

HEALTH & SAFETY FACTS

School Renovation

RENOVATION RISKS

Hazards associated with renovation include dust; lead-contaminated debris; asbestos fibers; noise; fumes from equipment and from toxic products such as paints, roofing cements and glues etc., and from new furnishings. Precautions are needed to prevent health and safety hazards to students, school employees, and construction workers.

Construction & Demolition

A variety of dusts are produced during construction of new schools and demolition of old schools. These dusts can come from lead paint, metal, wood, plastic, brick and cement. Ironically, cleanup – especially sweeping – is the activity that can produce the most dust. Excavation, blasting, foundation work, electrical and plumbing work can also produce large amounts of dust. The most prevalent adverse health effect of dust is asthma, including wheezing, tightness in the chest, coughing and shortness of breath. Occupational asthma is usually reversible, but permanent lung damage can occur if exposure to the substance that causes the disease continues. In highly sensitive persons, even very low levels of exposure may provoke an asthmatic episode. In addition to dust, demolition and construction can also cause excessive noise, falling objects, exposure to carbon monoxide and fuel exhaust – usually from diesel-powered machinery, and fumes from welding.

Asbestos

Asbestos can be found throughout many schools, in products such as shingles, floor and ceiling tiles, cement pipe, roofing products and insulation for boilers. Most asbestos exposures in school buildings occur during removal of these products, since most new building materials no longer contain asbestos. Asbestos fibers are considered relatively safe when they are firmly bonded or compacted within other material, such as wallboard or floor tile. However, when asbestos-containing materials are loose or crumbling because of water damage, abrasion or sloppy repair work, they can release microscopic fibers into the air. This form of asbestos – called “friable” – poses the greatest health risk. Exposure, either through inhalation or ingestion, can potentially lead to lung scarring and cancer.

Under the federal *Asbestos Hazard Emergency Response Act (AHERA)*, every public school in the nation is supposed to be inspected for asbestos. Wherever asbestos is found, the school board is supposed to develop an asbestos management plan. The plan should detail the location and condition of any asbestos found in the school and how the asbestos should be handled in each instance. Friable asbestos is to be removed, encapsulated, or enclosed. Nonfriable asbestos is to be monitored for signs of deterioration and, if it becomes damaged, it should be treated as friable. By

knowing where the asbestos is, custodians and contractors can be sure not to disturb it during the normal course of their work. However, oversight of this law is woefully lacking and although many AHERA reports are complete and available to the public, many are not. If a school has fulfilled its legal obligation and developed an asbestos management plan, it should be available for review by school employees.

Other key laws regulating asbestos include the *N.J. Public Employee Occupational Safety and Health (PEOSH) Program’s Asbestos Standard 29 CFR 1910.1001* (which covers routine housekeeping activities in buildings) and the *PEOSH Asbestos Standard for Construction, 29 CFR 1926.1101* (which applies to building demolition and renovation operations and other activities where asbestos is removed or encapsulated - and also covers building maintenance and emergency cleanup of asbestos spills). Both standards set a maximum exposure limit and include provisions for engineering controls (e.g. isolation, enclosure, local exhaust ventilation, and dust collection). They also mandate respirators, protective clothing, exposure monitoring, hygiene facilities and practices, warning signs, labeling, record-keeping, and medical exams (for any workers in areas with an airborne asbestos hazard). In addition, the laws prohibit the following work practices:

- Dry sweeping, dusting, shoveling or vacuuming of asbestos material, debris, waste, or dust.
- Using compressed air to clean surfaces contaminated with asbestos or to remove asbestos unless it is used with a ventilation system that can capture the dust cloud.
- Sanding of asbestos-containing flooring material.

Lead

The primary source of lead in schools is deteriorating paint. As with asbestos, lead paint that is in good repair and is not flaking or crumbling poses minimal risk. However, paint can become a threat when it is damaged due to abrasion, poor maintenance, water damage, or construction. Indeed, renovation can release lead particles, especially if it involves breaking through a lead-painted wall or ceiling. Adverse health effects of exposure to lead dust include damage to the nervous system and kidneys. Low-level exposure can cause a range of physical and mental problems, including loss of appetite, nausea, vomiting, fatigue, moodiness, headaches, anemia, and high blood pressure. Children are particularly vulnerable. Lead can impair the developing brain and nervous systems, causing various developmental, learning and behavioral disabilities. Lead, like asbestos, is regulated by a number of laws, including *PEOSH Standard 29 CFR 1926.62* (for construction), and the New Jersey

Department of Environmental Protection's regulations regarding containment and disposal of hazardous waste. PEOSH law mandates that a "competent person" should review all site operations and stipulate the specific engineering controls and work practices designed to reduce worker exposure to lead.

Engineering measures include local and general exhaust ventilation, process and equipment modification (e.g. blasting techniques that are less dusty), substitution of safer materials for those containing lead, replacement of equipment and furnishings that contain lead, and isolation of renovation work that may disturb lead paint.

Roofing

Roof renovations may involve several different types of applications, including coal-tar pitch and asphalt. Coal-tar pitch dust is a confirmed human carcinogen. Alternative methods including synthetic membrane applications use adhesives, primers and sealants that contain toxic solvents and, in some cases, asbestos. Acute exposure to solvents can cause a variety of short-term ailments, and prolonged exposure can cause a range of chronic health effects, from asthma to cancer.

Flooring

Many solvent-based products are still widely used in the installation and finishing of hardwood floors. They are often highly flammable

and/or combustible and pose a significant risk of fire and explosion. When improperly handled they may cause acute or chronic health effects in workers. Adhesives, sealers and varnish contain organic solvents and other substances including epoxies, formaldehyde, polyurethane, and additives.

Painting

Painting can introduce many toxic substances into the school environment in addition to paints. These include strippers, primers, and thinners which are likely to contain toxic solvents that evaporate and contaminate indoor air. Although more and more paint is water-based, most paint still contains at least some measure of toxic volatile organic compounds (VOCs). Adverse health effects include skin dryness, respiratory irritation; and with greater exposure, dizziness or nausea, as well as asthma and more serious diseases such as cancer.

New Furnishings

Formaldehyde, one of the most common pollutants in school buildings, is found in furniture, new carpets, particle board, plywood, and many other products associated with renovation. As it deteriorates, formaldehyde gives off fumes which - even at low levels - can cause irritation of the eyes and respiratory system. Recent studies show that prolonged exposure may cause cancer.

WHAT SCHOOL EMPLOYEES CAN DO TO REDUCE RENOVATION HAZARDS

Work Through Local Associations

Health and safety hazards arising from school renovations should be addressed through your local association. The association can formally request information from the district about any building renovations that will be occurring. Once information from the district is in hand, the association - through its health and safety committee or internal structure - can also develop a plan to prevent hazards. The plan can use this fact sheet as a basis for proceeding, along with other strategies and resources, including NJEA's health and safety training program.

Use N.J.'s Indoor Air Law

Although there is no federal law regulating indoor air quality in buildings, New Jersey enacted the **PEOSH Indoor Air Quality Standard (NJAC 12:100-13)** which requires renovation or new construction that produces health hazards to be safeguarded by local ventilation or other controls to ensure the safety of employees. NJEA members can push for compliance with the key provisions of this law which include:

- Renovation areas in occupied buildings must be isolated and dust and debris must be confined to the renovation area. Isolation measures may include sealing off the work area; shutting down the ventilation system and sealing the intake and exhaust vents; and good housekeeping practices in the work area.
- Before using toxic substances and before installing insulation, particle board, plywood, floor coverings, carpet backing, textiles, or other materials, the employer must check product labels or obtain information from the manufacturers of those products

about whether they contain volatile organic compounds such as solvents or formaldehyde that could be emitted during regular use. This information must be used to select products and to determine protective measures.

- The employer must notify employees at least 24 hours in advance, or promptly in emergency situations, of potentially hazardous renovation work to be performed in a school building.

Although not part of the Indoor Air Quality regulation, management should also be pushed to ensure the following:

- When possible, interior renovation work and roof repair should be scheduled during hours when schools are not occupied, such as the weekend.
- Renovation procedures should be used that minimize dust creation.
- Employees should be relocated if they are sensitive to materials used during renovation.
- The least toxic materials, such as water-based paints, should be substituted for more toxic substances, such as oil-based paints.
- Workers handling hazardous chemicals should be protected with adequate ventilation or protective equipment, such as respirators.
- Information about toxic substances should be on hand for school employees, as required by Right-to-Know laws.
- Local exhaust systems should pull polluted vapors away from people's breathing area and they should not compete with the primary ventilation system.

BACKGROUND

Many public schools in New Jersey are old and deteriorating. Leaking roofs, crumbling plaster, rodent and insect infestation, and substandard plumbing, electrical and ventilation systems are just some of the common problems. *New Jersey's Education Facilities Construction and Financing Act* is aimed at reversing decades of neglect with a \$12 billion program to restore and rebuild school buildings. The law commits the state to providing public school education "...in physical facilities that are safe, healthy, and conducive to learning."

An increasing number of renovation projects over the next 10 years will undoubtedly test the state's responsibility to provide safe schools and may increase safety and health risks to staff and students alike. This fact sheet provides information about potential health hazards associated with school renovation and how to prevent them. It also includes references to state and federal laws and regulations that may be of use in preventing or eliminating hazards.

✓ Talk to Your Co-Workers

Communication is the most important step in any attempt to solve health and safety problems. Nobody knows better what problems exist in the school – and the best solutions – than the people who work there every day.

State and Federal Right-to-Know Laws

New Jersey Worker and Community RTK Law, N.J.A.C. 8:59-7.2 (j) Requires public employers to supply hazardous substance fact sheets and material safety data sheets to public employees and their representatives for all hazardous substances brought into a public employer's facility, including surrounding land, by a public or private subcontractor. www.state.nj.us/health/eoh/rtkweb/rtkregs.pdf
Call 609-984-2202

PEOSH Hazard Communication (Haz Com) Standard, N.J.A.C. 12:100-7.2 (d) 2. Requires public employers to make sure that copies of the MSDSs for hazardous chemicals are readily accessible to public employees during each work shift while they are in their respective work areas. <http://nj.gov/health/eoh/peoshweb/hcsguide.doc>
Call 609-984-1863

OSHA Hazard Communication Standard 29CFR 1910.1200 (e)(2) Requires private sector employers, like contractors, to describe in detail in a written Hazard Communication Program how employees, like school employees, will be protected from hazardous substances brought into other workplaces, like schools, by those contractors. www.osha.gov/SLTC/hazardcommunications/index.html
Call 1-800-321-67423

For more information, use these resources:

Healthy School Facility Environments web pages
www.state.nj.us.health/healthyschools/

PEOSH Information Bulletin: Renovation and Construction in Schools: Controlling Health and Safety Hazards, 2004.

Provides information on potential health and safety hazards associated with school renovation and constructions what precautions to take in order to prevent and control them.
www.state.nj.us/health/eoh/peoshweb/schoolsren.pdf

Model School District Policies for the Protection of Staff and Students During School Construction: A report prepared by the New Jersey Work Environment Council with input from the Healthy Schools Ad Hoc Committee containing recommendations for school districts on maintenance of good indoor air quality and a safe learning environment during school construction.
www.edlawcenter.org/ELCPublic/AbbottSchoolFacilities/FacilitiesPages/Resources/Model_School_District_Policies.pdf

Healthy School Facility Environments

P.O. Box 360
Trenton, NJ 08625-0306
609-984-1863
www.state.nj.us.health/healthyschools/

New Jersey Education Association (NJEA)

180 West State St., P O Box 1211
Trenton, NJ 08607-1211
609-599-4561
www.njea.org

National Education Association (NEA)

1201 16th Street, NW
Washington, DC 20036-3290
202-833-4000
www.nea.org

PEOSHA

New Jersey Dept. of Labor (Safety hazards complaints)
John Fitch Plaza
PO Box 110
Trenton, NJ 08625-0110
609-292-7036/800-624-1644
www.state.nj.us/labor/lse/lspeosh.html

PEOSHA

New Jersey Dept. of Health & Senior Services (Health hazards complaints) 1201 P.O. Box 360
Trenton, NJ 08625
609-984-1863
www.state.nj.us/health/eoh/peoshweb/

New Jersey Work Environment Council (WEC)

(Labor, community, environmental, and public health coalition)
142 West State Street, Third Floor
Trenton, NJ 08608
609-695-7100
E-mail – info@njwec.org
www.njwec.org

Environmental & Occupational Health Sciences Institute (EOHSI) – Rutgers

PO Box 2688
New Brunswick, NJ 08855
732-235-4988
www.eohsi.rutgers.edu/ss

The New Jersey Work Environment Council (WEC) prepared this factsheet under the direction of the NJEA. Based in Trenton, WEC provides NJEA and other organizations with technical assistance and training about workplace and environmental hazards.