



# GUIDANCE DOCUMENT

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## GUIDELINES FOR ALTERATION, RENOVATION, OR CONSTRUCTION ACTIVITIES IN OCCUPIED BUILDINGS

Construction activities generate dust, debris, and odors that can be disruptive to the educational environment. There is also a potential for some of these activities to cause health problems such as mucous membrane irritation, asthma exacerbations, respiratory problems, and/or contact dermatitis. Each school/district should attempt to minimize and/or eliminate the exposure potential to building occupants (*e.g.* students, staff, faculty) by developing a set of guidelines or a management plan that will be followed when these activities take place while the school is being used. It is also important to recognize that there may be residual indoor air quality (IAQ) effects from work conducted outside of normal school hours.

A management plan should be in place before construction begins that specifies safety controls and work practices. The plan should identify who will be responsible for enforcement of the plan, (*i.e.*, will the general contractor hire an outside firm to monitor?) and how this will be achieved (part time vs. full time onsite monitoring; penalties for non-compliance; notification of occupants in case of a breach in safety plan). Components of the plan should be part of the contract specifications with all contractors. The management plan should also contain a strategy for communication to parents on a regular basis to keep them informed of the progress of the renovation and to assure them that all necessary safety precautions are being taken to maintain a healthy school environment.

There are a number of model management plans that outline guidelines for maintaining acceptable IAQ during construction and renovation projects in occupied buildings. (Refer to Resources section). Most of these documents provide a general framework that can be used to institute controls to prevent the migration or introduction of indoor air pollutants (dusts, odors, chemicals, etc.) from work areas into occupied areas of the building. These documents outline important concepts that should be evaluated when putting together a building-specific set of guidelines. Note that school officials will need to apply these general concepts to each specific situation in their construction/

### Checklist for building alteration, renovation, and/or construction activities

- Designate person/firm to periodically inspect the project for adherence to safety plan.
- Conduct activities outside of normal school hours when possible.
- Communicate project schedule and activities to all affected personnel including building maintenance.
- Review MSDSs for products/materials to be used. Use less hazardous products/materials if possible.
- Isolate work activities from occupied areas of the building.
- Seal ventilation system in work area to minimize contaminant migration.
- Use wet methods to clean-up work areas following completion of activities.

renovation project. A program that worked for one project at the school may not work for another project without some modifications. Each situation must be evaluated individually, and alterations or additions should be made to the plan as necessary.

In addition, the construction/renovation guidelines must address specific requirements for handling building materials containing certain contaminants such as lead and asbestos. The Connecticut Departments of Public Health, Environmental Protection, Labor, U.S. Occupational Safety and Health Administration, and other regulatory agencies may have additional requirements that must be followed. Additional guidance should be sought in developing an appropriate program.

IAQ guidelines for construction related activities in occupied buildings should ideally incorporate the following concepts:

- *Development of a Policy Statement* – A policy should be developed which directs that all construction - related activities shall be conducted outside of normal school hours to the extent most feasible. By conducting these types of activities outside of normal school hours, there is a reduced potential for these activities to adversely affect the health of the building occupants.
- *Coordination of Activities* – Activities should be coordinated so that they occur outside of normal school hours when the building is typically unoccupied. It is necessary to ensure that coordination with the building facilities staff is conducted so that appropriate adjustments to ventilation systems can be made. Pre-construction meetings should be held to review anticipated work activities, material safety data sheets, and expectations of appropriate work practices. This might include expectations for isolation of the work areas (as discussed below) and eliminating the potential for migration of contaminants.
- *Separation of Construction Areas* – To most effectively prevent the potential migration of dust and other contaminants (for example, hazardous chemicals, vapors, and nuisance odors) into occupied areas, it is necessary and important that appropriate methods are used to separate the work areas from occupied areas of the building. These methods may include installation of physical barriers, such as plywood or polyethylene sheeting, and limiting foot traffic between work areas and occupied areas of the building. In addition, the building ventilation system in the work area should be turned off, if possible, and intakes and diffusers sealed, to limit the migration of contaminants throughout the building. It is also essential to ensure that when the building ventilation system is turned off, that other appropriate means of ventilation are used.

*Use of Other Measures to Decrease Airborne Pollutants* – It is important to evaluate and develop guidelines for post construction activities. These guidelines should address ways to decrease pollutants remaining airborne upon completion of work activities, such as using wet methods to clean up residual dust (i.e., wet mop instead of sweeping), using products that emit low volatile organic compounds (VOCs), and increasing building ventilation (i.e., fans, keep ventilation system on overnight or over the weekend) to remove residual nuisance odors or other potential airborne pollutants.

It is recommended that a third party individual be hired to monitor onsite construction/renovation activities, making sure that the plan is being followed to maintain the safety and health of building occupants, and that proper work practices and control measures are being performed. This person, who may be an industrial hygienist or clerk of the works, will be acting as an “owner’s representative,”

in the interest of the school. They should be empowered to speak to the general contractor about enforcing the contract if the plan is not being followed.

An effective program also relies on the vigilance of school staff to communicate and bring to the attention of proper individuals any problems that they observe (i.e., unusual odors, dusty conditions). It is important to recognize that while a school may develop a generic set of guidelines to be followed, each project should be evaluated individually. By developing and implementing an individual plan for each alteration, renovation, or construction project, compliance with Public Act 03-220 Section 6(b)(3), *An Act Concerning Indoor Air Quality in Schools*, which calls for a uniform inspection and evaluation of indoor air quality in school buildings, will be achieved.

The superintendent/principal, onsite manager, or local health director (LHD) should be empowered to stop the construction job if he/she feels that the work is endangering the health of the building occupants. He/she should be sure to consult with the LHD before doing so.

The following is a listing of additional sources of information to prevent indoor air quality problems during construction and renovation activities:

## **Resources**

### Model Plans

- *Education and Expansion: Model School District Policies for Protection of Staff and Students During School Construction.* New Jersey Work Environment Council with input from Healthy Schools Ad Hoc Committee.  
[http://www.edlawcenter.org/ELCPublic/AbbottSchoolFacilities/FacilitiesPages/Resources/Model\\_School\\_District\\_Policies.pdf](http://www.edlawcenter.org/ELCPublic/AbbottSchoolFacilities/FacilitiesPages/Resources/Model_School_District_Policies.pdf)
- *Good Practice Guidelines for Maintaining Acceptable Indoor Environmental Quality During Construction and Renovation Projects;* National Institute for Occupational Safety and Health  
[http://www.peer.org/docs/doi/05\\_21\\_12\\_niosh.pdf](http://www.peer.org/docs/doi/05_21_12_niosh.pdf)
- *IAQ Guidelines for Occupied Buildings Under Construction.* Sheet Metal and Air Conditioning Contractors' National Association, Inc. 1995, 2000. <http://www.smacna.org>
- *Renovation & Construction in Schools: Controlling Health and Safety Hazards.* New Jersey Dept. Health & Senior Services.  
<http://www.state.nj.us/health/eoh/peoshweb/schoolsren.pdf>
- Washington State Department of Health – Office of Environmental Health and Safety. *School Indoor Air Quality Best Management Practices Manual* (November 2003).  
<http://www.doh.wa.gov/ehp/ts/IAQ/schooliaqbmp.pdf>
- University of California, Irvine Environmental Health and Safety. *Indoor Environmental Quality During Construction Projects.*  
<http://www.ehs.uci.edu/programs/ih/IEQinConstruction.html>

### Information for School Administrators

- *Ten Ways to Help Avoid Legal Problems In School Construction.* Howard L Kelin, Esq. Published by the National Clearinghouse for Educational Facilities. [http://www.edfacilities.org/pubs/Avoid\\_Legal.pdf](http://www.edfacilities.org/pubs/Avoid_Legal.pdf)
- *A Principal's Guide to On-Site School Construction.* William A. Brenner, AIA Published by the National Clearinghouse for Educational Facilities. <http://www.edfacilities.org/pubs/>

### General Principles

- EPA Tools for Schools – IAQ Design Tools for Schools  
<http://www.epa.gov/iaq/schooldesign/>
- Massachusetts Department of Labor and Workforce Development – Division of Occupational Safety. *Preventing Indoor Air Quality Problems During Construction and Renovation.*  
[www.state.ma.us/dos/iaqdocs/iaq-388.htm](http://www.state.ma.us/dos/iaqdocs/iaq-388.htm)
- National Clearing House for Educational Facilities/Renovation  
<http://www.edfacilities.org/rl/renovation.cfm>
- *Guide to School Renovation and Construction: What You Need to Know To Protect Child and Adult Environmental Health.* [New York]  
(Healthy Schools Network, Inc., Albany, New York , 2000)  
<http://www.healthyschools.org>