

# UNHEALTHY SCHOOLS ~ TOXIC CHEMICALS

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## Toxic Chemicals in Schools:

CHE-Alaska Teleconference  
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# Learning Objectives

- Children are not little adults: *more vulnerable to environmental hazards; no health protections*
- Schools are not little offices: *vulnerable occupants, density, multiple uses, compulsory attendance, special needs populations*
- School toxics: *practical MONEY-SAVING policy reforms*
- Federal laws promoting healthy schools:
  - HHPS Act 2001 (NCLB), HPGB Act 2007 (ESIA)
- Day of Action-Celebration: National Healthy Schools Day
- *What will you do? 3 - 2 - 1 act !*





# Schools are not little offices!

- Children outnumber adults (>8:1); public schools disproportionately enroll more high risk learners
- Buildings densely occupied and used more hours/week than most offices, increasing cleaning and maintenance needs
- No recording or reporting of children's illnesses or injuries
  - No baseline data on children's environmental health
- Required attendance-- children cannot work from home or send in a "sub" when they are ill
- No public agency can step in when children are at risk
  - *Employees may call on NIOSH for Health Hazard Evaluation*



# Children are not little adults!



- They breathe, eat, and drink proportionally more per pound of body weight than adults and are still developing
- Exposures and injuries at a young age can disrupt normal development, create lifelong effects
- They cannot recognize or protect themselves from environmental hazards; they cannot articulate or verbalize risks and threats
- They have behaviors- such as hand to mouth, sitting on floor or ground- that can cause greater exposures



# The most vulnerable: highest risk learners

- Chronic/serious illnesses
  - Immune-suppressed; hearing/visually impaired; asthma; medically fragile
  - Environmental factors: *noise, lighting, IAQ, temperature, heavy metals and toxic chemicals, construction fumes and debris, damp spaces & growing molds*
- 7 million children in special education may be even more vulnerable to environmental health hazards
  - 300,000 children have been diagnosed with autism (CDC)
  - More than 6 million have been diagnosed with asthma (ALA)
  - 150,000 have diabetes (CDC)
- Unique behaviors: *pica, chewing, mouth-breathing, diets*
- Sit for longer periods; more time indoors and on buses
- Worst classrooms; special utensils/tools (not glass or metal)
- Predisposed to asthma, upper respiratory
- Difficulty mobilizing, communicating symptoms or exposures



# Healthy Schools/Healthy Kids Clearinghouse

## Highest Risk Learners - reports

**Medically fragile child/Oklahoma parent**, ignored by school and the state health department, sought out the Clearinghouse for advice on stopping the toxic effects of **uncontrolled renovations** in her daughter's high school. Thick **particulates and fumes** filled the halls for weeks outside classes for **medically fragile special education students**. Her daughter's already precarious health was affected: she missed more school days, needed more doctor's appointments, and took more medications during the school day.

Not one person at school told the parent about the renovations which were also affecting the health of staff, until her daughter was felled by CO poisoning.

**Children with autism- summer school**. Aug. 9, 2008, **NY Daily News** *photo*: NYC leased facility used for summer school for autistic and emotionally disturbed young children, and under renovation. 120 children and 60 staff were onsite in early July when the Dept of Education toured the site. It was closed the last week of summer session, with a promise of full and complete repairs by September. Friable asbestos was found throughout. There was no report of any testing for lead, PCBs, molds.



# Alaska: Report

*Tundra Tykes* child care center in Anchorage

3 year old facility with synthetic turf play areas

Enrolls 70-80 children ages 6 wks to 6 yrs

ATSDR & local studies found >5,000 ppm lead\* in turf

**ATSDR recommends:** Test turf annually; prohibit play if lead is high; follow lead safety guidelines - wash hands often, remove shoes at door, do not eat or use materials that were on the ground.

Agency actions: develop, distribute fact sheet for parents; agency to evaluate/re-educate



Are agency recommendations and actions child-safe?







# America's largest unaddressed public health crisis for children\*



- ▶ 20% of the total U.S. population is in school today
  - > 55 million children and 7 million adults
  - > 125,000 public and private schools K-12
- ~ 25% of all U.S. children attend structurally unsound or sub-standard schools
- Nearly 2 out of 3 schools have building features such as HVAC that are in need or extensive repair or replacement.
- Indoor air pollution affects half of schools
- Environmental factors directly affect adult health AND children's health, learning, and behavior
  - Custodians and teachers have high rates of occupational asthma
  - Asthma is the single largest cause of absenteeism
- There are substantial hidden costs associated with poor indoor environmental quality in schools





# What about Alaska's PreK - 12 schools?

509 school buildings

>132,000 children enrolled

17,760 in special education

8.3% with asthma

69% of schools self-report decayed buildings



What health-environment-energy-education-labor programs, policies, and regulations does Alaska have to promote healthy schools? Which agencies enforce which laws? Who's in charge of children's environmental health?



# Where are toxic chemicals at school?

## Poor Indoor Air/Environmental Quality (IEQ/IAQ) AQ)

- CO2 as one indicator
- Toxic cleaning products
- Molds/biological agents
- Pesticides
- Building materials and furnishings
- Paints and floor finishes
- PVC (vinyl flooring, partitions)
- PCBs (Polychlorinated Biphenyls- light ballasts, caulking)
- Diesel exhaust
- Radon
- Asbestos
- VOCs (paints, glues, finishes, dry erase markers)
- Carbon monoxide, indoors and outdoors
- Renovation/construction of occupied facilities



## Others

- Chemical and Pesticide use/storage/mis-use/residues
- Mercury
- Arsenic: CCA-treated wood
- Lead: drinking water/paint, rifle ranges, synthetic turf
- poor sanitation and plumbing (nonworking sinks, toilets, fountains)
- Toxic trailers (formaldehyde, plastics)





# Healthy Schools Environments

- **Save money and preserve credibility**
  - Always respond to the first health complaint
  - Rely on occupant reports and observations before IAQ testing
- **National Academy of Sciences/NRC:**
  - **design health into green school design/construction projects**
    - Clean, Dry, Quiet, Good IAQ, Control Dust/Particulates, good lighting
    - Easy to maintain, quiet HVAC
      - Operable windows; durable, easy to clean and maintain flooring
- **Save money: phase-out toxic chemicals**
  - Promptly fix leaks, replace wet/damp materials (24-48 hrs)
  - Move idling and loading areas/ban idling/retrofit diesel buses
  - Prevent dirt and dust; ban pets
  - Buy low-emitting materials (water-based markers, glues, paints)
  - Use 3<sup>rd</sup> party-certified green cleaners/instructional & admin supplies
  - Practice safer pest control (IPM; ban aesthetic uses of herbicides)
  - Cleanout old, outdated, unlabeled chemicals (SC3)
  - Replace toxic products with safer substitutes



# Toxic Cleaning Products



25% of chemicals in cleaning products used in schools are toxic and contribute to poor IAQ, smog, cancer, and asthma

- **custodians, teachers have high rates of *work-related* asthma**

Schools adopting **green cleaning** often find lower costs:

- > buy fewer products; products are concentrated; certified products must work
- > not one of 750 districts in New York State and none in Illinois, the first two states to mandate use of green cleaning products, have complained about costs

Schools adopting **green cleaning** often report better health

- > fewer school nurse trips; fewer staff health complaints, lower risks





# Green Cleaning Products

Breathe easier - clean doesn't have an odor!

- **Save money:** prevent dirt
- **Save money:** use 3<sup>rd</sup> party-certified general all-purpose cleaning products
  - Select from Green Seal, Eco-Logo certified products
- **Ban** para-dichloro-benzene deodorizers, air fresheners/plug-ins
- General cleaning removes almost all germs
  - **Save money:** use disinfectants if required/only as directed
- Update and maintain equipment
- **Phase in 3<sup>rd</sup> party certified green cleaners**
  - Test on real dirt: invite top vendors to give staff free demo/samples

***FREE online scripted presentations and handouts***

***FREE poster, cost studies, chemical inventory forms***

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

**CORE:** American Federation of Teachers, American Federation of State, County, and Municipal Employees, National Association of School Nurses, Massachusetts Committee on Occupational Safety and Health, Green Purchasing Institute, Green Schools Initiative, New York State United Teachers, American Lung Association of New England, INFORM, Healthy Schools Network



# Safer Pest Control\*



## Integrated Pest Management (IPM):

- > minimizes damage, minimizes use of pesticides and risks to health, focuses on control methods including sanitation, repairs, other controls
  - indoor pest; outdoor pests/weeds; pesticide use by neighbors

In Schools: know who is in charge/decision-making process

Keep Records- pest problems/locations

Action Levels- decide when to act and how

Prevention – is cheaper than routine, repeated pesticide use

Tactics- basic sanitation/repairs; ban pets, fill holes/crevices, fix leaks

Evaluation- is it working; report success to your community





# Healthy Schoolhouse-keeping

- Avoid risks to children and adults
- Maintain/save the building as a community asset
- **Healthy** and **Green** relate to different building features
  - **Save money**
  - Benefits to occupant health outweigh energy/resource savings  
(*\$63 psf of \$74 psf total benefits*)
    - Use 'green' materials, cleaning products and school supplies
    - Ventilate well to replenish fresh air and remove pollutants
    - Ban pets and snacks/meals in classrooms
    - Immediately address moisture and humidity problems

**Tip:** schools need to be durable, easy to maintain, and built and operated for healthy IEQ





# School Design\*: design for child health

National Research Council (2006) – *conventional 'green' schools in the future should be*

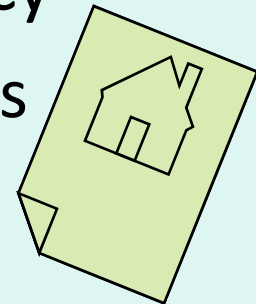
- Clean
- Dry
- Quiet
- Superior Indoor Air Quality
- Good Lighting
- Control Dusts/Particulates
- Avoid siting near hazards (highways, factories, dumps)

Design for ease of maintenance/repairs



# School Design: design for child health

- New and renovated buildings/portables
  - Siting of new schools/new hazardous facilities
  - Conventional construction/finishing materials off-gas toxic fumes
    - Children’s respiratory system adversely affected by VOC’s (typically- carpets, press-board, office equipment, cleaning and pest control products, glues, markers)
- Reduce toxics with healthy design standards
  - Building interiors\*; laws for school design standards
- Inspect, air-out facilities before occupancy
- Plan: protect occupants from renovations



# Federal Laws\*



- ***Healthy and High Performance Schools Act in NCLB (design)***
  - Defines ‘healthy, high performance school’ design
  - Requires Education to study impacts of decayed schools on child health and report to Congress (Studies of National Significance)
    - A summary of findings (Mendell and Heath, 2004) included
      - Impact of environmental hazards in schools and poor indoor environmental quality on
        - » Student health and absenteeism
        - » Productivity
        - » Academic achievement
  - Authorizes grants to states to fund new information and assistance on high performance green school design, advised by EPA, Energy (referenced in recent congressional bills)
  - NCLB/ESEA be re-authorized in ??
  - EPA *Design Tools For Schools*



# Federal Laws



- **High Performance Green Buildings Act of 2007 (operations)**
  - Creates federal Office of Green Buildings to coordinate federal agencies
  - Directs EPA, advised by CDC, to issue comprehensive guidelines to assist states in developing and implementing environmental health programs for schools (*14+ EPA offices and programs affected*)
    - Directs EPA to create federal guidelines for school siting
    - Directs EPA to create federal guidelines for how states can work with designated pediatric environmental health specialty units (PEHSUs)
  - Authorizes EPA to create state grant program so states can accelerate healthy school environments with technical assistance (*IAQ Tools for Schools, Healthy SEAT*)
  - Authorizes federal study on ‘green’ schools
    - Study of the effects of sustainable building features on IEQ stressors in children
- **EPA Initiatives on School Siting (see above)**
  - Air Toxics Monitoring Project outside 64 schools in 22 states and 2 tribal nations
    - Work Group appointed to advise EPA’s National Environmental Justice Advisory Council-  
[www.epa.gov/schoolair](http://www.epa.gov/schoolair)
  - School Siting Guidelines Work Group
    - Appointed to advise EPA’s Children’s Health Protection Advisory Committee





# ***Celebrate healthy schools !***

*a day for schools, districts, cities, states, organizations*

sponsored by Healthy Schools Network  
*with US EPA*

*Council of Educational Facility Planners-International*  
*National Coalition for Healthier Schools*

*Act now for Monday, April 26, 2010*

Conferences IAQ and Green Cleaning Workshops

Letters Proclamations Awards



Visit

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

# 3-2-1 Action: what will you do?

3- List 3 things you learned

1-

2-

3-

2- List 2 things you can do

1-

2-

1- Write down 1 thing you will do

*I/we will* \_\_\_\_\_ !



# Healthy Schools Network, Inc.

... for children, health, environment,  
education and communities ... Since 1995 ...

... information and education, research, advocacy, and coalition-building  
for parents, personnel, and organizations ...

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