891-3683
- ◆ **City of Santa Monica Sustainable City Purchasing Program,** Environmental Programs Division, 200 Santa Monica Pier, Santa Monica, CA, 90401-3126, (310) 458-2213. See, [http://santa-monica.org/epd/business/Haz\\_waste/index.htm](http://santa-monica.org/epd/business/Haz_waste/index.htm).
- ◆ **Green Seal,** 1001 Connecticut Ave. NW, Suite 827, Washington, DC, 20036-5525, (202) 872-6400. See, [www.green Seal.org](http://www.green Seal.org). See **Choose Green reports.**
- ◆ **Pennsylvania Green Building Operations & Maintenance Manual,** PA DGS, Green Seal. “Cleaning Procedures” & “Product Selection” chapters offer **cleaning practices and tips for buying “green” products.** Also includes an Appendix, [www.dgs.state.pa.us/dgs/lib/dgs/green\\_bldg/greenbuildingbook.pdf](http://www.dgs.state.pa.us/dgs/lib/dgs/green_bldg/greenbuildingbook.pdf).
- ◆ **Environmental Choice Program,** c/o TerraChoice Environmental Marketing, 1280 Old Innes Suite 801, Ottawa, Ontario K1B 5M7, Canada, Call toll-free: 1-800-478- 0399, or visit [www.environmentalchoice.org](http://www.environmentalchoice.org) for green rated products.

## RESOURCES: Where to Go for More Information

- ◆ **State of Massachusetts**, Operational Services Division, One Ashburton Place, Room 1017, Boston, MA, 02108-1552, (617) 720-3300. See, [www.mass.gov/epp/enviro.htm](http://www.mass.gov/epp/enviro.htm). Go to Product & Service Information; click on “Summary Table” for names of companies and products evaluated and selected for government purchasing of environmentally preferable products. Click on “Cleaning Products, Environmentally Preferable”.
- ◆ **State of Minnesota**, Office of Environmental Assistance, 520 Lafayette Road, N 2nd Floor, St. Paul, MN, 55155-4100, (800) 657-3843. See, [www.moega.state.mn.us](http://www.moega.state.mn.us). Click on “Local Government Assistance; Environmental Purchasing; Cleaning Products; Procuring & Minnesota’s Experience”.
- ◆ **US EPA Environmentally Preferable Purchasing**, 1200 Pennsylvania Ave. NW, Mail Code 7409-M, Washington, DC, 20460. See, [www.epa.gov/oppt/epp/tools/toolsuite.htm](http://www.epa.gov/oppt/epp/tools/toolsuite.htm). Click on “EPP Tool Suite”; “Database of Environmental Information for Products & Services”.
- ◆ **Office of the Federal Environmental Executive**, Green Janitorial Products and Services used by federal agencies. See <http://www.ofee.gov/gp/greenjanitorial.html>

### NEW YORK STATE

#### REQUIRES GREEN CLEANING

New York State's Executive Order 134 and statewide law (2005) require all state agencies and all public and private schools to use Green Cleaning products. The EO and law, as well as state specifications for cleaning products and related issues are found at:

[www.ogs.state.ny.us/bldgadmin/environmental/default.html](http://www.ogs.state.ny.us/bldgadmin/environmental/default.html).

New York State law also bans cake toilet deodorizers in schools that contain **paradichlorobenze**. See [http://law.onecle.com/new-york/education/EDN0409-G\\_409-G.html](http://law.onecle.com/new-york/education/EDN0409-G_409-G.html)

**Healthy Schools Network** shaped the state policy on green cleaning, after years of technical and grassroots work. As the State Office of General Services worked on new specifications, more than two dozen community, professional and academic organizations joined us in spring 2006 in urging OGS to put new limits on fragrances, VOC content, and phthalates from the list of products recognized as 'green' and 'healthy'.

For a copy of Healthy Schools Network's consensus technical comments to the state on strengthening its specifications, consistent with this GUIDE's recommendations, please call the office.

### Basic Information: Health Effects of Chemicals in Custodial Products

- ◆ **Health Hazards Manual for Custodians, Janitors, and Housekeepers**, Nellie J. Brown, M.S. Resources on health effects of chemicals in custodial products and how to prevent exposures. Contact: Cornell University, Workplace Health and Safety Program, 237 Main Street, Suite 1200, Buffalo, NY, 14203 (716) 852-4191.
- ◆ **Janitorial Products Pollution Prevention Project**, sponsored by USEPA Region 9. Authors: Thomas Barron, Carol Berg, & Linda Bookman. Contains user-friendly fact sheets on safe & effective use of floor finishes & strippers; restroom, carpet, toilet, glass & metal cleaning; disinfecting; deodorizing and more. Also lists of chemicals in custodial products to avoid and why. See, [www.wrppn.org/janitorial/jp4.cfm](http://www.wrppn.org/janitorial/jp4.cfm)



## 'ENVIRONMENTALLY PREFERABLE PURCHASING' QUOTES

"The health of people and our environment require the bar be raised for cleaning products. Green is not a passing trend but the new emerging standard."

-Tom Gartland, JohnsonDiversey, Inc.

In recognition of National Healthy Schools Day on Monday, April 18, 2005, Governor George E. Pataki announced that he will introduce legislation to protect the health of New York's school children and the environment by requiring the use of environmentally-sensitive, or 'green', cleaning products in all New York schools. "Our children are our most precious resource and parents deserve to know that their children are learning in an environment that is clean, safe and free of any unnecessary and potentially harmful chemicals."

-April 17, 2005 Press Release from Governor Pataki, GOVERNOR INTRODUCES CLEAN & HEALTHY SCHOOLS LEGISLATION.

"A revolution is underway in the cleaning industry. More and more institutions realize that cleaning with environmentally responsible chemicals and processes is essential, both to create a healthy workplace for children and adults and to avoid additional contamination that may cause diseases such as asthma. In a matter of several years we should see a complete transformation to green cleaning."

-Arthur B. Weissman, Ph.D., President & C.E.O., Green Seal, Inc.

"The East Williston School District has been actively involved in green cleaning program for the past 4 years. I initiated this program for my custodial staff with the intent of improving the indoor air quality learning environment as well as reducing the hazards the custodial staff are exposed to daily... using safer, less toxic cleaners in our schools just made sense knowing that everyone would benefit... There is a certain feeling throughout our schools that you just get an air about it when you walk through, they look and feel cleaner."

-Alan Wakefield, the Director of Facilities and Transportation at the East Williston School District in Old Westbury, Long Island, New York.

The Healthy Schools/ Healthy Kids Clearinghouse was created in 1996 to deliver *simple, technically accurate, widely-supported and consistent* directions to parents and others in the school community on how to improve schools and children's health.

The Clearinghouse received a 2005 US EPA Office of Children's Health Protection Award.



2005

Children's Environmental Health  
EPA Recognition Award



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