



CREATING HEALTHY SCHOOL ENVIRONMENTS

Step by Step

VOLUNTARY GUIDELINES FOR OHIO SCHOOLS

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"The purpose of these voluntary guidelines is to assist Ohio's nearly 4,000 K-12 schools in evaluating, improving and maintaining the environmental health of their facilities. . .

*. . . leading to decreased absenteeism of students and staff,
stronger academic performance and long-term financial
return on investment."*



Introduction

Why School Environmental Health (SEH) Guidelines?

The purpose of these voluntary guidelines is to assist Ohio's nearly 4,000 K-12 schools in evaluating, improving and maintaining the environmental health of their facilities. Improvements in school environmental health will enhance the educational environment leading to decreased absenteeism of students and staff, stronger academic performance (including higher test scores) and long-term financial return on investment^{1,2,3,4,5}.

Over 1.75 million children and 100 thousand adults across Ohio spend their days in K-12 schools⁶. A growing body of research strongly supports the importance of school environmental health to both the educational success and overall health and well-being of Ohio's school children and staff. "Poor environmental conditions can thwart academic progress by making it harder for students to concentrate, causing or exacerbating illness in students and staff, increasing absences and lost work days, and diverting school funds to pay for costly repair and remediation projects⁷."

On the other hand, improvement in school environmental conditions can have significant positive impacts^{8,9,10,11,12}. In one study "children in classrooms with higher outdoor air ventilation rates scored 14 to 15% higher on standardized tests than children in classrooms with lower outdoor air ventilation rates¹³."

In addition to wellness and the advancement of the core educational mission, attention to environmental quality can improve the financial health of Ohio's schools. In one study of classroom ventilation rates (VRs) and student illness absences in elementary schools, researchers estimated that "increasing classroom VRs from the California average (4 l/s per person) to the State standard would decrease illness absences by 3.4%, increase attendance-linked funding to schools by \$33 million annually, and increase costs by only \$4 million¹⁴."

What Are SEH Guidelines?

The updated guidelines are written for schools and school districts. They are presented in a tiered format so that schools, no matter what their available resources, will have the opportunity for successful implementation at the foundational level. The guidelines offer a user-friendly, step-by-step format for evaluating, improving and sustaining school environmental health. In addition, helpful templates are included to assist with implementation at each step as well as references to resources and subject matter experts that can provide more detailed information. Schools that implement the guidelines at one of three levels (described on page I-2) may apply for public recognition from the Ohio Department of Health. Communications assistance is also provided to help participating schools maximize support and recognition from their community for the work being done to improve the school

environment. Building support at the community level for the work schools do to improve and maintain environmental health may help to support further improvements in the future.

What SEH Guidelines Are Not

These guidelines are strictly voluntary and are not enforceable by law. An assessment tool closely aligned to the guidelines will be available for use by Local Health Departments who choose to use it. The purpose of developing and providing this assessment tool is to improve statewide consistency in school environmental health and to maintain or improve the collaboration between schools, public health partners and other stakeholders.

Who Will Use SEH Guidelines?

Implementation of these guidelines will take the cooperation of the many people who work and study in school buildings. It will require the approval of administrators and the cooperation of staff members responsible for the maintenance of the building, teachers, other staff, students and parents. However, one person who is committed to sustainable healthy school environments is all it will take to get the ball rolling towards successful implementation.

Recognition for Implementation

There are three levels of implementation possible so that the level of effort may be tailored depending upon the level of school environmental health a school might wish to achieve or can afford. The three levels are:

- B** Foundational Level School Environmental Health which focuses on assuring a basic healthy and safe school environment (**Bronze Level** Recognition).
- S** Enhanced Level School Environmental Health which focuses on providing all basic requirements, but demonstrates further commitment to reducing asthma and allergy triggers and improving indoor air quality (**Silver Level** Recognition).
- G** Optimal Level School Environmental Health which focuses on achieving the highest level of school environmental health by committing to efforts such as environmentally sound purchasing, data collection for quality improvement and integration of environmental health into student curriculum in addition to the foundational and enhanced level requirements (**Gold Level** Recognition).



Endorsements

The Ohio Department of Health (ODH), Bureau of Environmental Health (BEH), Indoor Environments Section received a grant from the US Environmental Protection Agency in 2013 to build capacity to implement voluntary K-12 SEH guidelines in Ohio.

A statewide School Environmental Health Advisory Panel (SEHAP) was formed in January, 2014. This committee is made up of representatives from educational and public health organizations and was facilitated by the ODH, BEH. Meetings were held twice a month between January and June of 2014 to review existing SEH resources and guidelines, plan assessment of Ohio's current school environmental health, and develop new Ohio-specific SEH guidelines.

This panel consisted of representatives from the following organizations:

Association of Ohio Health Commissioners
Buckeye Association of School Administrators
Cuyahoga County Health Department
Erie County Health Department
Ohio Association of School Business Officials
Ohio Association of School Nurses
Ohio Bureau of Workers Compensation
Ohio Environmental Health Association
Ohio Environmental Protection Agency
Ohio Facilities Construction Commission
Ohio Federation of Teachers
Ohio Parent Teacher Association
Ohio School Boards Association
Ohio School Facilities Commission
Public Employment Risk Reduction Program
Summit County Health Department
Union County Health Department



References (Introduction):

- 1 Annesi-Maesano I, Baiz N, Banerjee S, Rudnai P, Rive S, SINPHONIE Group. (2013) Indoor air quality and sources in schools and related health effects. *J Toxicol Environ Health B Crit Rev.* 2013;16(8):491-550.
- 2 Crampton, F.E (2009) Spending on school infrastructure: Does money matter? *Journal of Educational Administration.* Volume 47(Issue 3): 305-322.
- 3 Ervasti J, Kivimäki M, Kawachi I, Subramanian SV, Pentti J, Oksanen T, Puusniekka R, Pohjonen T, Vahtera J, Virtanen M. (2012) School environment as predictor of teacher sick leave: data-linked prospective cohort study. *BMC Public Health.* 2012 Sep 11;12:770.
- 4 Mohai P, Kweon BS, Lee S, Ard K. (2011) Air pollution around schools is linked to poorer student health and academic performance. *Health Aff (Millwood).* 2011 May;30 (5):852-62.
- 5 Mudarri, D. and W. J. Fisk, 2007. "Public health and economic impact of dampness and mold." *Indoor Air* 17(3):226-235.
- 6 <http://nces.ed.gov/programs/stateprofiles/sresult.asp?mode=short&s1=39>
- 7 <http://www.ei.org/buildings/topics-school-environmental-health>
- 8 Haverinen-Shaughnessy U, Moschandreas DJ, Shaughnessy RJ. (2011) Association between substandard classroom ventilation rates and students' academic achievement. *Indoor Air.* 2011 Apr;21 (2):121-31.
- 9 Mendell, M.J., Eliseeva, E.A., Davies, M.M., Spears, M., Lobscheid, A., Fisk, W.J., Apte, M.G. (2013). Association of classroom ventilation with reduced illness absence: a prospective study in California elementary schools. *Indoor Air* 23, 515–528.
- 10 Moore C, Uyeda K, Cuevas Y, Villanueva R. (2010). Los Angeles Unified School District's comprehensive asthma program. *NASN Sch Nurse.* 2010 Sep;25(5):210-2.
- 11 <http://online.tarleton.edu/ACEF/ACEFJournal2011Vol1/pubData/source/ACEF%20Journal%20Vol1%20Issue1%20August%202011.pdf>
- 12 Simons E, Hwang SA, Fitzgerald EF, Kielb C, Lin S. (2010) The impact of school building conditions on student absenteeism in Upstate New York. *Am J Public Health.* 2010 Sep; 100(9):1679-86.
- 13 Shaughnessy, R., U. Shaughnessy, et al. 2006. "A preliminary study on the association between ventilation rates in classrooms and student performance." *Indoor Air* 16(6):465-468.
- 14 Mendell, pp. 515–528.

The Guidelines, Step by Step

The recommended pathway to successful implementation of the guidelines includes the following steps:

Step One: Consider who in authority must give approval for this project. In addition, identify those who will support this effort as well as any existing committees or groups that are promoting a healthy school environment. Template letters and presentations are included to assist in communicating with other school environmental health stakeholders.

Step Two: Assess the condition of the facility, inside and out. There are eight (8) different checklists that will help schools to identify their current state of environmental health. The assessment process can be done by one person, but it is recommended that coordinators take advantage of the knowledge of the staff who spend the most time in these different areas in order to get the most accurate assessment and, also, to gain some support from building occupants.

Step Three: Complete priority planning table (template provided) to map out your approach to addressing any issues identified during the assessment process.

Step Four: Complete an action plan (template provided). Implement the action plan and record progress on your action plan. During this phase you will want to choose how often you will update your assessment and action plan.

Step Five: Include training for building occupants as well as communication with staff, parents and wider community (templates provided for training scheduling and newsletter articles). When planning training events consider:

- Join the Ohio Schools' Healthy Environment Network (OSHEN) to receive up to date information on school environmental health, including short monthly webinars available free of charge.
(<http://1.usa.gov/1gEMVDn> and QR code)



Step Six: Take the opportunity to be publicly recognized by the Ohio Department of Health for implementing the guidelines at one of three different levels. This will include a decal which can be posted prominently to display your achievement. Recognition announcement letters will be made available upon request and ODH will issue a press release to your local area media, if you choose to take this step.



CREATING HEALTHY SCHOOL ENVIRONMENTS

Step One: Gaining Approval

Gaining Approval

These guidelines are written to be accessible to anyone within the school community who would like to improve the environmental health of their school. If you are not in a position to authorize these activities, it will be necessary to gain the proper approval before going ahead with the implementation of the guidelines. In order to do this, first consider who in authority must give approval for this project. Next, identify those who will support this effort as well as any existing committees or groups that are promoting a healthy school environment.

In order to communicate with these individuals and groups, a template letter, newsletter article, and short PowerPoint presentation have been prepared. The written and/or visual communication, paired with personal follow-up, may be used to communicate the importance of addressing school environmental health, as well as the positive benefits of doing so.

After gaining an audience, the guidelines themselves may be presented for review.

“One person who is committed to sustainable healthy school environments is all it will take to get the ball rolling towards successful implementation.”





Gaining Approval Letter

Dear *[Name of Supervisor]*,

I am interested in using the newly released voluntary Ohio School Environmental Health Guidelines to assess the health of our school environment and to help prioritize any action we might need to take to improve our school environment. This is a strictly voluntary program requiring no reporting of data, unless we decide to pursue recognition for our efforts.

It is suggested that the assessment include asking the following staff to complete a quick assessment of their areas:

- Classroom teachers-room numbers
- Athletic director-athletic field/gym/locker areas
- School Healthcare Provider – clinic or healthcare area
- Facilities or Business Manager – building and grounds
- Custodian – custodial closets and maintenance areas
- Administrator – administrative areas and policies

Once the assessment is completed, the results can be used to form an action plan to address any needs identified. The guidelines have templates that will assist with these activities. If you are willing to pursue this project, please provide me with the name of the person with whom I should discuss implementation.

There are three levels of implementation possible so that our level of effort may be tailored depending upon the level of school environmental health we wish to achieve or can afford at this time. The three levels are:

- Foundational Level School Environmental Health which focuses on assuring a basic healthy and safe school environment (**Bronze Level** Recognition).
- Enhanced Level School Environmental Health which focuses on providing all basic requirements, but demonstrates further commitment to reducing asthma and allergy triggers and improving indoor air quality (**Silver Level** Recognition).
- Optimal Level School Environmental Health which focuses on achieving the highest level of school environmental health by committing to efforts such as environmentally sound purchasing, data collection for quality improvement and integration of environmental health into student curriculum in addition to the foundational and enhanced level requirements (**Gold Level** Recognition).

Possible benefits of implementing this program include: creating an environment conducive to learning and healthy for all building occupants, increasing cost effectiveness, improving community

Gaining Approval Letter (continued)

relations, increasing teacher retention, decreasing absenteeism, and improving academic performance.

Additionally, our school will have the opportunity to be publicly recognized by the Ohio Department of Health for implementing the guidelines at one of three different levels. This will include a decal which can be posted prominently to display our achievement. ODH will issue a press release to our local area media, if we choose.

Thank you for considering this request. I/we look forward to hearing your response. I/we may be contacted at *[contact information]* if you have any questions.

Sincerely,

Gaining Approval Power Point Template



Creating Healthy School Environments

Voluntary Guidelines for Ohio Schools

Ohio Department of Health
2014



Creating Healthy School Environments

Purpose of the Guidelines:

Aid Ohio schools in

- Inspecting
- Improving
- Maintaining

the environmental health of
their facilities.



Gaining Approval Power Point Template

Creating Healthy School Environments



Why implement guidelines?

Demonstrate public commitment
Improve health and safety of facilities
Further our core educational mission

Creating Healthy School Environments



What is involved?

1. A school wide assessment
2. Creation of an action plan
3. Implementation of the action plan

Gaining Approval Power Point Template

Creating Healthy School Environments

What are the benefits?



Improvement in school environmental health has been strongly linked to:

1. Reduced absenteeism in staff and students
2. Improved academic performance
3. Improved financial return on investment



Creating Healthy School Environments

Public Recognition

If we choose, our school will have the opportunity to be publicly recognized by the Ohio Department of Health

- “Healthy School Environments Award”
- Press release for community awareness



Department of Health







CREATING HEALTHY SCHOOL ENVIRONMENTS

Voluntary Guidelines for Ohio Schools

DECREASE ABSENTEEISM • INCREASE ACADEMIC PERFORMANCE
GAIN LONG TERM FINANCIAL RETURN

Creating Healthy School Environments: (v.) Inspect, improve and maintain facilities to create healthy learning environments favorable to increased attendance and academic performance while saving money in the short and long term.

The new school environmental health guidelines have been developed to assist Ohio's nearly 4,000 K-12 schools in inspecting, improving, and maintaining the environmental health of their facilities. Improvement in school health across the country has been strongly linked to significant positive impacts including reducing illness in students and staff, increasing standardized test scores, and improving financial wellness.

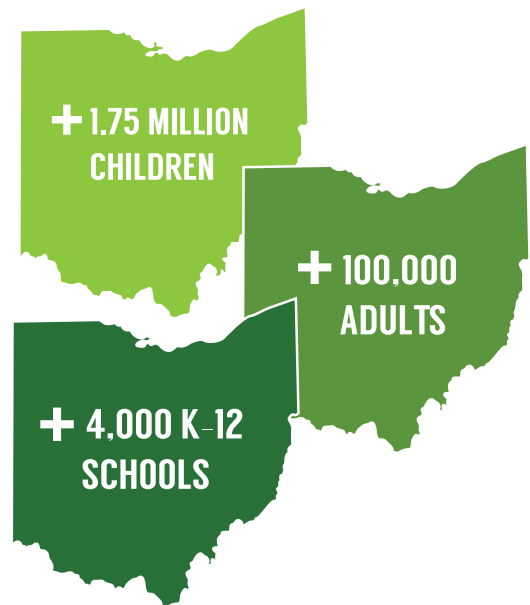
For references on school environmental health studies visit:

<http://1.usa.gov/1gEMVDn>

Implementation of this project can be initiated by teachers, staff, students, administrators, and other educational personnel in order to transform schools into healthy learning environments.

The Creating Healthy School Environments project recognizes the limitless capabilities of all Ohio children. Schools that utilize this project will publicly reestablish their commitment to improve the health and safety of their facilities to best support their students' futures.

OHIO SCHOOL STATS



**JOIN
OSHEN**



<http://1.usa.gov/1gEMVDn>

**3 STEPS TO
CREATING HEALTHY
SCHOOL ENVIRONMENTS**

1 ASSESS

2 IMPROVE

3 MAINTAIN

Ohio

Department
of Health

Step Two: Assessment

Conducting an Assessment

The Assessment step of implementation is focused on determining the environmental health of the school building. It is important to be as thorough as possible in this step of the process because it will create the foundation for the steps to come. Don't be afraid to identify issues of need at this stage, as this process is for your use and you will want to be able to document every success you have along the road to the level of school environmental health appropriate for your school.

The eight (8) area checklists provided can be combined for the coordinator assessment, but are developed to be appropriate for distribution to other staff for assistance in conducting the assessment. While a coordinator can complete the assessment without obtaining input from other staff, staff input can lend important information about the environment that the coordinator might not catch in an overview, but that classroom teachers or other staff will know because they spend their time in that environment. Additionally, involvement of staff provides an opportunity to educate building occupants about environmental health and to enlist their support in implementation of the program.

The areas inside and outside the school building to be assessed are:

1. Outdoor Grounds and Outdoor Air Quality
2. Playgrounds
3. Classrooms
4. Specialty Classrooms
5. Indoor Athletic Areas
6. Health Care Area
7. Non-Classroom Areas
8. Environmental Health and Safety Policies.



Assessment steps:

1. Identify the person in each area who occupies or oversees that area, and who would be most familiar with the area. To assist in the process, you may choose to use the staff identification forms on pages 15-20. For example:

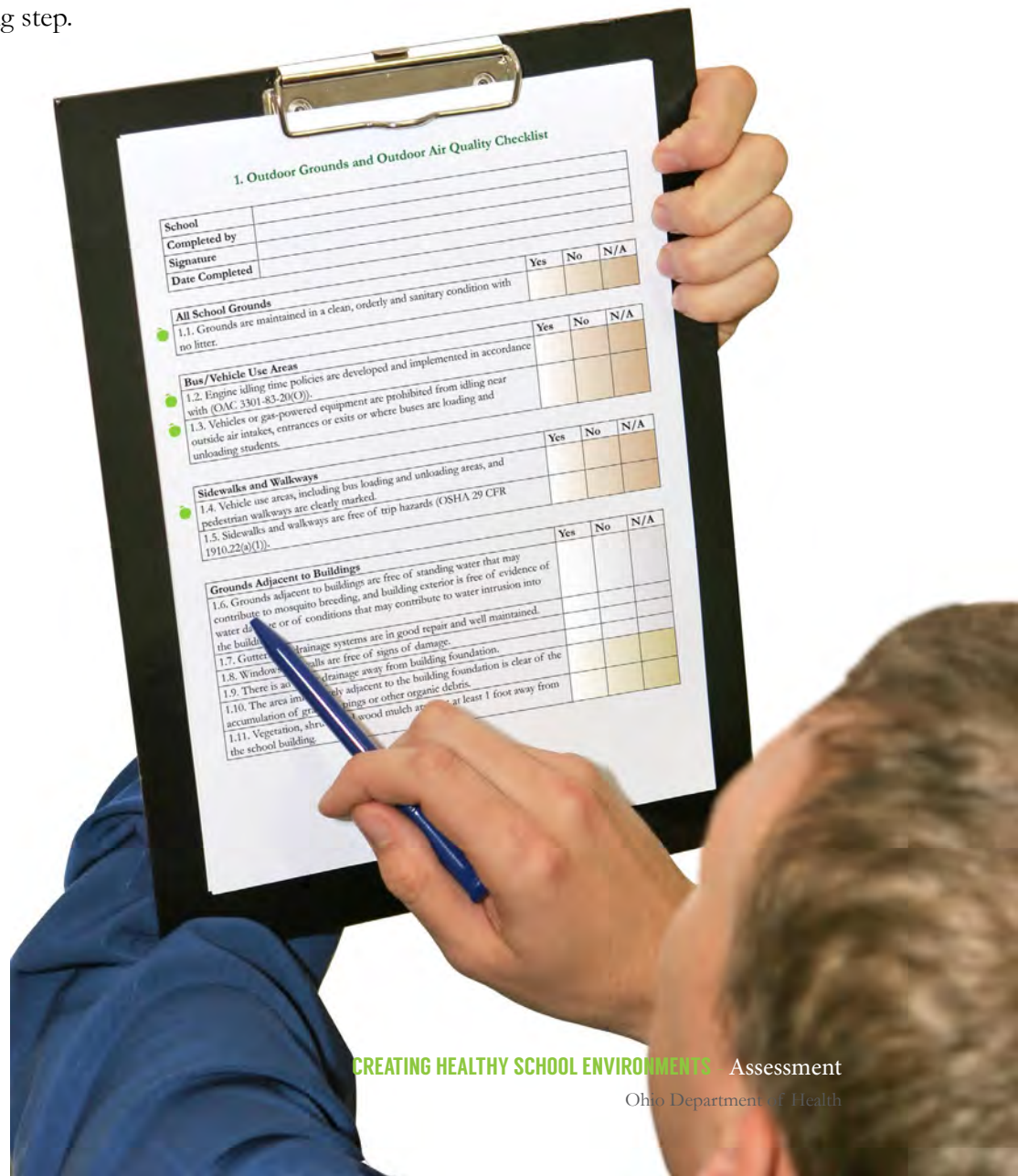
- Outdoor Grounds and Outdoor Air Quality—Custodian or School Facilities Staff
- Playgrounds—Staff who supervise playground activities
- Classrooms and General Indoor Areas—the teacher who occupies each classroom for the greatest amount of time each day
- Specialty Classrooms—Chemistry teacher, Art teacher, and Industrial Arts teachers who occupy the classrooms for the greatest amount of time each day
- Indoor Athletic Areas—Coaches or Physical Educations Instructors

- Health Care Area—School Nurse or Healthcare Provider
- Non-classroom Area—Custodian or School Facilities Staff or Administrative Staff
- Environmental Health and Safety Policies—Administrative Personnel

2. Provide Cover Letter, the area specific Fact Sheet and the area specific Checklist to each identified person, either electronically or in hard copy. (See provided templates.) Specify instructions for return of the checklists in the spaces provided on the letters.

3. While individuals are completing area specific checklists, the individual leading the assessment can complete a general inspection for verification of problem areas and to assess any areas not covered by assigned staff. Electronic versions of the template will be provided on the SEH website.

4. Proceed to Priority Planning step.



Staff Identification Forms

Area	Name of Staff Person	Phone Number	Email Address
Outdoor Grounds and Outdoor Air Quality			
Playground			
Indoor Athletic Area			
Health Care Area			
Non-Classroom Areas			
Environmental Health and Safety Policies			

Classroom Teacher Identification Form

Room Number Ex, Classroom [#]	Name of Staff Person	Phone Number	Email Address

Specialty Classroom Teacher Identification Form

Room Number Ex, Classroom [#]	Name of Staff Person	Phone Number	Email Address

Checklist Cover Letter

Dear *[Name of staff person to complete assessment form]*:

[Name of School] is conducting an assessment of the school environment to determine if there are ways that we can improve upon the learning environment for students and staff. A growing body of research indicates that poor environmental conditions can impact academic progress by making it harder for students to concentrate, causing or exacerbating illness in students and staff, increasing absences and lost work days, and diverting school funds to pay for costly repair and remediation projects. Approximately *[number of students and staff in your school building]* students and staff spend their day in our school building, so this is an important issue for us to address.

The first step in assuring we're doing our best to address the school environment is an assessment of our school building. You're being asked to participate in this assessment because we feel you are the person most familiar with the environment in which you work. We value what you have to tell us. Please review the fact sheet provided to give you a better understanding of how the school environment might play a role in your area. Then, I would appreciate it if you would complete the enclosed assessment, indicating either yes, no or not applicable for each item listed. There is also an area where you make other more detailed notes or record questions. Please return the completed questionnaire to *[name of coordinator]* by *[date of completion]*.

Results of independent assessments will be compiled and a general walk-through will be completed. This information will help us develop an action plan to improve our school environment.

We are making use of new voluntary guidelines for school environmental health established by the Ohio Department of Health and an advisory panel of school personnel and public health officials. Depending on how well we are able to meet the standards of the guidelines, our school may be eligible to receive community recognition for our efforts from the Ohio Department of Health.

Thank you in advance for taking time to complete the attached form. If you have questions about the process, please feel free to contact me at *[phone number or other method of communication]*.

Sincerely,

[Name and title of Coordinator]



1. Outdoor Grounds and Outdoor Air Quality Checklist

See Appendix A for item by item description and resources.

School	
Completed by	
Signature	
Date Completed	

All School Grounds	Yes	No	N/A
1.1. Grounds are maintained in a clean, orderly and sanitary condition with no litter.			

Bus/Vehicle Use Areas	Yes	No	N/A
1.2. Engine idling time policies are developed and implemented in accordance with (OAC 3301-83-20(O)).			
1.3. Vehicles or gas-powered equipment are prohibited from idling near outside air intakes, entrances or exits or where buses are loading and unloading students.			

Sidewalks and Walkways	Yes	No	N/A
1.4. Vehicle use areas, including bus loading and unloading areas, and pedestrian walkways are clearly marked.			
1.5. Sidewalks and walkways are free of trip hazards (OSHA 29 CFR 1910.22(a)(1)).			

Reminder:

Bronze = Basic health & safety

Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality

Gold = Environmentally sound purchasing, data collection, curriculum integration

Grounds Adjacent to Buildings	Yes	No	N/A
1.6. Grounds adjacent to buildings are free of standing water that may contribute to mosquito breeding, and building exterior is free of evidence of water damage or of conditions that may contribute to water intrusion into the building.			
1.7. Gutters and drainage systems are in good repair and well maintained.			
1.8. Windows and walls are free of signs of damage.			
1.9. There is adequate drainage away from building foundation.			
1.10. The area immediately adjacent to the building foundation is clear of the accumulation of grass clippings or other organic debris.			
1.11. Vegetation, shrubs, and wood mulch are kept at least 1 foot away from the school building.			

Trash, Recycling, Compactor Containers	Yes	No	N/A
1.12. Trash and recycling containers are in good condition, equipped with lids and the lids cover the containers when not in use.			
1.13. Area surrounding trash, recycling and compactor containers is free of trash and debris.			
1.14 Trash and recycling containers are located away from building and air intake or windows.			

Outside Air Intakes	Yes	No	N/A
1.15. The location of all air handler intake vents has been identified.			
1.16. Outside air intake screens are intact & unobstructed. The area near outside air intakes and air intakes is free of contaminant sources and intakes are protected by screens, louvers or other filtering devices.			
1.17. Paint, roofing materials or other sealants or coatings are applied during unoccupied periods or with the use of exposure control methods.			

Exhaust Stacks, Vents and Chimney Flues	Yes	No	N/A
1.18. The location of exhaust stacks, vents & chimney flues have been identified; exhaust stacks, vents & chimney flues are unobstructed.			

Outdoor Air Pollution	Yes	No	N/A
1.19. Air intake vents are located away from high vehicular traffic areas (e.g., areas designated for student drop-off and pick-up) and chimneys for school heating systems. If intake vents cannot be moved, traffic is directed away from the vent locations, student drop-off and pick-up areas have been relocated, or during high vehicular traffic times, areas are restricted.			
1.20. Classroom windows are closed during periods of high vehicular traffic (e.g., before/after school and during rush hour if the school is located near a main street or highway).			
1.21. There is a procedure for responding to Air Quality Index advisories.			
1.22. Students conduct a research project related to anti-idling.			
1.23. School buses are retrofitted with improved emission control technologies, or have been replaced with newer, more fuel-efficient, and less-polluting buses.			
1.24. School participates in the School Flag Program to help the school and its surrounding community know about daily air quality conditions.			

Roof	Yes	No	N/A
1.25. The roof of the building is inspected by a qualified individual once a year, following severe weather, as determined by the school and when otherwise deemed necessary.			
1.26. Accurate records of roof and building inspections are maintained.			

Floor Mats	Yes	No	N/A
1.27. There is a five-step or fifteen foot walk off mat at all entry points into the building. If the area cannot accommodate a fifteen foot mat, the mat should be as long as the area will accommodate; mats are clean and replaced as necessary.			

Exterior Doors	Yes	No	N/A
1.28. Doors are properly installed and maintained to fit tightly in their frame. Exterior doors have no cracks, gaps or other visible openings that allow the entry of insects or other pests into the building.			
1.29. Doors are kept shut when not in use.			

OUTDOOR GROUNDS AND OUTDOOR AIR QUALITY FACT SHEET

There is no doubt that kids learn better in healthy environments. Children spend much of their critical formative years on school grounds and in school buildings where they can be exposed to a variety of potential health and safety hazards. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today, and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of outdoor grounds and outdoor air quality:

The grounds and air surrounding the school building must be maintained in order to provide a healthy and safe outdoor environment, to keep pollutants from entering the school building and to protect the integrity of the school building(s). Attention to the outdoor grounds and air quality will help to provide a clean, safe, pest-free school environment.

Tips for Keeping School Grounds Safe and Healthy:

- **Keep grounds free from litter –**
In addition to detracting from the appearance of your school, litter may attract pests, pose a hazard to young children and may cause trip hazards,

so pick up litter quickly. Trash and recycling containers can be an attractant for pests if not maintained properly. Make sure they're placed away from the building, have lids and the surrounding area is kept clean of debris or residue that will attract bees or pests.

- **Monitor for trip hazards –** Wear or vandalism may result in deteriorating, uneven or broken pavement or sidewalks. Look for these and repair quickly or notify grounds keeper of problems to prevent injuries from falls or stumbles.
- **Minimize Idling and Exposure to Idling Exhaust –** Exhaust emissions from diesel engines have been classified as probable human carcinogens (cancer causing agents). Several emissions products are also USEPA criteria pollutants known to exacerbate asthma. It is important to prohibit or limit idling of diesel buses and cars when children are exiting or boarding vehicles. It is also important that buses and vehicles not idle near outdoor air intakes for the school ventilation system as exhaust can enter the building and cause odor and health complaints.
- **Monitor water flow around the building –** One of the most frequent complaints the Ohio

Department of Health received from schools is about mold. Mold cannot persist without a water source, so keeping water from entering the building is very important. When it's raining, monitor the exterior of the building to assure:

- Water is flowing away from the building (downspouts and gutters are intact)
 - Downspouts are discharging water and the water is flowing away from the building (not ponding or draining back toward the foundation)
 - Water is not ponding around the building or on the roof
 - Windows, walls and doors are functioning appropriately with no cracks or openings
- **Protect the inside air of the building** - Clean air is one of the most important factors in maintaining healthy environments as it dilutes contaminants that are produced in the indoor environment. For this reason, it is important to routinely check the outdoor intakes for the building (where unit ventilators or central systems draw air into the building) to make sure that they are clear of debris and away from any possible contaminant sources (such as idling vehicles or

trash collection areas).

- **Be aware of the roof** – Many heating, ventilation and air conditioning systems are on the roof. Having a diagram of where intake vents and exhaust are located may help to prevent re-entrainment of contaminants (pulling exhaust through intake vents back into the building). It's also important to check the roof for any possible breaches of the building envelope (punctures of the roof lining that may lead to water leaking) or any debris or ponding of water.

Resources

- School Environmental Health resources will be updated at this website:
<http://bit.ly/OhSEHWeb>



Reminder:

Bronze = Basic health & safety
Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality
Gold = Environmentally sound purchasing, data collection, curriculum integration

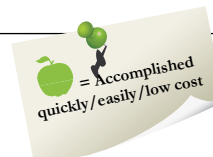
2. Playgrounds Checklist

See Appendix A for item by item description and resources.

School	
Completed by	
Signature	
Date Completed	

General Safety	Yes	No	N/A
2.1. Staff supervises use of the playground by students during school hours.			
2.2. All playground equipment is in good repair.			
2.3. Equipment components are free of protruding bolts or separations that could cause the entanglement of a portion or portions of the body, clothing, jewelry, or other items that may result in the strangulation or dismemberment of the user.			
2.4. Reports from inspections done of the playground are made available to local health department sanitarian at the time of required school inspection.			
2.5. All "S-hooks" on swings are properly closed. (Less than a dime)			
2.6. Swings not recommended for playground use are prohibited on school grounds. Swings recommended for playground use on school grounds include: To-Fro Swings, Multi-Axis Swings (tire swings), and combination swings.			
2.7. Equipment openings are less than three and one half inches or greater than nine inches in size. All openings between three and one half inches and nine inches must be checked for head entrapment with torso and head probes.			
2.8. Guardrails or protective barriers are installed where appropriate.			

Protective Surfacing	Yes	No	N/A
2.9. Loose-fill surfacing is maintained at a depth of at least 9 inches in use zones (at least 6 inches for shredded/recycled rubber). This depth is adequate for the following fall heights:			
Shredded/Recycled Rubber Sand Pea Gravel Wood Mulch Wood Chips (Sample reference guide per Consumer Safety Product Commission)	10 feet 4 feet 5 feet 7 feet 10 feet		
2.10. ASTM standard F1292-13 compliance documentation is on file for surfacing present. The critical height of the surfacing should match the fall height of the equipment.			



Protective Surfacing	Yes	No	N/A
2.11. Use zones around slides, swings and stationary equipment are free of obstructions and are of the following dimensions: <u>SLIDES</u>: At the front of the slide, the use zone for slides less than or equal to six feet are at least six feet, for slides greater than six feet the use zone should be equal to the height of the slide (not required to exceed eight feet), and a six foot radius from all other parts of the slide. <u>BELT SWINGS</u>: Twice the height of the swings (from the surfacing material to the pivot point of the swing) in front and back and a six foot radius from the sides of the swing structure. (Buckets-twice height from seat surface to point). <u>MULTI-AXIS SWINGS</u>: $Y + 72''$ (Y=height from pivot point to the seat surface) measured out in all direction from the pivot point. <u>STATIONARY EQUIPMENT</u>: Six feet in all directions. Furthermore, the use zone for all swings, merry-go-rounds, and the exit area of slides can have no overlap of use zones from other equipment.			

COMMENTS/QUESTIONS:

PLAYGROUNDS FACT SHEET

There is no doubt that children learn better in healthy environments. Kids spend a large percentage of their time in schools. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of Playgrounds health and safety concerns:

The U. S. Consumer Product Safety Commission has long recognized the potential hazards that exist with the use of playground equipment, with over 200,000 estimated emergency room-treated injuries annually. The most recent study of 2,691 playground equipment-related incidents reported to the CPSC from 2001-2008 indicated that falls are the most common hazard pattern (44% of injuries) followed by equipment-related hazards, such as breakage, tip over, design, and assembly (23%). Other hazard patterns involved entrapment and colliding with other children or stationary equipment. Playground-related deaths reported to the Commission involved entanglement of ropes, leashes, or clothing; falls; and impact from equipment tip over or structural failure.

Playground Safety Tips:

While this should not be considered a comprehensive list, here are a few tips to keep a playground safe and healthy.

- Make sure the playground is supervised during school hours - Staff who routinely supervise the playground should receive training that will help them to identify playground hazards and will teach about appropriate equipment for different age groups of children.
- Maintain adequate surfacing under and around play structures – Since falls are the most frequent cause of injury, adequate surfacing is very important. Unless the playground has approved unitary surfacing (foam like), there should be at least 9 inches of surfacing materials such as mulch, sand or pea gravel, under and surrounding play structures (shredded rubber requires only six inches). Be sure to notify grounds supervisor if surfacing material is not adequate.
- Monitor the condition of playground equipment – Be sure all equipment is in good repair and is fastened securely to the ground to prevent tipping. Wear or vandalism can create unsafe conditions such as worn pieces that might easily break

and cause injury or that might already be broken causing a hazard. Keep children away from these hazards and notify grounds keeper immediately. **Look for obvious hazards** – Evaluate the playground for other common causes of injury including:

- o Equipment that could pinch or shear
- o Entanglement hazards such as opening or gaps that could catch a piece of clothing or jewelry; strings or ropes left on the playground or that are a malfunctioning part of playground equipment
- o Sharp points, corners or edges, including protrusion hazards that could cause injury with impact

- o Suspended hazards – cables, wires or ropes suspended between two points should be colorful and clearly visible as well as attached in such a fashion so that no more than a five inch circle could be made by overlapping the material
- o Tripping hazards such as uncovered anchors at the base of play equipment or holes formed by wildlife or digging
- o Used tires – make sure steel belts have been removed or are not exposed

Resources

- School Environmental Health resources will be updated at this website:
<http://bit.ly/OhSEHWeb>





3. Classroom Checklist

See Appendix A for item by item description and resources.

School	
Completed by	
Signature	
Date Completed	

Prevent Moisture/Mold in Schools	Yes	No	N/A
3.1. Indoor environments are sanitary with no sign of moisture, water damage or suspected mold on any interior surface (OSHA 29 CFR 1910.22(a)(1)).			
3.2. Routine moisture inspections are conducted to ensure the school building is free of moisture problems, water damage, and visible mold on all interior surfaces (OSHA 29 CFR 1910.141(a)(3)(ii)).			
3.3. Information on mold is integrated into the student curricula.			

Dust and Clutter	Yes	No	N/A
3.4. Surfaces are free from excessive accumulation of dust or sediment.			
3.5. Items are annually assessed for disposal or stored promptly so that routine maintenance and cleaning are not inhibited or restricted by stored items.			

Pests	Yes	No	N/A
3.6. Indoor areas are free of evidence of pests or obvious food sources for pests (OSHA 29 CFR 1910.141(a)(4)(i)) (OSHA 29 CFR 1910.141(a)(5)).			
3.7. Food waste or pest attractants are immediately placed in a trash can, and trash is removed daily from the school building.			
3.8. Food and beverages are allowed only in designated areas and food is stored in airtight containers.			
3.9. All food crumbs or spilled drinks are cleaned immediately.			
3.10. Dishes are washed promptly after use.			

Classroom Furnishings	Yes	No	N/A
3.11. Furniture and toys are cleanable, clean and in good repair.			
3.12. Drapes, blinds, shades and banners are clean and in good repair.			
3.13. There is no excessive accumulation of chalk or marker dust and markers are low or no volatile organic compound emitting.			

Reminder:

Bronze = Basic health & safety
Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality
Gold = Environmentally sound purchasing, data collection, curriculum integration

Portable Tables, Furniture and Shelving	Yes	No	N/A
3.14. Portable banquet tables, cafeteria tables and other portable furniture items, when not in a position intended for use, are stored in a manner that is inaccessible to students or are secured to the wall or floor to prevent injuries from tipping.			
3.15 Televisions and heavy equipment that may pose a hazard by tipping or falling are securely anchored to a cart, wall or floor and are moved only by authorized personnel. Heavy furniture items are moved only by authorized personnel.			

General Chemical Safety	Yes	No	N/A
3.16. Chemicals and cleaning products used in the classrooms are inaccessible to all students with the exception of chemicals used during classroom instruction. Teachers and staff are discouraged from bringing in cleaning chemicals - only school supplied products are used. Aerosol and plug-in air fresheners are not used.			

Walls	Yes	No	N/A
3.17. Walls have paint and plaster intact with no visible bowing or evidence of cracks or damage (OSHA 29 CFR 1910.22(a)(1)).			
3.18. Rooms are identified that may contain paint produced before 1978.			

Floors	Yes	No	N/A
3.19. Floors are sanitary and dry with no tripping hazards (OSHA 29 CFR 1910.141(a)(3)(iii)).			
3.20. Carpeting and vinyl cushion tufted textile are sanitary, dry and secure to the floor and not installed in vestibules and corridors within 15 feet of all building entrances or in areas prone to moisture accumulation or proximate to moisture sources, including, but not limited to, locker rooms, restrooms and spaces adjacent to sinks (OSHA 29 CFR 1910.141(a)(3)(iii)).			
3.21. Area rugs are sanitary and in good repair (1910.141(a)(3)(iii)).			
3.22. Carpeted areas are vacuumed daily.			
3.23. Carpets are cleaned twice/year with extraction cleaners to remove water to prevent mold growth as a result of cleaning.			

Ceilings	Yes	No	N/A
3.24. Ceilings are present, intact and sanitary with no water damage, stains, suspected mold or chipping or peeling paint (OSHA 29 CFR 1910.22(a)(1)).			

Windows		Yes	No	N/A
	3.25. Window panes and frames are clean, intact and properly caulked or sealed and glazed.			
HVAC Systems		Yes	No	N/A
	3.26. HVAC systems are free of any excessive noise, vibration or odor from any system component.			
	3.27. HVAC systems have pleated air filtration in unit ventilators.			
	3.28. HVAC systems have unobstructed air supply grilles or outlets and air return grilles or inlets which are free of rigged baffles, deflectors or affixed barriers.			
	3.29. HVAC systems provide adequate ventilation to prevent reasonable health complaints and to remove or dilute contaminants within the capacity of the system.			
Animal Management		Yes	No	N/A
	3.30. Animal containers or cages are free from excessive accumulation of animal waste.			
	3.31. Animal containers or cages are equipped with properly fitting lids and/or doors.			
	3.32. Hand washing facilities are available and immediately used when animals are handled in the classroom.			
	3.33. Animals are prohibited from roaming in the school building, except for therapy animals or animals that are used for assistance.			
	3.34. Animals are prohibited from being on surfaces where food or drink is prepared or consumed.			
	3.35. All animal feed is tightly sealed in labeled containers and separate from human food.			
	3.36. The following types of animals are prohibited from classroom and grounds (i) Nonhuman primates; (ii) Rabies vector species, including raccoons, bats, skunks, coyotes or fox; (iii) Wolves or wolf-dog hybrids; (iv) Aggressive or unpredictable animals; (v) Stray animals with unknown health and vaccination history; (vi) Venomous or toxin-producing spiders, insects, reptiles and amphibians; (vii) Dogs, cats and ferrets under sixteen weeks of age; and (viii) Dogs, cats and ferrets that are not current on rabies vaccinations.			
	3.37. In addition to the animals listed above, the following animals are prohibited from classrooms with children under five years of age (i) Ferrets; (ii) Reptiles and amphibians; and (iii) Chicks, ducklings and hatching eggs.			

Plumbing Fixtures	Yes	No	N/A
3.38. All plumbing fixtures are in good repair.			
3.39. Drinking fountain streams crest a minimum of one inch above the mouth guard of the fountain but not so high as to promote water spillage onto the floor.			
3.40. Floor drains, strainers, and grates are clean and in good repair.			
3.41. Pipe chases are sealed.			
3.42. Paper products or cardboard boxes are stored away from moist areas and are not in direct contact with the floor or the walls.			

Diapering Facilities	Yes	No	N/A
3.43. Hand washing facilities are available in rooms where restroom assistance is provided.			
3.44. Diapering facilities are sanitary and in good condition.			
3.45. Elevated diapering facilities are properly equipped to prevent falls.			

Lighting	Yes	No	N/A
3.46. If a light ballast is found to be leaking PCBs, it is immediately removed and disposed of, along with any PCB-contaminated materials, at an EPA-approved facility (40 CFR 761.60, 761.61, 761.65, 761.79).			

Noise	Yes	No	N/A
3.47. Learning environment is free of excessive noise in the school building so not as to create hearing hazards (OSHA 29 CFR 1910.95(b)(1)) or disrupt classroom instruction.			

General Safety	Yes	No	N/A
3.48. Box and stand fans are properly guarded, clean and equipped with electrical cords that are maintained in good repair. Ceiling fans are clean and in good repair (OSHA 29 CFR 1910.212(a)(5)).			

Electrical Safety	Yes	No	N/A
3.49. All electrical cords, including extension cords, are in good condition with no damage or fraying (OSHA 29 CFR 1910.303(b)(1)(iv)).			
3.50. Use of ungrounded extension cords or use of extension cords for permanent equipment is prohibited (OSHA 29 CFR 1910.304(g)(5)).			
3.51. Electrical switches and electrical outlets are in good repair (OSHA 29 CFR 1910.303(b)(1)).			

COMMENTS/QUESTIONS:

CLASSROOM FACT SHEET

There is no doubt that kids learn better in healthy environments. Children spend much of their critical formative years on school grounds and in school buildings where they can be exposed to variety of potential health and safety hazards. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of classroom concerns:

Children spend most of their school time in the classroom. During this time, they are exposed on a daily basis to a variety of potential health and safety concerns, most focusing on indoor air quality (IAQ) inside the school building and the classroom. Classroom IAQ can directly affect the health and comfort of students and staff with various air quality issues being associated with headaches, dizziness, nausea, fatigue, respiratory and ear, eye, nose, and throat irritation – all of which can negatively affect the student's classroom performance. These same issues – including exposure to outdoor and indoor air pollutants and to mold and mildew, can pose longer term, chronic health threats to individuals with asthma, allergies, respiratory diseases, and suppressed or faulty immune systems.

Tips for Keeping the Classroom Healthy and Safe:

- **Keep things dry** – Damp environments can encourage mold growth, attract pests and can even cause injuries such as falls from wet or slick floors. Mold can cause health symptoms for people with allergies and asthma. Pests that are attracted by moisture can also cause problems for staff and students with allergies or asthma and may require the use of pesticides. If you notice a water problem be sure to notify administration immediately so that it can be addressed before it causes more serious problems.
- **Keep the air moving** – Ventilation is one of the most important ways to maintain the environmental health of your classroom. Ventilation should provide fresh air and should provide some kind of exhaust return of air to remove any contaminants generated in the classroom. Keep supply and return vents clean and clear of clutter. Don't stack items on or in front of vents. Contact your maintenance person if the direction or temperature of air needs to be changed.



- **Keep things clean and uncluttered** – dirty or cluttered areas attract pests and give them a place to live or hide. Clutter also makes it difficult to clean and the accumulated dust or debris can be the source of allergy or asthma problems. At least once a week, do an inventory of your classroom to make sure there are not items that can or should be discarded. Make sure any spills or debris are cleaned up as soon as possible.
- **Limit food in the classroom** – Food in the classroom can attract pests and wreak havoc on the environment of your classroom. While eliminating food from the classroom may not be possible, be sure to keep any stored food in sealed containers, to remove food trash from the room within the day and to clean up crumbs or spills quickly.
- **Be careful about chemicals in the classroom** – Some people don't realize that household cleaning supplies or products like air fresheners can be dangerous for people with allergies or asthma. They can also pose a hazard for small children who might want to ingest pretty colored liquids. Be sure to check to see if your school already

has approved products available for your use or if there is a policy about how to register what you may bring into the building.

- **Keep animal areas clean** – When choosing an animal for the classroom, be aware that many students may be allergic to certain types of animals or may have asthma that is triggered by animals. If you do choose to have an animal, it's important to make sure that they don't create problems with the environment in your room. Make sure to have tight lids for cages or containers and to regularly clean the animal's area.
- **Report any environmental problems** – be sure to report any problems with ceilings, windows, walls or floors to your maintenance person in a timely fashion. They may not be able to get to it right away, but it will allow for prioritization and planning when making necessary building repairs.

Resources

- [School Environmental Health resources will be updated at this website:](http://bit.ly/OhSEHWeb)
<http://bit.ly/OhSEHWeb>

4. Specialty Classrooms Checklist – Chemistry, Industrial Arts, Fine Arts, Agricultural Science, or other classrooms where specialty equipment or chemicals are regularly used for classroom instruction

See Appendix A for item by item description and resources.



School	
Completed by	
Signature	
Date Completed	

General Safety and Security	Yes	No	N/A
4.1. All doors to the specialty classrooms are locked when the classroom is not occupied.			
4.2. Staff is present while the room is occupied.			
4.3. If gas is used, classroom gas shutoff valve is clearly labeled, easily accessible in the classroom and immediately operable by staff.			
4.4. Consumption of food and drinks by students during classroom instruction or in storage rooms or other areas where chemicals are used or stored is prohibited.			
4.5. Aisles are unobstructed.			

Mercury	Yes	No	N/A
4.6. Elemental mercury or thermometers, barometers or other portable devices containing elemental mercury in the classroom or storage room are prohibited.			

Dust and Clutter	Yes	No	N/A
4.7. Surfaces are free of excessive dust or sediment build up.			

Personal Protective Equipment	Yes	No	N/A
4.8. Personal protective equipment is in good repair and available for use when appropriate (OSHA 29 CFR 1910.132(a)). PPE is tested as required by manufacturer or code and any required certifications are maintained.			

Sinks	Yes	No	N/A
4.9. Hand washing facilities are available in the classroom and are supplied as outlined in Section 7.9-7.12 of this manual. Laboratory sinks may fulfill this requirement, if properly supplied.			

Hazard Communication	Yes	No	N/A
4.10. All containers of chemicals used in the classroom are properly labeled, with the exception of containers used during an immediate classroom period (OSHA 29 CFR 1910.1200(f)(6)).			
4.11. Safety Data Sheets (SDS) are accessible to staff for all classroom chemicals (OSHA 29 CFR 1910.1200(g)(8)).			

Reminder:

Bronze = Basic health & safety
 Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality
 Gold = Environmentally sound purchasing, data collection, curriculum integration

Chemical Storage		Yes	No	N/A
	4.12. Chemical storage rooms and chemical storage cabinets are inaccessible to students or locked while not in use.			
	4.13. A current comprehensive chemical inventory list and disposal log are present and immediately accessible to staff (OSHA 29 CFR 1910.1200(e)(1)(i)).			
	4.14. The school chemical inventory is updated at least annually. Unused, unneeded, and unknown chemicals are identified and disposed of properly.			
	4.15. Chemicals are stored according to chemically compatible families and are properly labeled (OSHA 29 CFR 1910.1200(h)(3)(iii)).			
	4.16. Acids and bases are stored in separate, dedicated cabinets.			
	4.17. Nitric acid is stored separately from all other acids.			
	4.18. All flammable or combustible and corrosive liquids are stored separately, in approved cabinets and properly labeled.			
	4.19. Chemicals containers are undamaged.			
	4.20. Shelves or shelving units for chemical storage are in good repair, adequately supported, and secured to the wall or floor.			
	4.21. Storage of chemicals in fume hoods, on floors, on lab tables or above user's line of sight is prohibited.			
	4.22. Storage of food and drinks in refrigerators storing chemicals or specimens is prohibited.			
	4.23. There is a chemical management team at the school with direct involvement in or knowledge of chemical management at the school, from the purchase of chemicals to their ultimate disposal.			
	4.24. Chemical storage rooms may be vented with a mechanical exhaust system. If an exhaust system is present, it operates continuously.			

Emergency Equipment/Preparation		Yes	No	N/A
	4.25. Emergency showers and eyewash stations are operational, unobstructed and located within ten seconds of all workstations. Eyewash stations have at least fifteen minutes of continuous water flow with adequate pressure and are capable of flushing both eyes simultaneously (OSHA 29 CFR 1910.151(c)).			
	4.26. Documentation that emergency showers and eyewash stations have been tested weekly is available upon inspection (OSHA 29 CFR 1910.151(c)).			
	4.27. Squeeze bottle eyewash devices are prohibited.			
	4.28. First aid and chemical spill kits are appropriately supplied and immediately accessible to staff.			

Hazardous Materials	Yes	No	N/A
4.29. Use or storage of dry or powdered pigments or dry or powdered clays is prohibited.			
4.30. Use or storage of highly toxic pigments, paints, glazes or etchants is prohibited.			
4.31. Use of solvents in elementary classrooms is prohibited unless an AP label from ACMI is present. Solvents used in secondary education classrooms are covered or capped during instructional or activity periods and when not in use and are properly labeled (including markers).			
4.32. Aerosol sprays are used under local exhaust systems, while using the appropriate personal protective equipment and under staff supervision.			

Fume Hoods and Local Exhaust Ventilation	Yes	No	N/A
4.33. Local exhaust systems or fume hoods are in use when hazardous airborne contaminants are generated as part of classroom activities. Local exhaust systems and fume hoods are properly maintained in accordance with manufacturer's instructions and inspected annually (OSHA 29 CFR 1910.134(a)(1)).			
4.34. If kilns are in use, ventilation conforms to manufacturer's recommendations and kilns are used under staff supervision (OSHA 29 CFR 1910.134(a)(1)).			
4.35. Documentation of all maintenance and inspections of fume hoods and local exhaust systems is readily available upon inspection.			

Equipment Safety	Yes	No	N/A
4.36. Equipment is in general good repair (OSHA 29 CFR 1910.242(b)(2)(iii)) and any required certifications are maintained.			
4.37. Welding shields or screens are present, in good repair and available for use during welding (OSHA 29 CFR 1910.242(b)(2)(iii)).			
4.38. Guards on blades, belts or other devices are operational, secure and in place when equipment is in use (OSHA 29 CFR 1910.212(a)(3)(iii)).			
4.39. Control switches, including emergency shut off switches, are accessible to any person in the classroom (OSHA 29 CFR 1910.303(f)).			
4.40. Equipment that poses a tipping hazard is securely anchored (OSHA 29 CFR 1910.212(b)).			
4.41. All electrical cords, including extension cords, are in good condition and are free of damage or fraying (OSHA 29 CFR 1910.303(b)(1)(iv)).			
4.42. Use of ungrounded extension cords or use of extension cords for permanent equipment is prohibited (OSHA 29 CFR 1910.305(g)(1)(iv)).			
4.43. Electrical switches and electrical outlets are in good repair (OSHA 29 CFR 1910.303(b)(1)).			

Training	Yes	No	N/A
4.44. Teachers and staff receive chemical management training as mandated under the Occupational Safety and Health Administration's Laboratory Safety Standard (OSHA 29 CFR 1910.1450 (f)(4)).			
4.45. Students are instructed in proper chemical management and laboratory safety prior to performing experiments in the classroom.			
4.46. Green curricula is implemented in the classroom.			

Institute a Chemical Purchasing Policy	Yes	No	N/A
4.47 Chemicals and chemical products are chosen using the safest possible ingredients.			

COMMENTS/QUESTIONS:

SPECIALTIES CLASSROOMS FACT SHEET

There is no doubt that kids learn better in healthy environments. Children spend much of their critical formative years on school grounds and in school buildings where they can be exposed to a variety of potential health and safety hazards. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of specialty classrooms concerns:

Specialty classrooms include chemistry labs, industrial arts workshops, arts studios, or other classrooms where specialized equipment and/or chemicals are regularly used for classroom instruction. The equipment and chemicals commonly found in specialty classrooms can pose numerous potential safety hazards to students. Safe use of workshop and laboratory equipment and the safe, secure storage of chemicals and equipment are paramount. This means appropriate training of staff and students on safe laboratory or workshop procedures and the use of personal protective equipment and emergency equipment to limit accidents, mitigate inadvertent exposure to chemicals, and reduce the likelihood of adverse health outcomes resulting from hands-on activities.

Tips for Specialty Classrooms:

- **Assure proper supervision** – Appropriately trained staff should be present in the room whenever students are present and the room should be kept locked when not in use or when unoccupied. This is done to prevent any unintended misuse of material or equipment. It is important that while the room is being used for instruction that aisles be kept clear and free of obstruction so that if there is any kind of emergency, exit from the room can be quickly and efficiently accomplished.
- **No food or drink during instructional periods** – There are many substances that are hazardous within specialty classrooms. It would be easy for food or drink to become contaminated either intentionally or unintentionally so it is recommended that no food and drink be permitted during instructional periods. Also, if hand washing policies are not strictly enforced it is easy to transfer contaminants from hands to food.
- **Choose non-mercury containing equipment** - Mercury is used in many items found in schools, such as thermometers, barometers, switches, thermostats, flowmeters, lamps, and laboratory reagents in chemistry and



science labs. Two major causes of mercury spills at schools are improper storage and mishandling of these items. Spills are extremely disruptive to the function of the school and can be extremely expensive. ODH encourages schools to prevent spills by removing all mercury compounds and mercury-containing equipment, and by discontinuing their use.

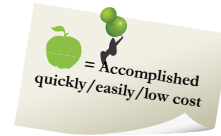
- **Monitor personal protective equipment and train on use** – In order to assure the safety and health of students, appropriate personal protective equipment (PPE) must be provided, when necessary. This doesn't just apply to chemistry classrooms, but to every classroom where chemicals are in use that require PPE (e.g., art, industrial arts, theatre). Make sure students and staff receive appropriate training to know what equipment is needed and whether or not it is in good repair.
- **Assure fume hoods are maintained in working condition and that they are used when appropriate** – Ventilation is one of the most important factors in good indoor air quality. Proper exhaust of contaminants is vital. It's important to regularly check the draw of your fume hoods (with a smoke stick or piece of tissue) and to thoroughly test the

functioning of the hood, according to manufacturers' instructions, or at least once per year.

- **Encourage hand washing** – In specialty classrooms students often handle chemicals or contaminants. It is important to have a hand washing policy and to implement the policy requiring students to thoroughly wash hands after classroom activities to prevent skin irritation or unintentional ingestion of contaminants. Making sure warm water, soap and towels are available at all times makes this an easier task.
- **Inventory chemicals regularly and store appropriately** – In a specialty classroom it is particularly important to be sure you are familiar with all chemicals purchased, used and stored in your classroom. Keep an up-to-date inventory and be sure to eliminate any old or outdated chemicals on a regular basis. It's also important to make sure they are stored by chemically compatible families and that flammables are kept in a flammable materials cabinet. Inventories will be required should there ever be a fire or emergency.

Resources

- <http://bit.ly/OhSEHWeb>



5. Indoor Athletic Facilities Checklist

See Appendix A for item by item description and resources.

School	
Completed by	
Signature	
Date Completed	

Athletic Equipment	Yes	No	N/A
5.1. All gym equipment and associated loose furnishings are safe, sanitary and in good repair.			
5.2. Cleaning supplies are readily available for use under staff supervision.			
5.3. Appropriate protective matting is provided.			

Bleachers and Telescopic Seating	Yes	No	N/A
5.4. All bleachers, folding and telescopic seating and grandstands are inspected at least once annually by a qualified person (ORC 4167.04(a)(1)). Qualified person as used in this paragraph means an individual familiar with the design, installation, operation and maintenance of folding and telescopic bleachers and grandstands. Documentation of annual inspections are available to the sanitarian at the time of the school inspection.			

Indoor Aquatic Facilities	Yes	No	N/A
5.5. Indoor aquatic facilities are in compliance with OAC 3701-31.			
5.6. Indoor pool facilities are well ventilated to control humidity levels.			

Locker Rooms	Yes	No	N/A
5.7. Hot and cold, or tempered running water are supplied to all operational faucets and showers.			
5.8. Locker rooms are free of evidence of sustained water condensation, water intrusion, water damage or suspected mold on any surface.			
5.9. Operational showers used by students have non-slip mats or non-slip surfacing in the vicinity of showers where wet floors may pose a slip hazard.			
5.10. Drain traps servicing floors, sinks, and toilets contain sufficient water to prevent the migration of sewer gas into the indoor environment.			
5.11. Storage in operational showers is prohibited.			
5.12. Non-operational showers used for storage are clean, sanitary and supplied with a non-operable water source and drains are plugged to prevent the infiltration of sewer gas.			

Reminder:

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 Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality
 Gold = Environmentally sound purchasing, data collection, curriculum integration

Training and Weight Rooms	Yes	No	N/A
5.13. Weightlifting equipment and benches are sanitary and in good repair.			
5.14. Cleaning supplies are readily available for use under staff supervision.			
5.15. Therapeutic whirlpools are sanitary, in good repair and the area is equipped with an operable exhaust fan.			

COMMENTS/QUESTIONS:

INDOOR ATHLETIC FACILITIES FACT SHEET

There is no doubt that kids learn better in healthy environments. Children spend much of their critical formative years on school grounds and in school buildings where they can be exposed to a variety of potential health and safety hazards. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of indoor athletic facilities:

The majority of injuries at school are unintentional, not violent. Injuries at school are most likely to occur on playgrounds (particularly on climbing equipment), on athletic fields, and in gymnasiums. The most frequent causes of school-associated injuries resulting in hospitalization are falls (43%) and sports activities (34%). Middle and high school students sustain more injuries at school than elementary school students: 41% of victims are aged 15--19 years; 31% are aged 11--14 years; and 28% are aged 5--10 years.¹

Indoor athletic facilities are increasingly critical to the recent efforts to reduce obesity and encourage physical activity and active life styles in children and teenagers. This is especially true in northern climes where outdoor activities might be curtailed during the winter months due to

adverse weather conditions. However, use of these facilities can potentially pose health and safety risks to children if facility conditions are not well maintained (especially the facility's physical plant and exercise equipment), if good hygiene practices are not implemented, and if these physical activities are not closely supervised by school staff. Health and safety concerns can be reduced through compliance with Ohio code, routine facilities inspections and maintenance, facilities and equipment up-grades, provision of the proper protective equipment, and adherence to good hygiene practices.

Tips for Indoor Athletic Facilities:

- **Routinely inspect equipment –**
One of the most basic things you can do to prevent sports injuries is to make sure the equipment used by students is in good repair and working appropriately. This includes any ripped or damaged padding on mats or weightlifting equipment. One suggestion is to create a procedure or timeframe and checklist for routinely inspecting and repairing or replacing equipment, if you don't already do this.
- **Adequately supervise physical activity and use of equipment –**
Trained, professional staff should supervise student activities to assure proper and safe equipment use and

that activities are being implemented in a safe and appropriate manner to prevent injury.

- **Control moisture to limit mold** – Mold can be a trigger for asthma or allergies the exacerbation of which can lead to decreased performance or missed classes, practices and games. Locker rooms are areas prone to moisture problems. Be sure to report any leaks or spills immediately so that they can be fixed before mold growth starts. It's also imperative that water generated in showers or whirlpool areas be exhausted to the outside to avoid mold issues from condensation.

- **Ask any students with asthma to provide an asthma action plan**– An asthma action plan is a plan provided by a student's physician that indicates when to take medication, what triggers to avoid and what to do when a student begins to experience breathing difficulty. ODH has an online training program for athletic coaches or teachers about working with students with asthma.

¹(Miller TR, Spicer RS. How safe are our schools? Am J Public Health 1998;88:413–8.)

Resources

- School Environmental Health resources will be updated at this website:
<http://bit.ly/OhSEHWeb>





6. Health Care Area Checklist

See Appendix A for item by item description and resources.

School	
Completed by	
Signature	
Date Completed	

General Health Care Areas	Yes	No	N/A
6.1. An accessible health care office is provided.			
6.2. Heating and ventilation are adequate for health care office space.			
6.3. Adjustable lighting is provided in the health care office.			
6.4. A toilet and sink, not used by the general student population, are adjacent to the area.			
6.5. A computer with internet and access to a scanner/printer is available.			
6.6. A telephone is readily accessible.			
6.7. A locked storage cabinet for any health records kept in the clinic is present.			
6.8. A cot is available that can be cleaned between student uses and is located in an area with direct staff supervision.			
6.9. Locked storage for medications is provided (ORC 3313.713), except when other laws allow for the carrying and self-administration of medication by the student.			
6.10. The door to health care office is lockable to provide privacy for exams and counseling, and security for clinic supplies.			

Equipment and Durable Supplies	Yes	No	N/A
6.11. General health care equipment is available (see recommended list in Appendix A, Additional Information Section 6.11).			
6.12. A sharps container is present and used when sharps disposal is necessary (i.e., needles, broken glass, etc.) (OSHA 29 CFR 1910.1030(d)(4)(iii) (A)).			
6.13. When thermometers and sphygmomanometers are present they are non-mercury containing.			
6.14. Automated External Defibrillator (AED) and AED alarm cabinet are located in a common area of the building.			
6.15. General first aid supplies are available (see recommended list in Appendix A, Additional Information Section 6.15).			
6.16. A refrigerator for medications is available (ORC 3313.713).			

Reminder:

Bronze = Basic health & safety
 Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality
 Gold = Environmentally sound purchasing, data collection, curriculum integration

Equipment and Durable Supplies continued	Yes	No	N/A
6.17. Individual locked drawers in the clinic for diabetic students to access their own individual supplies for diabetes self-management are available.			
6.18. A refrigerator with an automatic ice-maker is available.			
6.19. Additional cots for student use are available, if needed.			
6.20. Book shelves or book cases are available for reference materials.			
6.21. Bulletin boards and display racks for health education and promotional materials are available.			
6.22. Chairs for the waiting and examining areas are available.			
6.23. Sink with gooseneck mixing faucet for mixing hot and cold running water and an accessible, mounted soap dispenser and automated, hands-free, paper towel dispenser are available. Paper towel dispenser is mounted without an electrical outlet below.			
6.24. Foot controls for sink for hands-free use or sink handles that can be turned on and off with the elbow are present.			
6.25. A water fountain attachment for the faucet (for taking medications) and a flexible sprayer (to direct flow of water at various angles) are present.			
6.26. A washer and dryer are available for use by clinic staff.			
6.27. Shower for flushing of chemical spills and clean-up of body fluids is available for use by clinic staff.			

COMMENTS/QUESTIONS:

HEALTH CARE AREA FACT SHEET

There is no doubt that kids learn better in healthy environments. Children spend much of their formative years on school grounds and in school buildings where they can be exposed to a variety of potential health and safety hazards. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of health care area concerns:

From a public health perspective, schools are unique. Evidence suggests that children, pregnant women, and senior citizens are likely to be the most vulnerable with regard to the spread of infectious diseases. They are also more sensitive to the adverse effects of indoor air quality issues including odors, the presence of chemical irritants, dusts and other air particulates, molds and other allergens, and allergy-triggering pests, including rodents and insects.

The prevalence of asthma has continued to increase over the past ten years. It is now the leading cause of absenteeism due to chronic illness. Between 13 and 14% of Ohio children have been diagnosed with asthma. This means approximately 3 children in a classroom of 25 will have asthma. A school nurse can help

the student with asthma to connect to needed medical care and educate the student and family about the importance of medication and avoidance of environmental triggers. The school healthcare worker can also serve as an advocate for improving the school environment to reduce asthma triggers.

In addition, schools often accommodate more people within a smaller area than most public buildings. This proximity increases the potential for airborne contaminants (germs, odors, chemicals from personal care products) to pass between students and among staff, increasing their vulnerability and potential exposure to infectious disease and health effects linked to indoor air quality issues. As a result, it is critically important that schools have on-site medical and health expertise and facilities to cope with illnesses that occur in the school during the school day. In addition, these on-site health professionals can help to raise the awareness in students and staff about the effects of their personal habits on the well-being of others, especially given the close-quarters and shared indoor air environment typical of most school settings. These can lead to ways to weave health education and public health messages into classroom curricula.



Tips for the Healthcare Area:

- **Create a space with privacy and security for students with health issues** – It is recommended that schools have a designated area where the nurse or healthcare staff can provide treatment and guidance to students. In order to prevent the spread of communicable disease and for comfort and privacy of the student there should be a dedicated toilet and sink and an area for resting. Students should not be left unsupervised, so healthcare staff should have immediate access to a phone within this area.
- **Appropriately equip the healthcare area** – In case there is no nurse available there should be first aid supplies and emergency guidelines readily available in the healthcare area. It is recommended that all staff complete basic training in first aid and in the healthcare policies of the school regarding student care and medication administration.
- **Be an advocate for school environmental health** – Take note if students or staff health symptoms congregate by area as this may be an indication of an environmental problem. There are several excellent resources such as USEPA's Tools for Schools Action Kit that have good guidance for school healthcare staff.
- **Identify students with asthma** – Healthcare staff can play a key role in helping students with asthma stay healthy and perform at their best. The Ohio Department of Health's Ohio School Asthma Initiative has a number of tools that can help healthcare staff in work with students, their parents and other school staff to control asthma.

Resources

- School Environmental Health resources will be updated at this website:
<http://bit.ly/OhSEHWeb>



7. Non-Classroom Areas Checklist

See Appendix A for item by item description and resources.

School			
Completed by			
Signature			
Date Completed			

Hallways and Stairwells/Storage	Yes	No	N/A
7.1. Hallways and stairwells are free of stored furniture or other items that may impede egress from the building (OSHA 29 CFR 1910.37(a)(3)).			
Hallways and Stairwells/Stair Tread and Rails	Yes	No	N/A
7.2. Stair treads and handrails are secure and in good repair (OSHA 29 CFR 1910.24(f)) (1910.23(d)(1)).			
Auditoriums and Student Dining Areas/General Safety	Yes	No	N/A
7.3. Portable banquet tables, cafeteria tables and other portable furniture items, when not in a position intended for use, are stored in a manner that is inaccessible to students or are secured to the wall or floor to prevent injuries from tipping. Heavy furniture items are moved only by authorized personnel. The edge of the stage is clearly marked.			
Auditoriums and Student Dining Areas/Housekeeping	Yes	No	N/A
7.4. The cafeteria tables are cleaned and sanitized between each use.			
7.5. Floors are cleaned after spills and after periods when food is served.			
Library and Media Center	Yes	No	N/A
7.6. Books and shelves are free of dust, suspected mold or other material (OSHA 29 CFR 1910.22(a)(1)).			
7.7. Televisions and heavy equipment that may pose a hazard by tipping or falling are securely anchored to a cart, wall or floor and are moved only by authorized personnel.			
7.8. Free standing or mobile shelving that may pose a tipping hazard is secured and is moved only by authorized personnel (OSHA 29 CFR 1910.176(b)).			
Sinks and Plumbing Fixtures	Yes	No	N/A
7.9. All plumbing fixtures are sanitary, operable, properly supplied and in good repair.			
7.10. Sinks supplied by automatic or low-flow fixtures provide a continuous flow of water for approximately ten seconds.			
7.11. Hand washing sinks are provided with hand cleaning liquid, powder, or bar soap and individual, disposable towels, continuous towel system that supplies the user with a clean towel or a heated-air hand drying device.			

Reminder:

Bronze = Basic health & safety
 Silver = Further commitment to reducing allergy and asthma triggers, improving indoor air quality
 Gold = Environmentally sound purchasing, data collection, curriculum integration

Sinks and Plumbing Fixtures continued		Yes	No	N/A
7.12. Hot and cold, or tempered water is available at all sinks.				
7.13. Hand-washing posters are visible from all sinks.				
Restrooms/Housekeeping		Yes	No	N/A
7.14. Toilet tissue is available at each toilet.				
7.15. Floors are clean and dry.				
7.16. Adequate waste receptacles are conveniently located.				
7.17. Diapering facilities are sanitary and in good condition.				
7.18. Elevated diapering facilities are properly equipped to prevent falls.				
Restrooms/Exhaust Fans		Yes	No	N/A
7.19. Exhaust fans are operable and continually operating while the building is occupied.				
Moisture, Water Damage and Mold		Yes	No	N/A
7.20. Floor drains, strainers, and grates are clean.				
7.21. Pipe chases are sealed.				
7.22. Mops and buckets are clean, dry and stored appropriately.				
7.23. A mold prevention and remediation plan is established.				
7.24. A flood cleanup plan is established.				
7.25. Records are kept to monitor improvements in moisture management.				
7.26. Information and updates on mold and moisture management are integrated into newsletters, school announcements, and other outreach material.				
Custodial Areas/General Safety and Security		Yes	No	N/A
7.27. The custodial closet is inaccessible to unauthorized individuals.				
7.28. Safety Data Sheets are readily accessible to staff for all hazardous chemicals used or stored in the custodial closet (OSHA 29 CFR 1910.1200(g)(8)).				
7.29. Chemical product labels and SDS recommendations are read and followed.				
7.30. All containers of chemicals are properly labeled (OSHA 29 CFR 1910.1200(F)(6)).				
7.31. Facility and custodial staff are proficient with regard to cleaning practices and policies, as well as procedures for handling a chemical spill.				
7.32. A current inventory of approved cleaning products is maintained. Products that are outdated, unknown, or not needed as stated in school policy are properly disposed of.				
7.33. Cleaning products are selected that do not contain fragrances or strong odors that might trigger asthma symptoms.				

Custodial Areas/General Safety and Security continued	Yes	No	N/A
7.34. Cleaning products are selected with positive environmental attributes (i.e., low or no volatile organic compound (VOC) emissions, no potential carcinogens) recognized by third-party eco-certification programs, including EPA's Design for the Environment, Green Seal and Ecologo.			
7.35. When purchasing neutral cleaners, glass cleaners, bathroom cleaners, and disinfectants, consider products that have high dilution rates, are designed to reduce waste, and have lower end-use costs.			
7.36. Facilities and custodial staff are involved in the selection and testing of cleaning products.			
7.37. Green cleaning concepts and practices are incorporated into school preventive maintenance plan such as: 1) Spray cleaning cloths with product rather than the surface to be cleaned; 2) Use microfiber cleaning cloths and other tools to minimize the amount of cleaning products used; and 3) Purchase products as concentrates and dilute on site.			
7.38. Teachers and school staff are encouraged to refrain from bringing in cleaning chemicals and products and to use cleaning chemicals and products provided by the school.			
7.39. Measures that demonstrate improvement in adopting healthier cleaning and maintenance practices have been developed and are being documented. (i.e., Number of green cleaning products piloted; Number of training workshops held and number of participants; Pounds of toxic chemicals avoided by switching to more environmentally friendly, less toxic cleaning products; money saved; improvements in health or reduction in health complaints)			

Custodial Areas/Sinks	Yes	No	N/A
7.40. All sinks are equipped with backflow prevention devices or air gaps.			

Custodial Areas/Chemical Storage	Yes	No	N/A
7.41. All flammable or combustible liquids are stored in approved flammable storage cabinets.			

Mechanical Rooms/General Safety and Security	Yes	No	N/A
7.42. All doors to the mechanical room are locked.			
7.43. Floors are free of slip, trip and fall hazards (OSHA 29 CFR 1910.22).			
7.44. All flammable or combustible liquids are stored in an approved flammable storage cabinet (OSHA 29 CFR 1910.106(e)(2)(iv)(c)). Seek advice from local fire marshal to discuss alternatives, if necessary.			
7.45. Mechanical rooms are free of stored items that inhibit or restrict routine maintenance or cleaning.			

Administrative Areas/Break Rooms	Yes	No	N/A
7.46. All food in break rooms is properly stored to limit attraction of pests. Storage of chemicals or specimens in refrigerators in break rooms is prohibited.			
7.47. All appliances used in a break room are clean and in good repair.			

Drinking Water/Water System Types	Community	Public	Private
7.48. Identify if the school has a public water system served by a community water system, a public water system served by its own well, or a private water system (serving 25 people or less).			

Drinking Water/IF: Private Water System (Serves less than 25 of the same people more than 60 days per year)	Yes	No	N/A
7.49. If a school is a private water system, it: 1) Complies with all private water systems rule requirements; and 2) Notifies students, staff, and parents if the system fails to meet primary drinking water standards, and when compliance is achieved.			
7.50. An individual is identified who is responsible for managing the water system.			
7.51. Source water assessments are conducted and any surrounding activities or sources that might have an adverse effect on water quality are identified.			
7.52. Annual testing is done for: Total Coliform, E. coli, Nitrates, Arsenic, and Lead.			

Drinking Water/Drinking Fountains	Yes	No	N/A
7.53. Drinking water taps are maintained by routinely cleaning faucet aerators and disinfecting drinking water outlets and water fountains.			
7.54. Drinking fountains identified on EPA's list of known lead-containing models have been replaced with fountains that do not contain lead.			
7.55. Measures that demonstrate maintenance or improvement in drinking water quality have been developed and are being recorded.			
7.56. Students are involved in drinking water test evaluation. A teacher or facilities manager should ensure testing is completed according to established procedures to obtain meaningful results. This activity can be integrated into science and mathematics courses, as well as senior projects.			

Waste Water Management Systems	Yes	No	N/A
7.57. A school might or might not be connected to a public wastewater system. Schools with their own wastewater management system (e.g., septic system) inspect and maintain their own system according to EPA recommended Wastewater Management guidance.			

Infrastructure Maintenance	Yes	No	N/A
7.58. Water pipes are inspected for leaks and corrosion.			
7.59. School files have been reviewed to assure plumbing surveys have identified areas of high risk for lead sources. If these records do not exist, or if significant plumbing modifications have been made since the last survey, a recent plumbing survey has occurred or is scheduled within the next month.			

HVAC Systems	Yes	No	N/A
7.60. HVAC Systems are free of any suspected mold or other debris on any system component.			
7.61. HVAC systems have pleated air filtration media in central air handling units.			
7.62. HVAC systems provide adequate ventilation to prevent reasonable health complaints and to remove or dilute contaminants within the capacity of the system.			
7.63. A regular schedule for inspecting and changing filters is established and implemented.			
7.64. A regular cleaning schedule for air supply diffusers, return registers, and outside air intakes is established and implemented.			
7.65. HVAC system settings fit the actual schedule of building use (including night and weekend use).			
7.66. An HVAC maintenance plan is established and implemented.			

Indoor Air Quality	Yes	No	N/A
7.67. Indoor CO2 concentrations are at or below 700ppm above outdoor ambient levels (ASHRAE Standard 62.1-2013).			
7.68. Use of ozone generators is prohibited.			

Lighting	Yes	No	N/A
7.69. Lighting is provided within 10% of the proper level of foot-candles, as found in Appendix B of this manual, in all areas of the school building and is equipped with guarding when appropriate.			
7.70. Replacement of light ballasts which are known to be manufactured prior to 1979 or unlabeled and known to be manufactured between 1979 and 1998 is prioritized.			

Floors	Yes	No	N/A
7.71. High-efficiency vacuums and filters (e.g., high efficiency particulate air filters-HEPA) are used.			

Windows	Yes	No	N/A
7.72. Screens are installed and maintained in good repair, if applicable.			

COMMENTS/QUESTIONS:

NON-CLASSROOM AREAS FACT SHEET

There is no doubt that kids learn better in healthy environments. Children spend much of their formative years on school grounds and in school buildings where they can be exposed to a variety of potential health and safety hazards. Reducing exposure to harmful environmental hazards will keep them healthier, enhance their performance in the classroom today and set them on a course to achieve their goals for the future. The Ohio Department of Health has identified eight areas in the school environment that schools can assess in order to improve environmental health. Problems can be identified and solutions implemented, often using low cost measures and existing resources.

An overview of school environmental issues in non-classroom areas:

Non-classroom areas in schools include shared common areas in school buildings exclusive of classrooms, such as halls and stairways, auditoriums, cafeterias, libraries, media centers, and restrooms. Also included as part of this checklist are areas that have limited student and staff access – areas like custodial closets and storage areas and the school building’s mechanical room, housing the power plant and heating, ventilation, and air conditioning (HVAC) systems. Health and safety concerns in these areas include all of the things that are essential for having a healthy and safe school environment – including a well-maintained, clean, dry, and safe physical plant; a safe drinking water supply; hygienic food processing and eating places; hygienic restroom areas, and good indoor air quality. Everyone working together, including custodial, teaching staff and

building administrators, along with students, can help to establish and maintain this healthy school environment.

Tips for non-classroom areas:

- **Maintain safe halls, floors and stairwells** – Just as we keep classrooms safe, it’s important to be sure that safety and health are considered in non-classroom areas. Keeping aisles and stairways clear of clutter and furniture prevents slowing of egress if there should be a fire or emergency that requires evacuation of the building. Monitoring and assuring that handrails and stair treads are secure and functioning helps to prevent injury from trips or falls.
- **Eliminate things that could attract pests** – Pest such as cockroaches, dust mites and mice are common triggers for asthma and allergies. Pesticides can also pose a threat to growing children or can be a trigger for asthma, as well. Pests require food, water and shelter. If you can deprive them of even just one of these you are unlikely to have a pest problem.

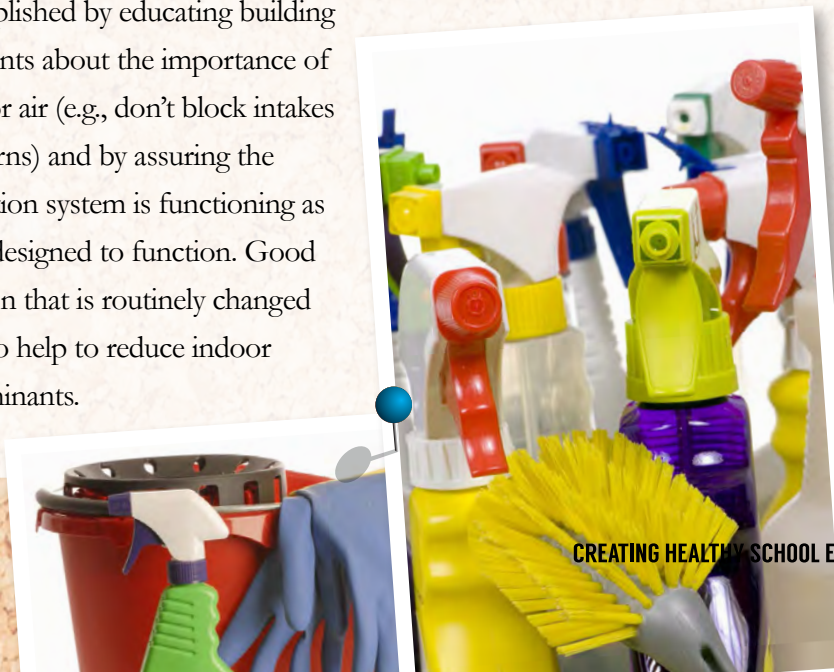
Things you can do to prevent pests:

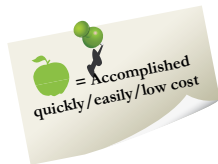
- Keep food in sealed containers
- Clean up any food residue, crumbs or debris quickly and dispose of outside
- Fix water leaks or spills promptly

- De-clutter as much as possible to eliminate places for pests to live
- **Properly deal with chemicals** – Chemical purchase, use and storage are some of the most complicated issues schools have to manage. This process can be made easier by adopting policies that limit unauthorized chemicals in the building. If purchase is made at one point a system can be put in place to buy the least toxic chemicals for cleaning and maintenance and they can be more easily inventoried and stored. Making sure that Safety Data Sheets are available is also important in case of accident, intentional or unintentional misuse.
- **Assure adequate ventilation** – The ventilation system of your building is one of the most important influences of the indoor environment. Systems should be able to provide adequate ventilation to dilute and exhaust the contaminants that are generated by the building and its occupants. This is best accomplished by educating building occupants about the importance of outdoor air (e.g., don't block intakes or returns) and by assuring the ventilation system is functioning as it was designed to function. Good filtration that is routinely changed will also help to reduce indoor contaminants.
- **Have a plan to assure safe drinking water** – The important thing about water is to make sure you're informed. Someone at your school needs to do an assessment to determine what type of water system serves the school and what regulations apply. One easy item to check off the list if you're in an older school building is to compare the model numbers of the drinking fountains against EPA's list of fountains that contain lead in the reservoirs.
- **Maintain appropriate lighting** – Lighting is something most occupants of a building take for granted, but they certainly notice if it doesn't work well. In a school situation it's important to have an appropriate level of lighting for students to clearly see their work, but lighting also has to be safe. Some older fluorescent bulbs may have small amounts of contaminants; other light fixtures need to be guarded for safety purposes.

Resources:

- School Environmental Health resources will be updated at this website: <http://bit.ly/OhSEHWeb>





8. Policies Checklist

See Appendix A for item by item description and resources.

School	
Completed by	
Signature	
Date Completed	

EH and Safety Management Policies	Yes	No	N/A
8.1. CHEMICAL HYGIENE PLAN in accordance with 29 CFR 1910.1450 to protect employees and students from health hazards associated with the use of hazardous chemicals.			
8.2. SCHOOL SAFETY PLAN in accordance with ORC 3313.53.6 and that includes providing immediate notification to the appropriate fire department and board of health in the event of any spill or release of a hazardous substance on school grounds 29 CFR(1910.120(a)(1)(v)).			
8.3 HAZARD COMMUNICATION PLAN in accordance with 29 CFR 1910.1200(a)(1) assists in assuring chemical safety in the workplace through providing information about chemicals that are stored and used in the school building.			
8.4. BLOODBORNE PATHOGENS TRAINING in accordance with 29 CFR (1910.1030(c)(1)) to eliminate the hazard of occupational exposure to bloodborne pathogens.			
8.5. MEDICATION ADMINISTRATION POLICY in accordance with ORC 3313.713 which outline procedures for appropriate and safe administration of medication by staff to students.			
8.6. CHOKING POLICY in accordance with ORC 3313.815 which will ensure a staff member with trained proficiency in the Heimlich maneuver is present during times when food is served.			
8.7. FOOD ALLERGY POLICY in accordance with ORC 3313.719 to protect students with peanut or other food allergies.			
8.8. ASBESTOS MANAGEMENT PLAN in accordance with 40 CFR Part 763 is submitted and available for review or an exclusionary statement is filed with the U.S. Environmental Protection Agency (Chicago Regional Office).			
8.9. NO SMOKING SIGNS POSTED in accordance with ORC 3794 at each entrance to the building to notify visitors the smoking is prohibited within the building.			

EH and Safety Management Policies continued	Yes	No	N/A
8.10. INTEGRATED PEST MANAGEMENT PLAN (IPM). Schools should have a written IPM plan that includes identification of pests and conditions that attract pests; prevention techniques such as sanitation, vacuuming, structural repair and sealing; monitoring; education and training; approved least toxic chemical use only as a last resort; and pre-notification of chemical use. (If policy exists, it must be in accordance with OAC 901:5-11-14.)			
8.11. PESTICIDE APPLICATION POLICY in accordance with ORC 921. and OAC 901-5 to assure safe application of pesticides by qualified individuals.			
8.12. RADON TESTING. The school has a radon rule or protocol and evidence that the school has been tested for radon within the past five years.			
8.13. HAND WASHING PROTOCOL. Hand washing policies encourage a very effective way to prevent and control communicable diseases.			
8.14. 100% TOBACCO FREE POLICY. Tobacco-free policies are proven to reduce youth initiation and increase quitting.			

Step Three: Priority Planning

Priority Planning

Now that the assessment is complete, it's time to get down to the business of planning how to respond to any issues or needs identified. This section provides some recommended strategies for planning a reasonable approach to reaching the chosen level of school environmental health for your school. First, take a few minutes to note a few things that are going right. At some point down the line you will need to report on your findings and starting out with the things found that are going right is a great way to gain support and confidence from decision makers and building occupants.

Many people hate the planning phase of a project, but it has been well documented that every minute you spend in planning can save you ten in action. What needs to be done at this point is to take the information collected from the building assessments and create a priority planning table, followed by an action plan.

1. Create a master list of all “no” items from assessment checklists.

Feel free to add to this list items that are on your priorities list that may not be on the provided checklists or items that are required by your school or stakeholders.

2. Identify goals for School Environmental Health

As previously mentioned, this guidance has been developed to assist in reaching the particular level of school environmental health which makes sense for your school at this point in time.

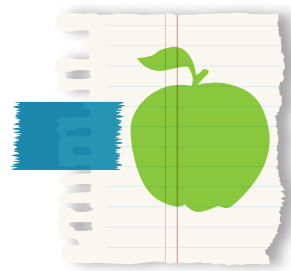
- Foundational School Environmental Health (**Bronze Level**) - this is the first level of school environmental health for which you can receive recognition and provides a great foundational level of school environmental health and safety for building occupants.
- Enhanced School Environmental Health (**Silver Level**) – At this level your school provides the foundational level of school environmental health, but has achieved a higher level of school environmental health through added investment of time and effort.
- Optimal School Environmental Health (**Gold Level**) – At this level, not only is the school providing an enhanced environment for building occupants, but it has incorporated activities and processes that teach students and staff about the importance of school environmental health, monitored progress of achievement and created a sustainable or green environment.

All three levels receive recognition for achievement from the Ohio Department of Health and the level of recognition is commensurate with achievement. You and your school decide when and if you want to move to a higher level. Information about application for recognition can be found in Step 6.

Take a look at the items on your master list. The fewer items on your list from each level the shorter your path to reaching that level

3. Start with low hanging fruit.

The checklists are marked with “apples” for items that have been identified by the advisory committee to be “low hanging fruit” or those items that can be accomplished quickly or easily and that are generally low cost.



“Many people hate the planning phase of a project, but it has been well documented that every minute you spend in planning can save you ten in action.”

4. Prioritize the tasks at hand.

For each item on your master list you will need to provide some ratings.

Rating Criteria	
Is it required by law?	0 Not mandated by law or policy
	4 Mandated by law or policy
Impact on health and safety (H & S)	0 No significant impact
	1 Low impact
	2 Moderate impact
	3 High impact
	4 Critical to health and safety
Amount of time required to achieve	0 Time requirement not achievable
	2 Moderate time commitment
	4 Very little time required
Amount of money required to achieve	0 Cost not possible, at this time
	1 High cost
	2 Medium cost
	3 Low cost
	4 No cost

Once you have completed the ratings, total the columns and the highest totals will indicate those items of highest priority. You can modify the criteria or rating before beginning, or other criteria or

rating categories can be added. Remember, the higher the score, the higher the priority.

Sample Priority Planning Table

Level	Item	Law	H&S	Time	\$	Total
F	Staff supervises use of the playground by students during school hours.	0	3	2	2	7
E	Gutters and drainage systems are in good repair and well maintained.	0	1	2	2	5
O	Accurate records of roof and building inspections are maintained.	0	1	2	4	7
F	Portable banquet tables, cafeteria tables and other portable furniture items, when not in a position intended for use, are stored in a manner inaccessible to students or are secured to the wall or floor to prevent injuries from tipping.	0	4	4	3	11
F	Walls have paint and plaster intact with no visible bowing or evidence of cracks or damage	0	3	1	2	6
F	Animal containers or cages are free from excessive accumulation of animal waste.	0	2	4	4	10
E	Surfaces are free from excessive accumulation of dust or sediment.	0	2	3	3	8
E	HVAC systems have unobstructed air supply grilles or outlets and air return grilles or inlets with no rigged baffles, deflectors or barriers affixed.	0	3	4	3	10
F	Personal protective equipment is in good repair and available for use when appropriate (OSHA 29 CFR 1910.132(a)). PPE is tested as required by manufacturer or code.	4	4	2	3	13
F	First aid supplies, equipment, including eyewash bottles and blood pressure monitors, and a current first aid reference document are available.	0	4	2	3	9
F	*The cafeteria tables are cleaned and sanitized between each use.	0	2	4	4	10

“Remember, the higher the score, the higher the priority.”

This table represents only a section of what a list will most likely be. Notice that the column on the left points out quite a few foundational items to work on, but fewer enhanced or optimal. This would perhaps indicate that once the foundational items are met, a higher level of achievement might not be too far out of reach. Additionally, we see that one criteria listed was marked with an apple and it scored pretty high on the list – hopefully this designation will assist you in quickly choosing items that can be accomplished fairly easily. Finally, the total column (shaded) will indicate those items that scored highest on your priority rankings, indicating these items would be good choices for first attention. Review the “totals” and make any appropriate adjustments to the rankings.

Template Priority Planning Table

Page ____ of ____

Level F = Fundamental (Bronze); Level E = Enhanced (Silver); Level O = Optimal (Gold)

Level	Item	Law	H&S	Time	\$	Total

Page ____ of ____

Page ____ of ____

Step Four: Action Planning and Implementation

Action Planning and Implementation

The next step is determining how to implement a plan for improvement. One possible approach is to create a list organized according to priority or time table. Projected dates of completion of remediation can be listed in the table, along with the person responsible for completing that particular item. Try to identify any barriers that can be anticipated for completion of any of the assigned tasks and brainstorm about how those barriers might be overcome.

As you implement your action plan, set a regular time to review progress (monthly or weekly depending on amount of items and their critical nature) and create plans for overcoming any identified barriers. Also identify how often the assessment will be repeated and how often the action plan will be updated (at least annually is recommended).

Sample Action Plan Table

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
1	Personal protective equipment is in good repair and available for use when appropriate (OSHA 29 CFR 1910.132(a)). PPE is tested as required by manufacturer or code.	10/3/14	10/7/14	Ben Jones (Chem.); Beth Morris (Nurse)
Comments/Working Steps:				Completed ☒
Chemistry lab has insufficient number of goggles for largest class – identify appropriate goggles; order new sharps container and process for regularly checking for replacement				te shipment; Clinic needs
2	Portable banquet tables, cafeteria tables and other portable furniture items, when not in a position intended for use, are stored in a manner that is inaccessible to students or are secured to the wall or floor to prevent injuries from tipping.	10/7/14	10/10/14	Joe Smith Custodian
Comments/Working Steps:				Completed ☐
Discuss options with Joe – if we decide to store in cafeteria closet we will need to work with Coach Buckles to find an alternate place to store wrestling mats; if we decide to secure to wall we will need to purchase hardware and schedule installation around afterschool program				
.....				
10	HVAC systems have unobstructed air supply grilles or outlets and air return grilles or inlets with no rigged baffles, deflectors or barriers affixed.	11/1/14	6/30/14	Gretchen Lowery (Maintenance Supervisor)
Comments/Working Steps:				Completed ☐
Send memo to teachers to clear books from tops of unit ventilators; check monthly to assure vents are clear; develop short training on importance of ventilation in the classroom including why vents should not be blocked - implement during next teacher training day				
11	Gutters and drainage systems are in good repair and well maintained.	7/1/14	7/30/14	Joe Smith Custodian
Comments/Working Steps:				Completed ☐
Gutters have spots where covers are missing – not currently causing drainage difficulties, but should be attended to during summer maintenance work before next fall of leaves.				

[Name of School]

Date Created 10/2/14



Template Action Plan Table

Page ____ of ____

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
1				
Comments/Working Steps:				Completed ☐

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
2				
Comments/Working Steps:				Completed ☐

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
3				
Comments/Working Steps:				Completed ☐

[Name of School]
[Date Created]

Template Action Plan Table

Page ____ of ____

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
4				
Comments/Working Steps:				Completed ☐

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
5				
Comments/Working Steps:				Completed ☐

Priority	Action Item	Timeframe		Person Responsible
		Start	Complete	
6				
Comments/Working Steps:				Completed ☐

[Name of School]
[Date Created]

Step Five: Train and Communicate

Training

As the action plan is completed, this is also the time to note any specific training staff might need to become familiar with the process you are taking to improve or maintain healthy school environments. This could be anything from general trainings on the process of implementing the guidelines for the larger staff, such as the use of the PowerPoint presentation provided in the Gaining Approval Section under Step One, to specific training for particular staff on specialized issues such as training for teachers in specialty classrooms regarding chemical management. Please register for the Ohio Schools Healthy Environment Network (OSHEN) at <http://1.usa.gov/1fXqjQn> to keep abreast of regular short training opportunities on topics of interest related to school environmental health.



Sample Record of SEH Training

EH Concern Addressed	Trainer or Webinar	Date Trained	Attendees
PPE requirements and maintenance for Chemistry rooms and health care areas	Kim Morgan of PERRP	10/14/14	Chemistry teachers, school health care provider
Maximizing ventilation for comfort and health of building occupants	ODH ventilation webinar	1/15/15	Classroom teachers, administrative personnel
Building envelope; looking for signs of moisture intrusion	ABC Roofers	8/10/14	Custodial staff

[Name of School]
Date Created 10/2/14



Training Table Template

Page ____ of ____

EH Concern Addressed	Trainer or Webinar	Date Trained	Attendees

[Name of School]
[Date Created]

Training Table Template

Page ____ of ____

EH Concern Addressed	Trainer or Webinar	Date Trained	Attendees

[Name of School]
[Date Created]

Communicating

Good communication between administration, staff, students, parents and the community will help to improve and/or maintain a healthy school environment. Communication is not something that should be thought about only when there is a problem, but should be fostered at every level of the process. Sometimes it may seem easier to put a problem off or to try to take care of an issue before you think notifications are necessary, but problems will always be revealed within the tight network of the school environment. The cost and time required to solve a problem can grow exponentially when communication is dealt with as an afterthought. Some basic communication principles developed by the USEPA may be found at the end of this section.

“Communication is not something that should be thought about only when there is a problem, but should be fostered at every level of the process.”

Proactive as well as reactive communication is the way to go. This guide presents several tools to assist you in communicating proactively about school environmental health and the use of these guidelines.

- The process of gaining approval for implementation of these guidelines helps educate your constituencies about the importance of healthy school environments. It also lets them know you are being proactive to avoid problems, optimize health and save or avoid cost. In the Gaining Approval Section of this document you'll find a flyer about the guidelines, and a short presentation that can be used in more formal settings (e.g., a school board meeting, staff meeting).
- Involving staff in conducting the assessment and using the area specific factsheets available in the Assessment Section is a win-win situation. You get some good information from the people who actually spend time in the areas you are assessing and you leverage the opportunity to educate staff about what they can do to foster a healthy school environment.
- Once your assessment is complete, communicating about what you've found and the action plan to remedy any errors helps to let people know you're aware of any issues and have plans to remedy them. This informs your constituency that their environment might be disrupted while you make modifications. Most severe communication problems develop because people feel uninformed about potential issues and may be caught off guard by any issues that arise as a result of mitigation. The end of this section contains some short messages that can be used in newsletter articles, on websites or for announcements. These can be tailored to meet the specific needs of your school or project.

Finally, you will want to communicate about your success. If you apply for recognition from the Ohio Department of Health (see Step 6) you will receive an emblem(s) that can be prominently placed on your building doors and graphics that can be added to websites or stationary to show that your school or district has reached the appropriate level of healthy school environment. ODH can also issue press releases to your local papers and news outlets if you so choose. When your community feels proud about their healthy school it makes sense they would be more willing to help keep it that way.



Communication Newsletter Article #1

[Name of School] is implementing newly developed voluntary guidelines for healthy school environments. The guidelines were developed through the Ohio Department Health in collaboration with an advisory committee of representatives from school and public health organizations. Our school is choosing to do this because we recognize the importance of the school environment to the health and performance of our students and staff.

As part of this process staff will be conducting an assessment of the building(s) to identify any areas of concern. Results from the assessment will be reviewed and prioritized for action. You will be hearing more from us throughout the process.

Our goal with this project is to make any necessary improvements to the school environment to make it as healthy as we can, because research has shown that improvement in school environmental health across the country has been strongly linked to significant positive impacts including reducing illness in students and staff, increasing standardized test scores, and improving financial wellness.

Thank you in advance for your support of this effort. More information about the guidelines can be found on the Ohio Department of Health School Environmental Health website at <http://1.usa.gov/1fXqjQn>. We are excited about this opportunity and will keep you informed of our progress.

Communication Newsletter Article #2

As you may have heard, *[Name of School]*, has undertaken to implement the newly updated School Environmental Health Guidelines that were created by the Ohio Department of Health and a panel of representatives from school and public health organizations. The benefits of implementing this program include creating an environment that is conducive to learning and health for all building occupants, increasing cost effectiveness, improving community relations, increasing teacher retention, decreasing absenteeism, and improving academic performance.

[Name of School] recently completed an assessment of the building and developed an action plan to address issues found during this assessment. You may be noticing some improvements or repairs that will improve the health of our school environment. Here are some examples of things that we'll be working on:

- *[Insert some pro-active things you will be working on]*
- *[Insert some items of repair with dates, if possible]*

Thank you in advance for your cooperation and collaboration during this process. If you have any questions or concerns, please contact *[name and contact info of school representative]*.

Communication Newsletter Article #3 Recognition for Achievement

[Name of School] recently received recognition by earning the “Healthy School Environment” award, at the *[Bronze, Silver or Gold]* level, from the Ohio Department of Health. In 2014, the Ohio Department of Health, in collaboration with a number of school and public health organizations, created voluntary school environmental health guidelines designed to improve educational facility conditions in Ohio.

Many school staff and students put a great deal of effort into the important process of creating and maintaining a healthy school environment for *[name of school]*.

Implementation of new state guidelines demonstrate *[name of school]*'s commitment to the health and safety of students and staff. Those working on this project conducted an initial assessment of the grounds and facilities, created an action plan for addressing needed improvements, and addressed issues identified.

Despite many competing priorities, *[Name of School]* has chosen to invest in its facilities in order to realize significant gains in the form of decreased absenteeism of both students and staff, stronger academic performance and long-term financial return on investment. *[Insert quote from school/district employee regarding commitment to a healthy school environment and/or expectations regarding benefits.] [Insert quote from ODH Chief regarding guidelines and praising the school for its achievement.]*

Congratulations to everyone who worked on this process and to those of you who will continue to work to maintain a healthy and safe environment for our school!

Communication Principles

- **Be honest, frank, and open.** Once trust and credibility are lost, they are almost impossible to regain. If you don't know an answer or are uncertain, say so. Admit mistakes. Get back to people with answers. Discuss data uncertainties, strengths, and weaknesses.
- **Respect your audience.** Keep explanations simple, avoiding technical language and jargon as much as possible. Use concrete images that communicate on a personal level. People in the community are often more concerned about such issues as credibility, competence, fairness, and compassion than about statistics and details. However, provide sufficient information to audiences that are capable of understanding more technical explanations.
- **Employ your best listening skills.** Take time to find out what people are thinking, rather than assuming that you already know.
- **Tailor communication strategies to your audience.** Use mass media for providing information, and interpersonal techniques for changing attitudes.
- **Involve school employees.** An informed staff is likely to be a supportive staff.
- **Involve parents.** Inform parents about what is being done and why, as well as what will happen if problems are detected.
- **Involve the school board.** Encourage board members to observe the process (e.g., taking a walk-through of the school with the IAQ Coordinator).
- **Involve businesses that provide services to the school** (e.g., exterminators, bus fleet administrators/operators) and businesses located around the school, which may also negatively impact IAQ.
- **Emphasize action.** Always try to include a discussion of actions that are underway or that can be taken.
- **Encourage feedback.** Accentuate the positive and learn from your mistakes.
- **Strive for an informed public.** The public should be involved, interested, reasonable, thoughtful, solution-oriented, and collaborative.
- **Be prepared for questions.** Provide background material on complex issues. Avoid public conflicts or disagreements among credible sources.
- **Be responsive.** Acknowledge the emotions that people express and respond in words and actions. When in doubt, lean toward sharing more information, not less, or people may think you are hiding something.

- **Combat rumors with facts.** For example, set up a chalkboard in the teachers' lounge or in another general use area for recording what is heard. Record rumors as they arise and add responses. Then pass out copies to the staff.
- **Do not over promise.** Promise only what you can do and follow through with each promise.
- **Work with the media.** Be accessible to reporters and respect deadlines. Try to establish long-term relationships of trust with specific editors and reporters. Remember that the media are frequently more interested in politics than in science, more interested in simplicity than complexity, and more interested in danger than safety.

Step Six: Recognition

Recognition

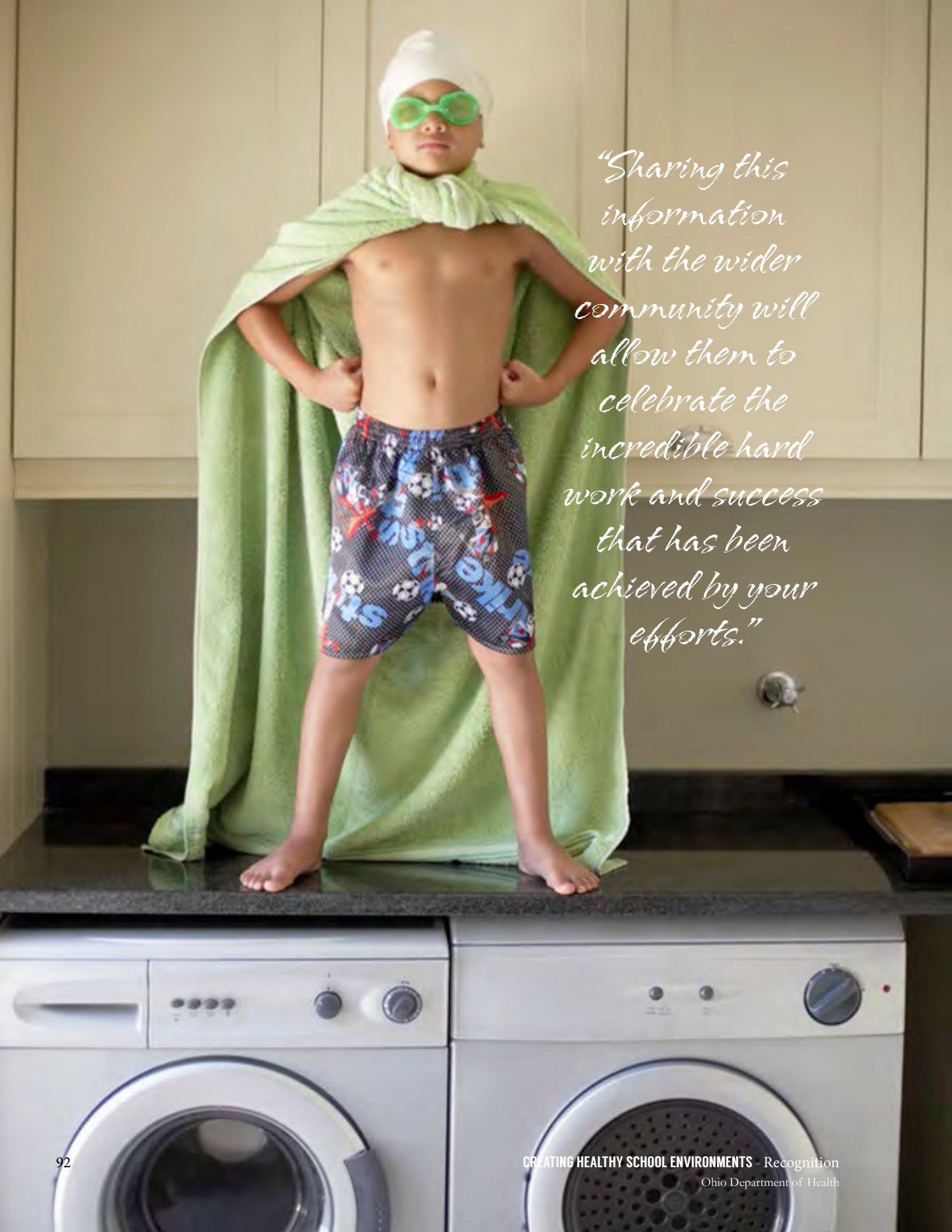
Implementation of school environmental health guidelines is no small achievement. The Ohio Department of Health and your Local Health Department recognize this. Sharing this information with the wider community will allow them to celebrate the incredible hard work and success that has been achieved by your efforts. In addition it will help to maintain and improve the collaboration between schools, public health partners and other stakeholders in the community.

Allowing the results of your school's efforts to be published to the wider community will give them incentive to consider the importance and benefits of environmental health in a variety of settings. Private households, businesses and non-profits can all learn from your experience and increased community awareness and knowledge can lead to changes in other environments throughout the community that can benefit health and the environment.

Other schools may look to your school as an example. They may need to see that it can be done. They may need to know how it can be done or need that extra nudge that comes from seeing someone else take the first step. Your school may actually become a mentor to another school.

Whatever the reason, strongly consider this final step in the implementation process. If you have done the hard work, you deserve the reward!

“Other schools may look to your school as an example. They may need to see that it can be done. They may need to know how it can be done or need that extra nudge that comes from seeing someone else take the first step.”



*"Sharing this
information
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community will
allow them to
celebrate the
incredible hard
work and success
that has been
achieved by your
efforts."*



CREATING HEALTHY SCHOOL ENVIRONMENTS

Application for Recognition

Name of School:
School Environmental Health Coordinator:
Contact Phone Number/Email:
County:
Date of Application:

Guideline level applied for:

- ☐ Bronze - Fundamental
- ☐ Silver - Fundamental and Enhanced
- ☐ Gold - Fundamental, Enhanced and Optimal

[Name of School] has:

- ☐ Gained approval for implementation of School Environmental Health Guidelines
- ☐ Assessed its facility using guideline checklists
- ☐ Completed a priority planning process (ex. Priority Planning Table, pg. 65-66)
- ☐ Created an action plan (ex. Action Planning Table, pg. 75-76)
- ☐ Trained building occupants as necessary (ex. Training Table, pg. 79-80)

Required Documentation:

- ☐ Original Assessment Checklists
- ☐ Priority Planning table (or equivalent) that details findings of assessment and chosen priorities
- ☐ Action Planning table (or equivalent) that details steps taken (includes timeframes, responsible person and when items were completed)
- ☐ Record of training
- ☐ Two independent letters of confirmation of actions taken and all checklist items achieved for selected level of recognition (letter from local health department preferred, but others are acceptable – e.g., local business or professional organization, PTA)

Application for Recognition Sample Letter of Support

[Date]

School Environmental Health Program
Bureau of Environmental Health
Ohio Department of Health
246 N High St
Columbus, Ohio 43215

Dear *[Name of administrator of the School Environmental Health Program at ODH]*,

On behalf of *[Name of School]*, I would like to offer this letter of support in connection with their application for recognition from the Ohio Department of Health. I have worked with *[Name of School]* through *[association with school]*.

I am writing to verify their compliance with the requirements for *[bronze/silver/gold]* recognition for Healthy School Environments. I am aware that approval was gained from the proper authorities for implementation of the guidelines. An assessment of the indoor and outdoor facilities was conducted. An action plan was created. Building occupants were trained as needed, and the action plan was implemented. I also verify that all checklist items for this level of recognition have been met with a “yes” response.

Please accept my recommendation for public recognition of *[Name of School]* as a “Healthy School Environment” for *[year]*.

Sincerely,

Sample Press Release

Over 1.75 million children and 100 thousand adults across Ohio spend their days in K-12 schools. A growing body of research strongly supports the importance of school environmental health to both the educational success and overall health and well-being of Ohio's school children and staff. According to state health officials, poor environmental conditions can interfere with student and staff performance and lead to unnecessary absences as well as unnecessary building maintenance expense.

[Name of School] recently took steps to avoid these issues and has received recognition as a "Healthy School Environment", at the [Bronze, Silver or Gold] level, from the Ohio Department of Health. In 2014, the Ohio Department of Health, in collaboration with a number of school and public health organizations, created voluntary school environmental health guidelines designed to improve educational facility conditions in Ohio.

[Name of School] implemented these guidelines in order to demonstrate its commitment to the health and safety of students and staff. In order to implement the guidelines they followed a step-by-step process which lead them through an initial assessment of the grounds and facilities, an action plan for addressing needed improvements, and remediation of issues identified.

Despite many competing priorities, [Name of School] has chosen to invest in its facilities in order to realize significant gains in the form of decreased absenteeism of both students and staff, stronger academic performance and long-term financial return on investment. *[Insert quote from school/district employee regarding commitment to a healthy school environment and/or expectations regarding benefits.]*

[Insert quote from ODH Chief regarding guidelines and praising the school for its achievement.]

For more information on School Environmental Health contact [ODH rep] of the Ohio Department of Health at SEH@odh.ohio.gov.

1. Outdoor Grounds and Outdoor Air Quality

Additional Information

 = Indicate items that can be accomplished quickly or easily and are generally low cost

 1.1. Grounds are maintained in a clean, orderly and sanitary condition with no litter.	Trash and litter on the school grounds may attract unwanted pests. All litter should be picked up daily and placed into waste receptacles with lids to prevent pest infestations.
 1.2. Engine idling time policies are developed and implemented in accordance with (OAC 3301-83-20(O)).	Rule 3301-83-20(O) states: Districts shall adopt engine idling time policies that minimize the amount of time diesel engines are left idling. Diesel engine idling in excess of five minutes in school loading zones shall not be permitted unless the operation of a wheelchair lift is required. USEPA has determined that diesel exhaust is a likely human carcinogen. The soot and gases emitted by diesel buses are associated with other acute and chronic health effects including eye, throat and bronchial irritation; exacerbation of asthma and allergenic responses; and potential interference with proper lung growth and development in children. (1) Diesel exhaust contains significant levels of small particles, known as fine particulate material (PM). Fine PM is so small, several thousand particles can fit on the period at the end of this sentence. Fine PM from diesel exhaust poses a significant health risk because it can pass through the nose and throat and become lodged deep in the lungs. This material can cause lung damage and premature death and may aggravate conditions such as asthma and bronchitis. Additionally, idling buses waste fuel and money. Typical school bus engines burn about a half-gallon of fuel per hour of idling. School districts that eliminate unnecessary idling can save significantly in fuel costs each year. School bus engines do not need to idle more than a few minutes to warm up. Extended idling actually causes engine damage. Engine manufacturers generally recommend no more than three to five minutes of idling. Caterpillar, Inc. cautions drivers to “... Avoid excess idling. If the vehicle is parked for more than five minutes, stop the engine. Excessive idling can cause carbon buildup and/or excessive idling can cause the engine to slobber. This is harmful to the engine.” IC Corporation’s engine manual states that “...Excessive idling reduces fuel economy and may decrease oil life.” Cummins suggests idling for only three to five minutes before operating with a load. School buses also should use low-sulfur diesel fuel, fuel catalysts that reduce the toxicity of exhaust gases, and filters that screen out particulate matter that can irritate the sinuses and the lining of the lungs. 1. Clean School Bus USA (Website). U.S. Environmental Protection Agency http://www.epa.gov/cleanschoolbus/csb-overview.htm (9-9-04)

 1.3. Vehicles or gas-powered equipment are prohibited from idling near outside air intakes, entrances or exits or where buses are loading and unloading students.	Idling vehicles contribute to pollution in the outdoor and indoor environments. Emissions from vehicles can enter the school buildings through open windows and doors and through outside air intakes. Pollutants are then dispersed throughout the building and may cause students and teachers to develop headaches, fatigue and nausea. Exhaust from idling vehicles can also accumulate in student loading and unloading areas, posing a health risk to children, drivers and the community at large.
 1.4. Vehicle use areas, including bus loading and unloading areas, and pedestrian walkways are clearly marked.	Every year children are injured, sometimes fatally, when boarding or exiting a school bus. According to the National Highway Traffic Safety Administration, an average of 26 school-age children die in school transportation-related traffic incidents each year. Of these 26 deaths, 19 (roughly 73 percent) are pedestrians either boarding or exiting the vehicle. To ensure pedestrian safety, all walkways should be marked according to guidance provided in the Ohio Traffic Engineering Manual. (2) Providing clearly marked parking areas will indicate proper locations for drivers to park their cars. No-parking/stopping areas should be designated near building entrances and exits and near outside air intakes, if cars are likely to idle. These areas should be clearly marked with NO PARKING signs and no-stopping or parking regulations should be enforced by school personnel. In dual-use areas (recreation and loading/unloading areas), the Ohio School Facilities Commission recommends the use of different colored lines for vehicular parking stripes than those used for game striping. 2. Ohio Traffic Engineering Manual, Ohio Department of Transportation, http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/traffic/TEM/Documents/Part_07_Complete_071913Revision_071513draft_bookmarked_for%20publication.pdf (4-7-05)
1.5. Sidewalks and walkways are free of hazards (OSHA 29 CFR 1910.22(a) (1)).	Parking areas for buses and cars unloading or picking up students need to be clearly marked with signage to alert drivers to the presence of students on or near roadways. 73% of all school transportation injuries each year involve pedestrians boarding or unloading from vehicles. No Parking and No Stopping areas should be designated near building entrances and outside air intakes to reduce entrainment of vehicle exhausts into the school building. Cracked or uneven sidewalks, play areas, and other paved surfaces may pose significant slip, trip, and fall hazards leading to unnecessary accidents and injuries. All sidewalks and hard surface play areas should be level and free of excessive cracking to minimize hazard potential.

1.6. Grounds adjacent to buildings are free of standing water that may contribute to mosquito breeding, and building exterior is free of evidence of water damage or of conditions that may contribute to water intrusion into the building.	Significant water ponding also constitutes a potential site for mosquito breeding. Mosquitoes go through four distinct stages during their life cycle: <u>Egg</u>: hatches when exposed to water; <u>Larva</u>: (plural. - larvae) “wiggler” lives in the water; molts several times; most species surface to breathe air; <u>Pupa</u>: (plural - pupae) “tumbler” does not feed; stage just prior to emerging as adult; <u>Adult</u>: flies short time after emerging and after its body parts have hardened The first three stages occur in water, but the adult is an active flying insect that feeds upon the blood of humans and/or animals. The female mosquito lays the eggs directly on water or on moist substrates that may be flooded with water. The egg later hatches into the larva, the elongated aquatic stage most commonly observed as it swims in the water. The larva transforms into the pupa where internal changes occur and the adult mosquito takes form. After two days to a week in the pupal stage, the adult mosquito emerges onto the water’s surface and flies away. By eliminating water ponding sites, we can effectively control mosquito infestations near the school building. Cracks may occur in the mortar joints, bricks or in the other substrates comprising the exterior wall system. They are caused by the movement of wall elements most commonly due to either thermal expansion and contraction or settling. The amount of soot or dirt in a crack may be an effective indicator of the age of the crack. Clean cracks typically indicate recent movement, while cracks with significant soot deposition are likely old and possibly inactive. Cracks due to contraction and expansion often vary with the season. They should be cleaned and sealed with a flexible sealant, because re-mortaring cyclical cracks will generally cause additional cracking. Cracks arising from foundation settling do not commonly vary with the seasons and may be re-mortared. Persistent masonry problems should be evaluated by a registered professional engineer. Cracks in wood siding may generally be sealed with a flexible caulking material. Peeling or cracking paint on the building exterior may be a sign of a humidity-control problem or improper paint application. Peeling exterior paint is often caused by moisture being absorbed through the back of masonry walls or wood siding which then passes through to the exterior surface under the paint. Paint subjected to these conditions eventually loses its adhesive properties and peels off. The interior of masonry walls should be properly vented to allow any moisture trapped inside the wall to escape. Additionally, building moisture sources and indoor humidity levels can be controlled through proper exhaust ventilation at high moisture sources such as restrooms, locker rooms and kitchens.
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1.7. Gutters and drainage systems are in good repair and well maintained.	Downspouts are designed to direct storm water collected by overhead gutters into storm water drains or directly to grade - provided adequate slope exists to effectively channel water away from the foundation. Unfortunately, all components comprising the storm water collection and drainage system may become clogged with leaves, sticks and other debris. Any obstruction in this system increases the likelihood of water overflow and seepage in the vicinity of the building foundation. Storm drains, typically located on the ground immediately below each downspout and adjacent to the foundation, receive rain water collected from downspouts and then direct that water into below-grade storm sewers or away from the building. A poor connection between downspout and storm drain or drainage system may cause storm water to miss the drain and, instead, pour directly onto the ground adjacent to the foundation. Obstructions in the sewer system may lead to storm water backups and overflows at the storm drain. Both outcomes often result in foundation water issues. Splash plates are generally manufactured concrete pads placed beneath downspouts where no storm drain exists. Because the amount of water directed onto these plates during stormy periods is so significant, it is imperative that they be installed with sufficient slope to prevent water accumulation near the foundation. Improperly sloped or obstructed gutters and downspouts may cause rain water overflow, leading to uncontrolled ponding and seepage on the ground below. Should such spill-over occur in an area lacking adequate slope to effectively drain this water away from the building, seepage may occur at the foundation. Basement walls wetted in this manner become prime candidates for mold growth and structural degradation over time. Finally, leaves, nests or other debris permitted to accumulate in gutters, downspouts or drains will invariably result in water accumulation and, over time, the decay of such debris. Standing water can also provide a favorable breeding ground for mosquitoes while the decaying plant material will harbor a variety of bacterial and fungal species. These pests and contaminants pose a health hazard to building occupants and maintenance workers.
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1.8. Windows and walls are free of signs of damage.	Windows that are not properly maintained allow pests into the school building, make thermal comfort for the occupants more challenging, create safety issues and may expose students to contaminants released from deteriorated paint. Poorly maintained window systems also allow for water intrusion into the school environment. Water intrusion may lead to mold growth if not promptly corrected. Window panes that are cracked from one side of a window frame to the other side may come out of the frame more readily, causing injury to persons nearby. Windows should be visually inspected on an annual basis to ensure there aren't any cracks in the panes and the joints are properly caulked. Any deteriorated paint on the window components should be repaired in a lead-safe manner to prevent students from becoming exposed to any lead dust or debris. Windows that are cracked or not properly weatherized may collect condensation on the surfaces and/or allow water to intrude into the school environment. When moisture is allowed to collect and remain, mold will start to grow. Mold growth is an indication that there is a problem with moisture. For sensitive individuals, mold exposure can result in an allergy or asthma episode. Visible bowing of exterior walls may be a precursor to more serious structural defects that can eventually lead to wall failure. Because of the potentially life-threatening consequences of such failures, visible bowing of exterior walls should be evaluated by a registered professional engineer experienced in structural evaluation. Cracks and other openings in the exterior walls represent sites in the building envelope where moisture and pests may enter the building. Moisture penetrating the building envelope through such openings may soak through construction materials such as wood and drywall leading to mold growth and/or structural damage either within the wall cavity or in the building's interior. Such cracks should always be evaluated and monitored to determine their cause and to define a corrective/preventive course.
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1.9. There is adequate drainage away from building foundation.	The ground immediately adjacent to the building exterior should receive all of the water that impacts and cascades down the walls. During periods of heavy rain, this translates into hundreds of gallons of water pouring onto the ground at the wall-ground interface. Where the ground along this interface is insufficiently sloped to enable water to effectively drain away from the building, the potential for water migration through the foundation or basement walls is greatly increased. Water accumulation or ponding near the building perimeter may be evidence of a drainage problem that could lead to water migration into the building. Because the concrete block composition of foundation walls are largely porous, water streaming below grade and down the exterior wall can actually migrate through the block itself and eventually moisten the interior wall surfaces. Once this occurs, porous materials in contact with the moistened block, such as wood studs, furring strips, paneling, insulation or drywall, become moistened as well, greatly increasing the probability of mold growth and structural degradation of these surfaces. Although waterproofing materials and vapor barriers applied to both interior and exterior wall surfaces during construction may help to retard moisture migration through the wall cavity, they cannot completely seal these surfaces. This is especially true in cases of surface water intrusion, where the amount of water originating at the foundation due to poor site drainage is often excessive. As such, they should not be relied upon to prevent water migration through wall cavities.
1.10. The area immediately adjacent to the building foundation is clear of the accumulation of grass clippings or other organic debris.	Grass clippings discharged close to and in the direction of the building may result in two primary concerns. First, the buildup of grass clippings on the outside air intake grilles servicing the building's air handling units may restrict or even "choke off" outside air supplied to those units and introduce dust and other allergens into the system. This could result in under-ventilated interior spaces. Second, the buildup of clippings at the exterior walls may create an ideal home for a variety of pests, especially insects, thereby increasing the likelihood of their entry into the structure.
1.11. Vegetation, shrubs, and wood mulch are kept at least 1 foot away from the school building.	Removal of mulch and vegetation within one foot of the building will eliminate a fire hazard, harborage areas for pests, and improve school security. Such action will also make drainage problems and development of mold more visible.

 1.12. Trash and recycling containers are in good condition, equipped with lids and the lids cover the containers when not in use.	Odors from trash attract unwanted animals such as raccoons, opossums, dogs, cats, rats, mice and insects. These pests can become destructive and many of them carry diseases. These unwanted guests will be attracted to school grounds if waste is accessible. There should be lids for all refuse and recycling containers and lids should be used to cover the container when it is not in the process of being filled. This will help to prevent odors and protect against unwanted insects and animals. Keeping lids on dumpsters will help to contain trash in the dumpsters and prevent litter from being blown around school grounds.
 1.13. Area surrounding trash, recycling and compactor containers is free of trash and debris.	Trash and litter on the school grounds is more than aesthetically displeasing, it may attract unwanted insects and animals and/or pose a physical hazard. All litter should be picked up and placed into waste receptacles that have lids.
1.14 Trash and recycling containers are located away from building and air intake or windows.	Air contaminant sources such as dumpsters, animal nests and idling vehicles proximate to outside air intakes may adversely affect indoor air quality when odors and emissions from those sources become entrained in the air stream entering the building.
 1.15. The location of all air handler intake vents has been identified.	Prepare a diagram of the building showing the location of all air intakes so that preventive maintenance and other actions can be taken to ensure only the highest quality air enters the building.



1.16. Outside air intake screens are intact & unobstructed. The area near outside air intakes and air intakes is free of contaminant sources and intakes are protected by screens, louvers or other filtering devices.

Outside air intakes should be protected from animal and insect entry via screens or grates. Screens or grates should be inspected regularly to prevent the accumulation of excessive debris which could severely restrict the flow of outside air to the occupied zones and to assure they remain in good condition. Air contaminant sources such as dumpsters, animal nests and idling vehicles proximate to outside air intakes may adversely affect indoor air quality when odors and emissions from those sources become entrained in the air stream entering the building. All such sources should be inspected and assessed to determine the likelihood of contaminant entrainment and to prevent entrainment of contaminants. Consideration should always be given to prevailing wind direction in performing the assessment. Some diseases that are known to be transmitted from bird feces to humans are Cryptococcosis, Histoplasmosis, and Salmonellosis. Birds build their nests in areas where their young will be protected, such as eaves of buildings or in rafters and attic spaces when accessible. Bird droppings are commonly found in large quantities around the nesting area. When bird droppings dry they can become aerosolized and inhaled. Bird droppings in close proximity to the outside air intakes of the school building can become entrained into the school's ventilation system and dispersed throughout the building. The exterior of the school building should be visually inspected on a regular basis and any areas that harbor bird nests should be altered in a manner that will prevent birds from roosting near outside air intakes. In some instances it is safer not to disturb the dried fecal matter so that persons are not exposed to any potential contaminants in the feces. Trees and shrubbery that are allowed to grow next to the school building provide shelter for animals to build their nests. Examples of diseases that can be transmitted to humans from rodents are Hantavirus, Lymphocytic Choriomeningitis, and Tularemia. These diseases are generally transmitted to humans when the excreta of rodents dries and becomes aerosolized. Because the diseases described are transmitted to humans through inhalation, it is important to routinely inspect the exterior of the school building to identify any animal nests. Rabies is another disease that is transmitted to humans by animals such as bats, raccoons, skunks, dogs and cats to name a few. Rabies, however, does not live outside the body and is generally transmitted to humans through animal bites. Of bats tested in Ohio in 2012 and 2013 about 5 percent were found to be positive for rabies. For the same period, about 1% of raccoons were positive, 3 cats and no dogs. (RR) To keep bats out of the school environment, access to the building should be prohibited. Holes larger than a quarter inch by half inch should be caulked or covered. Avoid bat proofing the school in the summer when young bats can't fly and would be trapped inside the building. The best time of year to perform bat proofing in the school is in the fall and winter when bats leave to hibernate. Insect nests that pose the greatest potential risk in the school environment are from the bee family. Some individuals are allergic to stings from bees, wasps and hornets. Allergic reactions can be life threatening. Honey bees can build their nests in wall cavities as well as hollow trees. Removing a nest of bees inside a wall cavity can be more difficult than from a hollow tree. A professional beekeeper should be employed to remove active bee nests. Wasp and hornet nests when identified should not be disturbed unless the location of the nests poses a hazard, e.g., in a classroom window. Remove the nests in the wintertime when wasp and hornet colonies die off.

1.17. Paint, roofing materials or other sealants or coatings are applied during unoccupied periods or with the use of exposure control methods.	Vapors released from solvent-based construction materials may be both objectionable and hazardous to building occupants exposed to such materials. While contaminant pathways for vapors generated from construction materials applied indoors are generally obvious, vapors may also migrate inside from emission sources outside the building. Doors and windows kept open during warmer periods provide a clear pathway for such contaminants to enter the building. However, such problems may even occur during the winter months via the outside air intakes of air handling units (AHUs) proximate to the contaminant source. One common example of this involves the application of roofing tar upwind from rooftop AHUs whose outside air intakes are open. While it is recommended that such activities not be conducted while the building is occupied, if they are, every precaution should be taken to protect building occupants. Such precautions may include the choice of low-emitting building materials or products and proper ventilation control (sectioning off, not shutting down, building ventilation) or local control of contaminant generating activities. The School Safety Plan should have outlined policies and procedures for any construction, renovation or repairs that occur while the building is occupied.
 1.18. The location of exhaust stacks, vents & chimney flues have been identified; exhaust stacks, vents & chimney flues are unobstructed.	Effluent streams from chemical exhaust stacks, sanitary vents, chimney flues and kitchen exhausts may contain a wide range of potentially hazardous materials that may pose serious safety and health consequences to building occupants. These effluents may be flammable, explosive, toxic or highly irritating. Knowledge of the direction and concentration of these contaminant streams to determine the areas of highest threat is ideal. Unfortunately, the air flow patterns generated as air passes over buildings of even simple geometry are determined by a myriad of variables and, as such, are quite complex and difficult to predict. To prevent the unplanned re-entry of airborne contaminants back into the building - a phenomenon known as “re-entrainment” - exhaust stacks should be located as high and far from potential re-entry points as practical and should be designed such that their exhaust plumes do not discharge into the numerous recirculation zones and turbulent regions that exist adjacent to the building envelope.(3) There are no accepted standard distances or heights for these vents. Ohio Building Code has specific and detailed distances, but the building code changes, and buildings of various ages will be required to adhere to different standards. However, it is possible to assess if there are potential problems. Particularly if there have been complaints of odors or health symptoms from building occupants, it is important to identify what stacks vent what pollutants (chemical, kitchen, sanitary) and evaluate whether they’re in close proximity to operable openings such as outside air intakes, windows or exits/entrances. The following are general guidelines applicable to the proper assessment of rooftop exhaust stacks put forth by the latest information from the American Conference of Governmental Industrial Hygienists. These are more conservative than the Ohio Building Code, but should be considered when designing a building, assessing it for health/safety or when dealing with a concern of health complaints or odors. If there are currently no reports of odors or health symptoms, no action may be warranted, but stacks and intakes should still be identified by type in case there should be future problems. If problems are noted related to stacks and re-entrainment at the time of inspection or during a consultation, it is recommended that the school consult a certified industrial hygienist with a specialty in ventilation to accurately assess the issue and offer advice on remediation. 3. Clean School Bus USA (Website). U.S. Environmental Protection Agency http://www.epa.gov/cleanschoolbus/csb-overview.htm (9-9-04)

1.19. Air intake vents are located away from high vehicular traffic areas (e.g., areas designated for student drop-off and pick-up) and chimneys for school heating systems. If intake vents cannot be moved, traffic is directed away from the vent locations, student drop-off and pick-up areas have been relocated, or during high vehicular traffic times, areas are restricted.	Evaluate the locations of air intakes to ensure that combustion products and other contaminants do not enter the building. If such vents cannot be relocated, take steps to eliminate or reduce poor quality air from these areas.
 1.20. Classroom windows are closed during periods of high vehicular traffic (e.g., before/after school and during rush hour if the school is located near a main street or highway).	Close windows near streets and highways at times of high vehicular traffic to prevent entrance of contaminants.
1.21. There is a procedure for responding to Air Quality Index advisories.	Locate the school's procedures for responding to Air Quality Index advisories. If your school does not have procedures in place, or if the procedures are not up-to-date, take steps to develop or improve these procedures. Examples of possible actions may be found at: http://www.dshs.state.tx.us/iaq/SchoolsGuide.shtm
1.22. Students conduct a research project related to anti-idling.	Have students observe vehicle idling behavior before and after implementing an anti-idling policy. Have students calculate exhaust emissions generated before and after an anti-idling policy is implemented using widely available web-based calculators. More information may be found at: http://www2.epa.gov/region8/idle-free-schools
1.23. School buses are retrofitted with improved emission control technologies, or have been replaced with newer, more fuel-efficient, and less-polluting buses.	Visit EPA's National Clean Diesel Campaign website for more information at: http://www.epa.gov/cleandiesel/
1.24. School participates in the School Flag Program to help the school and its surrounding community know about daily air quality conditions.	Schools in the flag program raise a brightly colored flag each day that corresponds to the air quality forecast. Based on the color of the flag (green, yellow, orange, or red), teachers and coaches can modify outdoor activities when the air quality is unhealthy. For more information go to: http://www.airnow.gov/index.cfm?action=school_flag_program.index

1.25. The roof of the building is inspected by a qualified individual once a year, following severe weather, as determined by the school and when otherwise deemed necessary.	One aspect of maintenance that should not be neglected is the roof; adopting a proactive roof maintenance plan can save a lot of money and repairs down the road. Even a small leak can severely impact the inside of a building and drain productivity and budgets. Yearly roof cleaning and the application of roofing sealants will help prevent problems. Every roof should be periodically inspected to identify deficiencies. It is preferable to perform these inspections in the spring and fall each year and following severe weather events. Severe weather means any weather event that could damage the roof or lead to water intrusion including, but not limited to, damaging wind, hail, lightning, ice damming or heavy rain. Individuals capable of determining not only apparent, immediate problems but also those conditions that could become problems, should perform these inspections. Inspections conducted by school personnel or individuals hired for roof maintenance should include: • Clearing debris from around drains. • Making sure the outside perimeter and flashings are in good condition. • Checking typical locations of stress for any tears or splits. • Checking for a loosening of roofing material/flashing/caulking where the roof meets vertical surfaces or where mechanical units (Heating, Ventilating, Air Conditioning (HVAC) equipment, etc.) are attached to the roof surface. • Examining membrane seams that could possibly open up over time. • Making sure there are no signs of deflection, which indicate a problem with the roof structure itself. Once deficiencies have been identified, a qualified roofing mechanic should perform repairs in a timely manner. Qualified individual means an individual familiar with the design, installation and maintenance of roofing systems. If the heating, ventilating and air conditioning system is located on the roof, the qualified individual should also be familiar with the operation and maintenance of the heating, ventilating and air conditioning system or this system should be inspected by a differently qualified individual. A properly executed roof maintenance program should not only reduce leaks, thereby minimizing mold development, but as a secondary benefit, it should increase roof longevity. If you suspect mold has infested a building material, a visual inspection is the most important step in identifying a possible mold contamination problem. The extent of water damage and mold growth should be visually assessed; all organic materials should be investigated. If HVAC units are located on the roof, the assessment of the HVAC unit, as specified in section 7.53, should also be performed when the roof is inspected.
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1.26. Accurate records of roof and building inspections are maintained.	It is advisable to maintain records of roof and building inspections for examination by public health and insurance inspectors.
1.27. There is a five-step or fifteen foot walk off mat at all entry points into the building. If the area cannot accommodate a fifteen foot mat, the mat should be as long as the area will accommodate; mats are clean and replaced as necessary.	A large percentage of the dirt on shoe soles is removed after the first five to six steps on a walk off mat of some kind. In their Tools for Schools action kit, the U.S. EPA states, “Cleaner schools positively affect students and staff both physically and psychologically. Buildings with high dust levels have been associated with increased complaints, illnesses and discomfort. Specifically, dust mites have been found to trigger asthma attacks. In addition to dust, these techniques reduce other particles (such as pollens), that are known to cause allergic reactions. Schools may want to place barrier floor mats at all entrances. These mats need to be long enough to allow five full steps for people entering the school. Most dirt will fall off on the mats rather than throughout the entire school, saving cleaning costs and reducing the amount of contaminants brought into the building. Vacuum each barrier mat daily using a beater brush or beater bar vacuum. Always vacuum in two directions (in-line and side-to-side).”(4) 4. U.S. EPA, Tools for Schools Kit, Background Information for Building and Grounds Maintenance Checklist, http://www.epa.gov/iaq/schools/pdfs/kit/checklists/bldgmaintchklistbkgd.pdf
1.28. Doors are properly installed and maintained to fit tightly in their frame. Exterior doors have no cracks, gaps or other visible openings that allow the entry of insects or other pests into the building.	Properly installed doors are important to the health and safety of occupants in schools. Doors should not admit insects or other pests when shut. Doors should also fit tightly in their frames to maintain proper air flow and ventilation. Doors should open to the outside for ease of egress.
 1.29. Doors are kept shut when not in use.	Close doors when not in use to prevent entrance of pests, debris, unwanted visitors and contaminated air.

2. Playgrounds Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

2.1. Staff supervises use of the playground by students during school hours.	All playgrounds present some challenges and children can be expected to use equipment in unintended and unanticipated ways; therefore, adult supervision is required at all times the playground is in use for school purposes. Supervisors should understand the basics of playground safety and be aware that playground equipment is designed based on the age-appropriateness of children who may use the playground.
2.2. All playground equipment is in good repair.	To minimize injuries, equipment should be kept in good repair. Wooden playground structures should have smooth surfaces to reduce splinters. Plastic structures should be smooth and intact and metal structures should not be rusted. It should be noted here that playground equipment may pose a significant pathway for disease transmission during cold and flu season. It is a good idea to encourage hand washing both before and after use of the playground.
2.3. Equipment components are free of protruding bolts or separations that could cause the entanglement of a portion or portions of the body, clothing, jewelry, or other items that may result in the strangulation or dismemberment of the user.	To minimize injuries, playground equipment should be in good repair. The surfaces of equipment can be a major determinant regarding the severity of potential injuries. It is therefore important that bolts and/or not protrude from the playground equipment in order to minimize injury from impact or from entanglement of clothing that might cause strangulation. It is also important to identify and repair any separations where clothing or jewelry might catch to produce a strangulation hazard or other type of injury.
 2.4. Reports from inspections done of the playground are made available to local health department sanitarian at the time of required school inspection.	Records of inspections and repairs should be maintained and made available to the sanitarian at time of inspection. Inspection records should include the manufacturer's maintenance instructions and checklists used. The person performing the inspection should sign and date the form used. A record of any accidents or injuries reported on the playground should also be kept and be made available upon request. A comprehensive maintenance record should be developed prior to use of the playground. All equipment and grounds should be inspected frequently using proper documentation.



2.5. All “S-hooks” on swings are properly closed. (Less than a dime)	Open S-hooks can catch a child’s clothing and present a strangulation hazard. S-hooks are often part of a swing’s suspension system, either attaching the suspending elements to the overhead support bar or to the swing seat. S-hooks should be pinched closed. An S-hook is considered closed if there is no gap or space greater than 0.04 inches. It is appropriate to measure this gap with a feeler gauge but, in the absence of such a gauge, the gap should not admit a dime.
2.6. Swings not recommended for playground use are prohibited on school grounds. Swings recommended for playground use on school grounds include: To-Fro swings, Multi-Axis swings (tire swings), and Combination swings	The following types of swings are NOT recommended for use in public playgrounds <u>Animal Figure Swings</u> – These are not recommended because their rigid metal framework is heavy, presenting a risk of impact injury. <u>Rope Swings</u> – Free swinging ropes that may fray or otherwise form a loop are not recommended because they present a potential strangulation hazard. <u>Swinging Dual Exercise Rings and Trapeze Bars</u> – These are rings and trapeze bars on long chains pose an impact injury risk and that are generally considered to be items of athletic equipment and are not recommended for public playgrounds.

2.7. Equipment openings are less than three and one half inches or greater than nine inches in size. All openings between three and one half inches and nine inches must be checked for head entrapment with torso and head probes.

A component or a group of components should not form openings that could trap a child's head. A child's head may become entrapped if the child enters an opening either feet first or head first. Head entrapment by head-first entry generally occurs when children place their heads through an opening in one orientation, turn their heads to a different orientation, then are unable to withdraw from the opening. Head entrapment by feet-first entry involves children who generally sit or lie down and slide their feet into an opening that is large enough to permit passage of their bodies but is not large enough to permit passage of their heads.

Generally, an opening presents an entrapment hazard if the distance between any interior opposing surfaces is greater than 3.5 inches and less than nine inches. When one dimension of an opening is within this range, all dimensions of the opening should be considered together to evaluate the possibility of entrapment. Further, it applies to all openings regardless of their height above the ground (see figure below). Even openings that are low enough for children's feet to touch the ground can present a risk of strangulation for an entrapped child, because younger children may not have the necessary cognitive ability or motor skills to extricate their heads, especially if scared or panicked. All such openings should be tested with torso and head probes to determine if entrapment is present. There are guides and measuring devices to evaluate head entrapment.

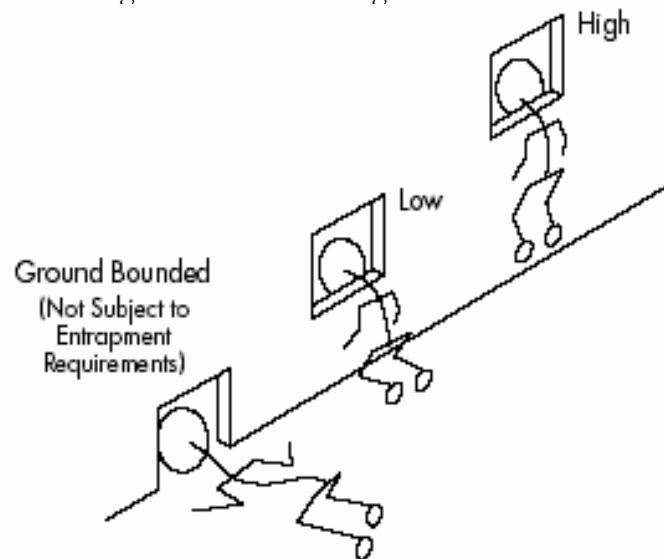


figure 2.7-1

2.8. Guardrails or protective barriers are installed where appropriate.	From the US Consumer Product Safety Commission Handbook for Public Playground Safety 5.1 Platforms, Guardrails and Protective Barriers 5.1.1 Platforms • Platforms should be generally flat (i.e., within $\pm 2^\circ$ of horizontal). • Openings in platforms should be provided to allow for drainage. • Platforms should minimize the collection of debris. • Platforms intended for toddlers should be no more than 32 inches from the ground. 5.1.2 Stepped platforms On some composite structures, platforms are layered or tiered so that a child may access the higher platform without steps or ladders. Unless there is an alternate means of access/egress, the maximum difference in height between stepped platforms should be: • Toddlers: 7 inches. • Preschool-age: 12 inches. • School-age: 18 inches. An access component (such as a rung) is needed if the difference in height is more than 12 inches for preschool-age and 18 inches for school-age children. The space between the stepped platforms should follow the recommendations to minimize entrapment hazards in enclosed openings: • Toddlers: if the space is less than 7 inches, infill should be used to reduce the space to less than 3.0 inches. • Preschool-age: if the space exceeds 9 inches and the height of the lower platform above the protective surfacing exceeds 30 inches, infill should be used to reduce the space to less than 3.5 inches. • School-age: if the space exceeds 9 inches and the height of the lower platform above the protective surfacing exceeds 48 inches, infill should be used to reduce the space to less than 3.5 inches. 5.1.2.1 Fall height • The fall height of a platform is the distance between the top of the platform and the protective surfacing beneath it. 5.1.3 Guardrails and protective barriers Guardrails and protective barriers are used to minimize the likelihood of accidental falls from elevated platforms. Protective barriers provide greater protection than guardrails and should be designed to discourage children from climbing over or through the barrier. Guardrails and barriers should: • Completely surround any elevated platform.
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	• Except for entrance and exit openings, the maximum clearance opening without a top horizontal guardrail should be 15 inches. • Prevent unintentional falls from the platform. • Prevent the possibility of entrapment. • Facilitate supervision. For example: • Guardrails may have a horizontal top rail with infill consisting of vertical bars having openings that are greater than 9 inches. These openings do not present an entrapment hazard but do not prevent a child from climbing through the openings. • A barrier should minimize the likelihood of passage of a child during deliberate attempts to defeat the barrier. Any openings between uprights or between the platform surface and lower edge of a protective barrier should prevent passage of the small torso template (see test in Appendix B.2.5 - for Appendix B see: http://www.cpsc.gov/PageFiles/122149/325.pdf) Guardrails or protective barriers should be provided on elevated platforms, walkways, landings, stairways, and transitional surfaces. In general, the younger the child, the less coordination and balance they have, therefore the more vulnerable they are to unintentional falls. Toddlers are the most vulnerable, and equipment intended for this age should use barriers on all elevated walking surfaces above 18 inches. Physical skills develop further in preschool-age children and then more with school-age children; therefore, minimum elevation recommendations for guardrails and barriers increase with each age group. Guardrails and barriers should be high enough to prevent the tallest children from falling over the top. For guardrails, the lower edge should be low enough so that the smallest children cannot walk under it. Barriers should be low enough to prevent the smallest child from getting under the barrier in any way. This is generally done by designing the barrier so that the small torso probe (see test methods in Appendix B) cannot pass under or through the barrier. Vertical infill for protective barriers may be preferable for younger children because the vertical components can be grasped at whatever height a child chooses as a handhold. Guardrail and barrier recommendations are shown in Table 4. However, the recommendations do not apply if the guardrail or barrier would interfere with the intended use of the equipment, such as: • Climbing equipment • Platforms layered so that the fall height is: – Toddlers: 7 inches or less. – Preschool-age: 20 inches or less. – School-age: 30 inches or less.
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See Table 4. page 21 CPSC Playground Safety Handbook

5.2.1 Ramps, stairways, rung ladders, and step

Ladders ramps, stairways, rung ladders, and step ladders each have different recommendations for slope and tread dimension, but the steps or rungs always should be evenly spaced—even the spacing between the top step or rung and the surface of the platform. Table 6 contains recommended dimensions for: access slope; tread or rung width; tread depth; rung diameter; and vertical rise for rung ladders, step ladders, and stairways. Table 6 also contains slope and width recommendations for ramps. However, these recommendations are not intended to address ramps designed for access by wheelchairs.

- Openings between steps or rungs and between the top step or rung and underside of a platform should prevent entrapment.
- When risers are closed, treads on stairways and ladders should prevent the accumulation of sand, water, or other materials on or between steps.
- Climbing equipment should allow children to descend as easily as they ascend. One way of implementing this recommendation is to provide an easier, alternate means of descent, such as another mode of egress, a platform, or another piece of equipment. For example, a stairway can be added to provide a less challenging mode of descent than a vertical rung ladder or flexible climbing device See Table 5. page 22 CPSC Playground Safety Handbook.
- For toddlers and preschool-age children, offering an easy way out is particularly important since their ability to descend climbing components develops later than their ability to climb up the same components.

See Table 6. page 23 CPSC Playground Safety Handbook

For Appendix B see: <http://www.cpsc.gov/PageFiles/122149/325.pdf>

2.9. Loose-fill surfacing is maintained at a depth of at least 9 inches in use (GH) zones (6 inches for shredded/recycled rubber). This depth is adequate for the following fall heights: <table> <tr> <td>Shredded/ Recycled Rubber</td> <td>10 feet</td> </tr> <tr> <td>Sand</td> <td>4 feet</td> </tr> <tr> <td>Pea Gravel</td> <td>5 feet</td> </tr> <tr> <td>Wood Mulch</td> <td>7 feet</td> </tr> <tr> <td>Wood Chips</td> <td>10 feet</td> </tr> </table> (Sample reference guide per Consumer Safety Product Commission)	Shredded/ Recycled Rubber	10 feet	Sand	4 feet	Pea Gravel	5 feet	Wood Mulch	7 feet	Wood Chips	10 feet	When installing loose-fill material over a hard surface, in a manner consistent with protective surfacing material in a playground setting, the following conditions should be met: 1) Immediately over that hard surface a three to six inch layer of drainage material should be installed, 2) A layer of geotextile cloth should be placed on top of the drainage material, 3) Loose fill material should be installed over the geotextile cloth that meets the requirements outlined in checklist item 2.9, and 4) An impact attenuation mat should be installed in high traffic areas where loose fill material displacement is likely. According to CPSC, emergency room admissions data indicates that the most frequent playground injuries for children are a result of falls from equipment. The surface under and around playground equipment can be a major factor in determining the injury-causing potential of a fall. A fall onto a shock absorbing surface is less likely to cause a serious injury than a fall onto a hard surface. Hard surfacing materials, such as asphalt or concrete, or packed earth are unsuitable for use under and around playground equipment of any height unless they are required as a base for a shock absorbing unitary material such as a rubber mat or tile system. In addition, playgrounds should also meet the accessibility requirements as outlined by the Americans with Disabilities Act. The surfacing material used should be approved and installed according to ASTM Standard F 1292-13 and F 1951 recommendations that are referenced in the chart below.
Shredded/ Recycled Rubber	10 feet										
Sand	4 feet										
Pea Gravel	5 feet										
Wood Mulch	7 feet										
Wood Chips	10 feet										
2.10. ASTM standard F1291 compliance documentation is on file for surfacing present. The critical height of the surfacing should match the fall height of the equipment.											

2.11. Use zones around slides, swings and stationary equipment are free of obstructions and are of the following dimensions: <u>SLIDES:</u> At the front of the slide, the use zone for slides less than or equal to six feet high are at least six feet, for slides greater than six feet the use zone should be equal to the height of the slide (not required to exceed eight feet), and a six foot radius from all other parts of the slide. <u>BELT SWINGS:</u> Twice the height of the swings (from the surfacing material to the pivot point of the swing) in front and back and a six foot radius from the sides of the swing structure. (Buckets-twice height from seat surface to point).	As stated above, the vast majority of injuries on public playgrounds occur from falls. The items listed below are from the US Consumer Product Safety Commission Handbook for Public Playground Safety. When problems are noted during the inspection, a referral for a comprehensive playground audit by a certified playground safety inspector should be made to the school personnel. Correction of the following problems will assist in lowering the incidence of playground injuries. 5.3.6 Slides Children can be expected to descend slide chutes in many different positions, rather than always sitting and facing forward as they slide. These other positions should be discouraged at all times to minimize injuries. Slides may provide a straight, wavy, or spiral descent either by means of a tube or an open slide chute. They may be either free-standing <i>See Figure 17, page 32 CPSC Playground Safety Handbook</i>, part of a composite structure, or built on the grade of a natural or man-made slope (embankment slide). Regardless of the type of slide, avoid using bare metals on the platforms, chutes, and steps. When exposed to direct sunlight the bare metal may reach temperatures high enough to cause serious contact burn injuries in a matter of seconds. Provide shade for bare metal slides or use other materials that may reduce the surface temperature such as, but not limited to, plastic or coated metal. Slide access 5.3.6.1 Access to a stand-alone slide generally is by means of a ladder with rungs, steps, or a stairway with steps. Slides may also be part of a composite play structure, so children will gain access from other parts of the structure. Embankment slides use the ground for access. <i>See Figure 17, 18, 19 pages 32, 34 CPSC Playground Safety Handbook</i> 5.3.6.2 Slide platform All slides should be provided with a platform with sufficient length to facilitate the transition from standing to sitting at the top of the inclined sliding surface. Embankment slides are exempt from platform requirements because they are on ground level; however, they should not have any spaces or gaps as noted below. The platform should: • Be at least 19 inches deep for toddlers. • Be at least 14 inches deep for preschool-age and school-age children. • Be horizontal.
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2.11 continued: <u>MULTI-AXIS</u> <u>SWINGS:</u> Y + 72” (Y=height from pivot point to the seat surface) measured out in all directions from the pivot point. <u>STATIONARY</u> <u>EQUIPMENT:</u> Six feet in all directions. Furthermore, the use zone for all swings, merry-go-rounds, and the exit area of slides has no overlap of use zones from other equipment.	• Be at least as wide as the slide chute. • Be surrounded by guardrails or barriers. • Conform to the same recommendations as general platforms given under 2.8 above. • Not have any spaces or gaps that could trap strings, clothing, body parts, etc. between the platform and the start of the slide chute. • Provide handholds to facilitate the transition from standing to sitting and decrease the risk of falls (except tube slides where the tube perimeter provides hand support). These should extend high enough to provide hand support for the largest child in a standing position, and low enough to provide hand support for the smallest child in a sitting position. • Provide a means to channel a user into a sitting position at the entrance to the chute, such as a guardrail, hood, or other device that discourages climbing. 5.3.6.3 Slide chutes 5.3.6.3.1 Embankment slides • The slide chute of an embankment slide should have a maximum height of 12 inches above the underlying ground surface. This design basically eliminates the hazard of falls from elevated heights. • Embankment slides should follow all of the recommendations given for straight slides where applicable (e.g., side height, slope, use zone at exit, etc.). • There should be some means provided at the slide chute entrance to minimize the use of embankment slides by children on skates, skateboards, or bicycles. 5.3.6.3.2 Roller slides • Roller slides should meet applicable recommendations for other slides (e.g., side height, slope, use zone at exit, etc.). • The space between adjacent rollers and between the ends of the rollers and the stationary structure should be less than 3/16 inch. • Frequent inspections are recommended to insure that there are no missing rollers or broken bearings and that the rollers roll. 5.3.6.3.3 Spiral slides • Spiral slides should follow the recommendations for straight slides where applicable (e.g., side height, slope, use zone at exit, etc.). • Special attention should be given to design features which may present problems unique to spiral slides, such as lateral discharge of the user.
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2.11 continued:

- Toddlers and preschool-age children have less ability to maintain balance and postural control, so only short spiral slides (one 360° turn or less) are recommended for these age groups.
- 5.3.6.3.4 Straight slides
- Flat open chutes should have sides at least 4 inches high extending along both sides of the chute for the entire length of the inclined sliding surface.
- The sides should be an integral part of the chute, without any gaps between the sides and the sliding surface. (This does not apply to roller slides).
- Slides may have an open chute with a circular, semicircular or curved cross section provided that:

A. The vertical height of the sides is no less than 4 inches when measured at right angles to a horizontal line that is 8 inches long when the slide is intended for toddlers, 12 inches long when the slide is intended for preschool-age children, and 16 inches long when the slide is intended for school-age children *See Figure 18, page 34 CPSC Playground Safety Handbook*;

or

B. For any age group, the vertical height of the sides is no less than 4 inches minus two times the width of the slide chute divided by the radius of the slide chute curvature *Figure 19, page 34 CPSC Playground Safety Handbook*.

- For toddlers:—The average incline of a slide chute should be no more than 24° (that is, the height to horizontal length ratio shown in Figure 20 does not exceed 0.445).
 - No section of the slide chute should have a slope greater than 30°.
 - The slide chute should be between 8 and 12 inches wide.
- For preschool- and school-age children:
 - The average incline of a slide chute should be no more than 30° (that is, the height to horizontal length ratio shown in *Figure 20 page 35 CPSC Playground Safety Handbook* does not exceed 0.577).
 - No section of the slide chute should have a slope greater than 50°.

5.3.6.3.5 Tube slides

- Tube slides should meet all the applicable recommendations for other slides (e.g., side height, slope, use zone at exit, etc.).
- Means, such as barriers or textured surfaces, should be provided to prevent sliding or climbing on the top (outside) of the tube.
- The minimum internal diameter of the tube should be no less than 23 inches.
- Supervisors should be aware of children using tube slides since the children are not always visible.

2.11 continued:	5.3.6.4 Chute exit region All slides should have an exit region to help children maintain their balance and facilitate a smooth transition from sitting to standing when exiting. The chute exit region should: • Be between 0 and -4° as measured from a plane parallel to the ground. • Have edges that are rounded or curved to prevent lacerations or other injuries that could result from impact with a sharp or straight edge. • For toddlers the chute exit region should: – Be between 7 and 10 inches long if any portion of the chute exceeds a 24° slope. – Be no more than 6 inches above the protective surfacing. – Have a transition from the sliding portion to the exit region with a radius of curvature of at least 18 inches. • For preschool- and school-age the chute exit region should: – Be at least 11 inches long. – Be no more than 11 inches above the protective surfacing if the slide is no greater than 4 feet high. – Be at least 7 inches but not more than 15 inches above the protective surfacing if the slide is over 4 feet high. <i>See Figure 20, page 35 CPSC Playground Safety Handbook</i> 5.3.6.5 Slide use zone Toddlers: • In a limited access environment – The use zone should be at least 3 feet around the perimeter of the slide. – The area at the end of the slide should not overlap with the use zone for any other equipment. • In public areas with unlimited access – For a stand-alone slide, the use zone should be at least 6 feet around the perimeter. – For slides that are part of a composite structure, the minimum use zone between the access components and the side of the slide chute should be 3 feet. – The use zone at the end of the slide should be at least 6 feet from the end of the slide and not overlap with the use zone for any other equipment.
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2.11 continued:

Preschool- and school-age (see Figure 21):

- The use zone in front of the access and to the sides of a slide should extend a minimum of 6 feet from the perimeter of the equipment. This recommendation does not apply to embankment slides or slides that are part of a composite structure (see §5.3.9).
- The use zone in front of the exit of a slide should never overlap the use zone of any other equipment; however, two or more slide use zones may overlap if their sliding paths are parallel.
- For slides less than or equal to 6 feet high, the use zone in front of the exit should be at least 6 feet.
- For slides greater than 6 feet high, the use zone in front of the exit should be at least as long as the slide is high up to a maximum of 8 feet.

See Figure 21, page 36 CPSC Playground Safety Handbook

5.3.6.6 Fall height

The fall height for slides is the distance between the transition platform and the protective surfacing beneath it.

5.3.6.7 Entanglement hazard

Children have suffered serious injuries and died by getting parts of their clothing tangled on protrusions or gaps on slides.

To reduce the chance of clothing entanglement:

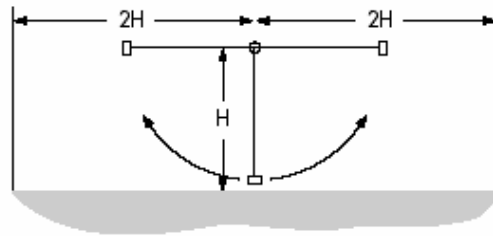
- Projections up to 3 inches in diameter should not stick up more than 1/8 inch from the slide.
- There should be no gaps at the tops of slides where the slide chute connects with the platform that can entangle clothing or strings.
- See Appendix B for full recommendations and details of the protrusion test procedure.

<http://www.cpsc.gov/PageFiles/122149/325.pdf>

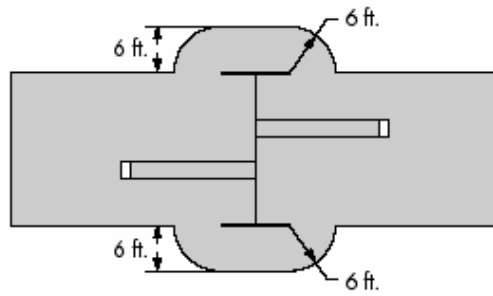
5.3.6.8 Other sliding equipment

Equipment where it is foreseeable that a primary use of the component is sliding should follow the same guidelines for entanglement that are in 5.3.6.7.

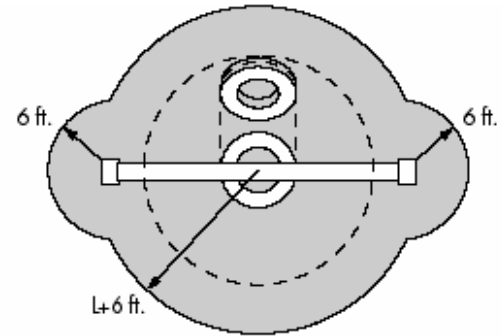
2.11 continued:	SWINGS: There are, generally, two types of swings: single-axis of motion and multiple-axis of motion. A single-axis swing is intended to swing back and forth in a single plane. A multiple-axis swing consists of a seat (generally a tire) suspended from a single pivot point that permits it to swing in any direction. Swings structures should be located away from other equipment of activities to help prevent children from inadvertently running into the path of a moving swing. Specific safety guidelines for different types of swings can be found in the reference documents cited in the overview of this section. It is recommended that the use zone extend to the front and rear of a single-axis swing a minimum distance of twice the height of the pivot point above the surfacing material measured from a point directly beneath the pivot on the supporting structure (see figure on page A-26). The use zone to the sides of a single-axis swing should follow the general recommendation and extend a minimum of six feet from the perimeter of the swing structure in accordance with the general recommendation for use zones. This six foot zone may overlap that of an adjacent swing structure. The use zone to the front and rear of tot swings should extend a minimum distance of twice the height of the pivot point measured from a point directly beneath the pivot to the lowest point on the occupant seating surface when the swing is occupied. The use zone to the front and rear of single-axis swings should never overlap the use zone of any other equipment. For a multi-axis swing, the use zone to the sides of a single-axis swing should follow the general recommendation and extend a minimum of six feet from the perimeter. The use zone should extend in any direction from a point directly beneath the pivot point for a minimum distance of six feet + the length of the suspending members (see Figure on page A-26). This use zone should never overlap the use zone of any other equipment. In addition, the use zone should extend a minimum of six feet from the perimeter of the supporting structure. ASTM F1487-11 STATIONARY EQUIPMENT: For stationary equipment, the use zone should extend a minimum of six feet in all directions from the perimeter of the equipment. The use zones of two stationary pieces of playground equipment that are positioned adjacent to one another may overlap if the adjacent designated play surfaces of each structure are no more than 30 inches above the protective surface (i.e., they may be located a minimum distance of six feet [72 inches] GH apart). If adjacent designated play surfaces on either structure exceed a height of 30 inches, the minimum distance between the structures should be nine feet (108 inches).
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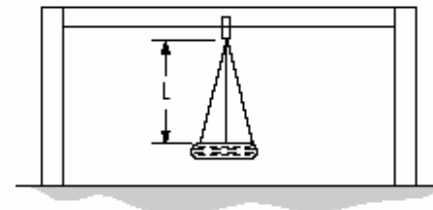
■ Denotes Use Zone with Protective Surfacing



Single – Axis Swing



■ Denotes Use Zone with Protective Surfacing



Multi-Axis Swing

3. Classrooms Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

3.1. Indoor environments are sanitary with no sign of moisture, water damage or suspected mold on any interior surface (OSHA 29 CFR 1910.22(a)(1)).

Mold has been identified as an agent that can exacerbate certain health conditions, such as asthma and allergies. Mold spores are everywhere in our environment. However, for mold to develop beyond the spore stage, water is necessary. Any surface where mold is growing has had or is having a problem with moisture. The moisture problem should be corrected to prevent future mold growth. Once the moisture problem has been corrected the surface should be cleaned, if it is a cleanable surface, or removed and discarded when cleaning is not possible. Table 1 outlines proper cleaning methods depending on the surface on which mold is found. This table has been reproduced from the US EPA guidance document, “Mold Remediation in Schools and Commercial Buildings.”

Ongoing water intrusion can cause structural damage as well as provide a food source for mold and insects. Some indicators of water intrusion or water damage are peeling paint, deteriorated siding, rotted window sills, mold on walls, peeling wallpaper and discolored ceiling tiles. Any sign of water intrusion should be evaluated and corrected promptly. Wet surfaces should be dried within 24-48 hours to inhibit mold growth. Table 2 outlines recommended clean-up methods, depending on surface area affected, as well as recommended personal protective equipment and type of containment necessary.

Table 1: Water Damage - Cleanup and Mold Prevention	
Guidelines for Response to Clean Water Damage within 24-48 Hours to Prevent Mold Growth*	
Water-damaged Material†	Actions
Books and papers	• For nonvaluable items, discard books and papers. • Photocopy valuable/important items, discard originals. • Freeze (in frost-free freezer or meat locker) or freeze-dry.
Carpet and backing - dry within 24-48 hours§	• Remove water with water-extraction vacuum. • Reduce ambient humidity levels with dehumidifier. • Accelerate drying process with fans.
Ceiling tiles	• Discard and replace.

	Cellulose insulation	Discard and replace.
	Concrete or cinder-block surfaces	- Remove water with water-extraction vacuum. - Accelerate drying process with dehumidifiers, fans and/or heaters.
	Fiberglas insulation	Discard and replace.
	Hard surface, porous flooring§ (Linoleum, ceramic tile, vinyl)	- Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary. - Check to make sure sub-flooring is dry; dry sub-flooring if necessary.
	Nonporous, hard surfaces (Plastics, metals)	Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.
	Upholstered furniture	- Remove water with water-extraction vacuum. - Accelerate drying process with dehumidifiers, fans and/or heaters. - May be difficult to completely dry within 48 hours. If the piece is valuable, you may wish to consult a restoration/water damage professional who specializes in furniture.
	Wallboard (Drywall and gypsum board)	- May be dried in place if there is no obvious swelling and the seams are intact. If not, remove, discard and replace. - Ventilate the wall cavity, if possible.
	Window drapes	Follow laundering or cleaning instructions recommended by the manufacturer.
	Wood surfaces	- Remove moisture immediately and use dehumidifiers, gentle heat and fans for drying. (Use caution when applying heat to hardwood floors.) - Treated or finished wood surfaces may be cleaned with mild detergent and clean water and allowed to dry. - Wet paneling should be pried away from wall for drying.
* If mold growth has occurred or materials have been wet for more than 48 hours, consult Table 2 guidelines. Even if materials are dried within 48 hours, mold growth may have occurred. Items may be tested by professionals if there is doubt. Note that mold growth will not always occur after 48 hours; this is only a guideline. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then PPE and containment are required by OSHA. An experienced professional should be consulted if you and/or your remediators do not have expertise remediating in contaminated water situations. Do not use fans before determining that the water is clean or sanitary. † If a particular item(s) has high monetary or sentimental value, you may wish to consult a		

restoration/water damage specialist.

§ The subflooring under the carpet or other flooring material must also be cleaned and dried. See the appropriate section of this table for recommended actions depending on the composition of the subflooring.

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*

Material or Furnishing Affected	Cleanup Methods†	Personal Protective Equipment	Containment
SMALL - Total Surface Area Affected Less Than 10 Square Feet (ft²)			
Books and papers	3	Minimum N-95 respirator, gloves and goggles	None required
Carpet and backing	1, 3		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3		
Wallboard (drywall and gypsum board)	3		
Wood surfaces	1, 2, 3		

MEDIUM - Total Surface Area Affected Between 10 and 100 (ft ²)			
Books and papers	3	Limited or Full Use professional judgment, consider potential for remediator exposure and size of contaminated area	Limited Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area
Carpet and backing	1,3,4		
Concrete or cinder block	1,3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1,2,3		
Non-porous, hard surfaces (plastics, metals)	1,2,3		
Upholstered furniture & drapes	1,3,4		
Wallboard (drywall and gypsum board)	3,4		
Wood surfaces	1,2,3		
LARGE - Total Surface Area Affected Greater Than 100 (ft ²) or Potential for Increased Occupant or Remediator Exposure During Remediation Estimated to be Significant			
Books and papers	3	Full Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area	Full Use professional judgment, consider potential for remediator exposure and size of contaminated area
Carpet and backing	1,3,4		
Concrete or cinder block	1,3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1,2,3,4		
Non-porous, hard surfaces (plastics, metals)	1,2,3		
Upholstered furniture & drapes	1,2,4		
Wallboard (drywall and gypsum board)	3,4		
Wood surfaces	1,2,3,4		

Table 2 continued

*Use professional judgment to determine prudent levels of PPE and containment for each situation, particularly as the remediation site size increases and the potential for exposure and health effects rises.

Assess the need for increased PPE, if, during the remediation, more extensive contamination is encountered than was expected. Consult Table 1 if materials have been wet for less than 48 hours and mold growth is not apparent. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then the OSHA requires PPE and containment. An experienced professional should be consulted if you and/or your remediators do not have expertise in remediating contaminated water situations.

†Select method most appropriate to situation. Because molds gradually destroy the things they grow on, if mold growth is not addressed promptly, some items may be damaged such that cleaning will not restore their original appearance. If mold growth is heavy and items are valuable or important, you may wish to consult a restoration/water damage/remediation expert. Please note that these are guidelines only; other cleaning methods may be preferred by some professionals.

Cleanup Methods

- **Method 1:** Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried). Steam cleaning may be an alternative for carpets and some upholstered furniture.
- **Method 2:** Damp-wipe surfaces with plain water or with water and detergent solution (except wood —use wood floor cleaner); scrub as needed.
- **Method 3:** High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.
- **Method 4:** Discard- remove water-damaged materials and seal in plastic bags while inside of

	containment, if present. Dispose of as normal waste. HEPA vacuum area after it is dried. Personal Protective Equipment (PPE) • Minimum: Gloves, N-95 respirator, goggles/eye protection • Limited: Gloves, N-95 respirator or half-face respirator with HEPA filter, disposable overalls, goggles/eye protection • Full: Gloves, disposable full body clothing, head gear, foot coverings, full-face respirator with HEPA filter Containment • Limited: Use polyethylene sheeting ceiling to floor around affected area with a slit entry and covering flap; maintain area under negative pressure with HEPA filtered fan unit. Block supply and return air vents within containment area. • Full: Use two layers of fire-retardant polyethylene sheeting with one airlock chamber. Maintain area under negative pressure with HEPA filtered fan exhausted outside of building. Block supply and return air vents within containment area. <i>Table developed from literature and remediation documents including Bioaerosols: Assessment and Control (American Conference of Governmental Industrial Hygienists, 1999) and IICRC S500, Standard and Reference Guide for Professional Water Damage Restoration, (Institute of Inspection, Cleaning and Restoration Certification, 1999); see Resources List for more information.</i>
3.2. Routine moisture inspections are conducted to ensure the school building is free of moisture problems, water damage, and visible mold on all interior surfaces (OSHA 29 CFR 1910.141(a)(3)(ii)).	Molds can be found almost anywhere; and they can grow on virtually any organic substance, as long as moisture and oxygen are present. There are molds that can grow on wood, paper, carpet, foods and insulation. Check regularly for condensation and wet spots. Maintain indoor humidity levels below 60%, ideally between 30% and 50% when possible.

3.3. Information on mold is integrated into the student curricula.	Incorporating information on mold into the curriculum serves the dual purpose of educating students and staff about mold issues and making the school community observant to mold that may develop in the school environment. See: http://www.epa.gov/mold/append_b.html
3.4. Surfaces are free from excessive accumulation of dust or sediment.	Dust is a known allergy and asthma trigger. High and low surfaces tend not to be cleaned as often as those surfaces at eye level. However, dust on higher surfaces can fall onto surfaces and students where it may be inhaled. Dust on lower surfaces can fall to the floor where it could be stirred up into the breathing zones of students as they move through the classroom.
3.5. Items are annually assessed for disposal or stored promptly so that routine maintenance and cleaning are not inhibited or restricted by stored items.	Items stored on the floor can inhibit cleaning. Storage containers placed in locations that block air flow, such as on or around unit ventilators, can reduce the quality of the indoor air and the thermal comfort of the occupants. Teaching supplies should be stored in containers that can be easily cleaned and moved. Educational staff should keep only materials that are necessary for instruction and will be used during the school year in the classroom. Clutter will contribute to pest infestations by providing shelter and food. Dust collection on clutter may contribute to asthma and allergy episodes in sensitive individuals. A lack of storage space will contribute to clutter in the classroom. All storage containers should be kept on shelving or in cabinets so that floors and other horizontal surfaces can be cleaned. Storage containers should not be stored outside of cabinets, when cabinets are available. Keeping storage to a minimum allows for proper cleaning of the classroom and provides less of an attraction for pests. Nothing should be stored long-term that will inhibit proper and thorough cleaning of the floor or other horizontal surfaces.
3.6. Indoor areas are free of evidence of pests or obvious food sources for pests (OSHA 29 CFR 1910.141(a)(4)(i)) (OSHA 29 CFR 1910.141(a)(5)).	Rodents and insects carry diseases and are triggers for asthma and allergy episodes in sensitive individuals. Rodent droppings may be observed where floors meet walls. Cockroach allergens play a significant role in the development of asthma in early childhood. Certain proteins which act as allergens in the waste products and saliva of cockroaches can cause allergic reactions or trigger asthma symptoms in some individuals. Cockroaches and other pests, such as rats and mice, are often found in the school setting. Allergens from these pests may be significant asthma triggers for students and staff in schools. Pest problems in schools may be caused or worsened by a variety of conditions such as plumbing leaks, moisture problems, food crumbs not cleaned up, improper food handling and storage practices. In order to manage a pest problem, food, water and shelter sources for pests should be controlled in the school environment. All food items, student lunches, snacks, foods used for crafts and animal foods should be stored in sealed containers. The containers should be free of all food residues.

 3.7. Food waste or pest attractants are immediately placed in a trash can, and trash is removed daily from the school building.	Food wastes attract pests and cause odors. Such wastes should be contained and removed from the building.
 3.8. Food and beverages are allowed only in designated areas and food is stored in airtight containers.	Limiting food and beverage consumption to designated areas allows for prompt, routine cleanup of spills and other food remains as part of an integrated pest management program.
 3.9. All food crumbs or spilled drinks are cleaned immediately.	Prompt cleanup of food remains reduces odors and discourages pest problems from developing.
 3.10. Dishes are washed promptly after use.	Washing dishes and utensils promptly reduces odors and eliminates a food source for pests.
3.11. Furniture and toys are cleanable, clean and in good repair.	Dust mites live on soft toys and upholstered furniture and feed upon dead human skin. Dust mites are a very common trigger for students with asthma or allergies. Because of the difficulty in maintaining upholstered furniture in a clean and mite-free condition, these items should not be allowed in the classroom environment. Toys provided for student use should be washable and laundered weekly or more often as necessary. Student desks that are dirty, rough and in poor condition are not conducive to the learning environment. Dirty desks can be an attraction for pests and can harbor bacteria and viruses. Desk surfaces should be cleaned often to prevent a buildup of visible dirt. Desks that are cracked, missing portions of the surface, or are wobbly could cause injury to students from sharp or protruding edges. Students should not be given household cleaning chemicals to clean their desks.

3.12. Drapes, blinds, shades and banners are clean and in good repair.	Dust and dirt that accumulates on drapes, blinds, shades and banners can be a source of triggers in the school environment for individuals with allergies or asthma resulting in allergy or asthma episodes. These items should be laundered as often as is necessary to avoid an accumulation of dust. Other than stage curtains, the use of curtains and drapes in the school environment is discouraged for fire safety reasons. If these items are used in the school environment, they must be certified and tagged as flame resistant. Stage curtains should be flame resistant according to the OAC, section 1301:7-7-03 (G) (1) which states, “In occupancies of Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 as listed in rule 1301:7-7-47 of the Administrative Code in accordance with paragraph (F)(2)(806.2) of this rule or be noncombustible.” When curtains or drapes, including stage curtains, are cleaned, the flame-retardant chemical should be reapplied to the curtains, and the curtains should be tagged as flame resistant before they are put back into the school building.
3.13. There is no excessive accumulation of chalk or marker dust and markers are low or no volatile organic compound emitting.	Excessive chalk or marker dust on chalkboard or whiteboard trays can be dispersed into the breathing environments of the occupants of the classrooms. The dust generated by these products can be inhaled and may trigger an allergy or asthma episode in sensitive individuals. Cleaning the trays of the different boards on a daily basis, when the room is not occupied by students, may help prevent or reduce the number of allergy and/or asthma episodes for sensitive individuals.
3.14. Portable banquet tables, cafeteria tables and other portable furniture items, when not in a position intended for use, are stored in a manner that is inaccessible to students or are secured to the wall or floor to prevent injuries from tipping.	Cafeteria tables that fold up and are mobile should not be stored in an unsecured manner around children. There are documented cases where children have been killed or seriously harmed when these tables have fallen on top of them. A warning label should be affixed to these types of tables to indicate the danger of tip-over when these tables are in the upright position. Mobile tables should be stored secured to the wall in a manner that will prohibit possible tip over or in a storage room that is inaccessible to students. More information on these tables can be obtained the Consumer Product Safety Commission at: http://www.cpsc.gov//PageFiles/122335/5062.pdf

3.15 Televisions and heavy equipment that may pose a hazard by tipping or falling are securely anchored to a cart, wall or floor and are moved only by authorized personnel. Heavy furniture items are moved only by authorized personnel.	Carts are commonly employed in schools to hold televisions and computer monitors for better classroom viewing by students. Unfortunately, such assemblies are inherently unstable due to their high center of gravity. The use of anchoring bolts or straps will prevent the TV or other equipment from falling off of the cart in the event of tipping – potentially injuring nearby students. Note, however, that the addition of such anchors does nothing to lower the inherent instability in the assembly. The addition of weight, in the form of sandbags or other dense material, to the base of the cart (near the wheels) is one way to effectively lower the center of gravity for such assemblies. However, this will add significantly to the overall weight of the assembly making the unit more difficult to move. The height, depth and weight distribution of a given shelving unit will determine its center of gravity and inherent stability. Because unstable shelving units may fall on nearby students and staff, such units should be physically anchored to prevent tipping.
3.16. Chemicals and cleaning products used in the classrooms are inaccessible to all students with the exception of chemicals used during classroom instruction. Teachers and staff are discouraged from bringing in cleaning chemicals - only school supplied products are used. Aerosol and plug-in air fresheners are not used.	Many cleaning products come in colors attractive to young children. Some cleaning products resemble juice or Kool-Aid and may be accidentally ingested by young children. Other products may simply be misused or used in unintended ways by students who do not or cannot follow label instructions. In order to protect children from poisoning or injury, all chemicals and cleaning products should be stored in a locked cabinet or kept inaccessible, particularly in the elementary school setting. It is preferred that all chemicals and cleaning products be stored in the custodial closet. Aerosol and plug-in air fresheners produce volatile organic compounds that are common allergy and asthma triggers and so should not be used in the classroom environment. If odors are an issue, speak with the facilities manager about improving ventilation in the classroom.

3.17. Walls have paint and plaster intact with no visible bowing or evidence of cracks or damage (OSHA 29 CFR 1910.22(a)(1)).	Any bowing or cracking of foundation should be inspected by an engineer or building inspector. Bowing or cracking could be an indication of a serious problem caused by a variety of factors. Water stains on walls can be an indication of water intrusion from the outside or an internal leak from the plumbing system. Water damage or stains can grow mold if the surfaces are not dried within 24 hours. Stains on walls that are caused from food or drink can attract pests. Both pests and mold can exacerbate allergies and trigger an asthma episode in sensitive individuals. Any stains on walls should be investigated as to the source and substance. If there is water damage on walls, the cause should be corrected. If mold is present, determine the source of the water, correct the problem and have mold removed by cleaning thoroughly. Walls should be smooth and easily cleanable. Refer to tables in item 3.1 above.
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3.18. Rooms are identified that may contain paint produced before 1978.

Lead-based paint was not banned from use in the United States until 1978. Any school built before 1978 with chipping or peeling paint should be evaluated for lead by a licensed lead risk assessor or licensed lead paint inspector. Deteriorated lead-based paint can cause a child to become lead poisoned, if the paint is ingested or the dust is inhaled. All deteriorated surfaces in school buildings built before 1978 should be corrected by either a licensed lead abatement contractor, lead project designer or a lead safe renovator. A list of people who are licensed as abatement contractors, designers, or renovators can be provided by the ODH, Division of Quality Assurance (DQA). Window sills, window wells and floors where lead dust may have settled should be vacuumed with a HEPA vacuum. This vacuum will prevent the lead dust from being re-circulated into the air. Surfaces where leaded dust may have accumulated should be cleaned with soap and rinsed with clear water. Children become lead poisoned by touching surfaces with lead dust on them and putting their hands in their mouth. Children can also become lead poisoned by eating leaded paint chips or by breathing in leaded dust. While lead poisoning is of particular concern for children under the age of six due to the negative impact on cognitive development, lead poisoning can cause medical problems in persons of any age.

Deteriorated painted surfaces in school buildings built before 1978 should be considered lead hazards and should be stabilized in a lead-safe manner. Paint chips must be wiped up with a wet cloth or rag. Place used wet clothes or rags and all associated waste in a sealed plastic bag and dispose of in a trash container outside of the classroom. Identify the source of paint chips and remediate in a lead-safe manner. If paint in rooms in a school building built before 1978 may be disturbed through renovation or damage from other sources, contact ODH Environmental Abatement Section for more information at (877) 668-5323 or (614) 466-1450 or for a complete listing of licensed lead professionals contact the ODH, Division of Quality Assurance, Lead Poisoning Prevention Program at: http://publicapps.odh.ohio.gov/Envlicense_Reports/External_License_Search.aspx?Program=Lead

EPA's Lead Renovation, Repair and Painting Rule (RRP Rule) requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in homes, child care facilities and pre-schools built before 1978 have their firm certified by EPA (or an EPA authorized state), use certified renovators who are trained by EPA-approved training providers and follow lead-safe work practices. Detailed information about this rule may be found at <http://www2.epa.gov/lead/renovation-repair-and-painting-program>. View the following webinar for more information on EPA's Lead Renovation, Repair and Painting Rule found at:

<http://www.epa.gov/region10/children/sensiblesteps/webinars/W08Lead.wmv>.

3.19. Floors are sanitary and dry with no tripping hazards (OSHA 29 CFR 1910.141(a)(3)(iii)).	Floor coverings should be smooth to prevent tripping hazards and should be long-lasting and constructed of materials able to withstand the wear and tear of a school environment. Floor coverings should also be easily cleanable. All floor coverings should be able to be completely dry within 24 hours of cleaning to inhibit mold growth.
3.20. Carpeting and vinyl cushion tufted textile are sanitary, dry and secure to the floor and not installed in vestibules and corridors within 15 feet of all building entrances or in areas prone to moisture accumulation or proximate to moisture sources, including, but not limited to, locker room, restrooms and spaces adjacent to sinks (OSHA 29 CFR 1910.141(a)(3)(iii)).	Carpets trap for dirt, dust and other particles. Carpets that are not maintained properly through daily vacuuming and regular hot water extraction at least twice per year can become a contaminant source. Dirt, dust and mold can all cause asthma and allergy episodes in sensitive individuals. Odors coming from a carpet should be evaluated as to the source of the odor and the carpet cleaned or removed if necessary. When carpets become moist, a carpet water extractor should be used to remove as much moisture as possible. In addition, the HVAC system should be operated in a manner that facilitates dehumidification. During times of the year when opening windows is not feasible, mechanical ventilation to the area where the wet carpet is located should be increased. This will help to expedite the drying process. Wet carpets that are not dried within 24-48 hours can promote mold growth. Building entrances, hallways, restrooms or rooms with plumbing are where most of the dirt and water enter the building, making cleaning and maintenance of the carpet difficult. These areas receive the most use and will cause the carpet to wear more quickly than other areas. Carpeting that is not secured or maintained in good condition can be a danger to all occupants in the school environment. Carpeting that has loose edges or is unraveling can serve as a tripping hazard, resulting in injuries. In addition, tears and holes do not allow for proper maintenance of the carpet. All carpet maintenance should be performed according to guidance published by the Institute of Inspection, Cleaning and Restoration Certification which may be found at: http://www.iicrc.org/
3.21. Area rugs are sanitary and in good repair (1910.141(a)(3)(iii)).	Area rugs are difficult to maintain in a clean condition and can also be a tripping hazard to all occupants. Area rugs should be flat on the floor and free of tears or fraying of materials. If the area rug is too large to fit into a washing machine, the rug should be laundered professionally. It is recommended that individual mats that are easily cleanable be used to provide a softer surface for children to sit on when not at their desks.
3.22. Carpeted areas are vacuumed daily.	Regular carpet vacuuming eliminates dust and allergens, improving air quality.

3.23. Carpets are cleaned twice/year with extraction cleaners to remove water to prevent mold growth as a result of cleaning.	Twice annual extraction cleaning of carpets will remove heavy soil and moisture that can result in the development of mold.
3.24. Ceilings are present, intact and sanitary with no water damage, stains, suspected mold or chipping or peeling paint (OSHA 29 CFR 1910.22(a)(1)).	Water stains on a ceiling indicate a leak of some sort (roof, restrooms, other classroom plumbing, etc.). Rust stains may be an indication that condensation is accumulating on pipes above the ceiling. The water source should be identified and corrected in addition to repairing the ceiling. Ceiling tiles that have become wet and/or have mold on them should be thrown away and replaced with new ceiling tiles. Refer to the tables in item 3.1 above. Ceilings with chipping or peeling paint should be repaired promptly. Some of the reasons that paint deteriorates are a lack of maintenance, water damage and high humidity levels. Water damage and high humidity levels should be corrected before the ceiling is repaired and repainted. Lead was used in paint until it was banned in 1978. When lead-based paint deteriorates, it becomes hazardous to people, especially children under 6 years of age. Deteriorated painted surfaces in school buildings built before 1978 should be considered lead hazards and should be stabilized in a lead-safe manner. For a complete listing of licensed lead professionals contact the ODH, Division of Quality Assurance, Lead Poisoning Prevention Program at (877) 668-5323 or (614) 466-1450.
3.25. Window panes and frames are clean, intact and properly caulked or sealed and glazed.	Window panes that are cracked pose a safety hazard to the students and staff in the school environment. The integrity of the window pane is compromised and could break or shatter causing injury to building occupants. Cracked window panes also allow for the air and weather to pass through causing problems with thermal comfort of the occupants. Sealed windows prevent drafts, pest infestation and water intrusion. Windows should be reglazed or re-caulked as necessary.

3.26. HVAC systems are free of any excessive noise, vibration or odor from any system component.	Excessive noise and vibration are disruptive to both students and staff. Noise and vibration detract from the teacher’s ability to teach and the student’s ability to learn and should be corrected whenever they occur. Excessive background noise is particularly disruptive to hearing-impaired individuals. Odors emanating from the HVAC system within a given space may indicate one or more of the following conditions: 1) The HVAC system itself is acting as a contaminant reservoir; 2) Contaminants are being drawn into the system from other areas within the building; or 3) Contaminants originating outside the building are being drawn into the system (often through outside air intakes). In all such scenarios, the source of the odor should be identified and corrected. One effective and systematic approach to identifying and correcting IAQ problems is outlined in the “IAQ Coordinator’s Guide” of the U.S. EPA’s IAQ Tools for Schools Kit which may be found at: http://www.epa.gov/iaq/schools/tfs/coord_append_b.html
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3.27. HVAC systems have pleated air filtration in unit ventilators.

Proper air filtration is critical to controlling airborne particulate concentrations in the occupied space. Air filters are particularly effective for removing particulate material from the air stream. Airborne particulate material is a complex mixture that may contain a variety of constituents ranging in size from hair strands to viruses. When considering the effectiveness of various air filtration media, we should be particularly concerned with its ability to remove respirable particulate material. These include particles 10 microns in diameter and smaller. Woven mesh filters are not effective at removing respirable particulate material from the air stream. As such, higher efficiency filters are often recommended as a cost-effective means of improving IAQ. Ensure all filtration media selected are consistent with the manufacturer's performance specifications for each air handling unit (AHU) serviced. Air filters having a minimum efficiency reporting value (MERV) of 7 (=25-30 percent dust spot efficiency) will provide a minimum acceptable level of filtration against respirable airborne particulate material without imposing an excessive power burden upon the lower capacity air handling units still in service in older schools across Ohio. NOTE: Air filters should be visually inspected on at least TWO of each type of HVAC system present within a given school building. An authorized representative of the school maintenance staff should be present to actually open HVAC units and remove filters for inspection. To ensure maximum effectiveness, all air filters should fit properly onto the filter support racks within the AHU with no gaps or openings between the rack and the filters or between the unit housing and the filters. In addition, filters should fit snugly against one another with spacers provided to hold them tightly in place. The mere presence of visible particulate deposition or dirt on an air filter is not an effective indicator of filter change frequency. Filters are designed to capture and hold particulate material from the air stream. Depending on the nature and color of the contaminant stream, soiling may appear within only a few days following replacement. Conversely, a predominantly white contaminant stream on a white filter may not appear to be a problem, even though the filter in question is fully loaded. Excessively loaded filters pose the risk of equipment failure by choking air flow sufficiently to freeze cooling coils during the cooling season. All air filters should be replaced on a regular basis, based on pressure drop across the filter (where such instrumentation exists) or on a scheduled basis. Generally, a two- to three-month change interval is warranted for general classroom spaces. Low-efficiency filters [American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Dust Spot rating of 10 percent-20 percent], if loaded to excess, will become deformed and even blow out leading to clogged coils, dirty ducts, reduced IAQ, and greater energy use.

3.28. HVAC systems have unobstructed air supply grilles or outlets and air return grilles or inlets which are free of rigged baffles, deflectors or affixed barriers.	Obstructions on air supply diffusers and return grilles typically occurring in the form of debris or man-made barriers can severely restrict the flow of air through those components and compromise system performance, adversely impacting IAQ within those spaces. All such obstructions should be removed via cleaning or other means. Man-made baffles or barriers affixed to air supply diffusers are often an expression of occupant dissatisfaction toward some aspect of HVAC system operation. Before such fixtures are removed, occupants should be interviewed by a representative of the maintenance staff to determine the exact concern giving rise to their installation. Unit ventilators are often used as auxiliary shelving units by teachers and students in need of additional storage space for books, projects, or equipment. Unfortunately, such use invariably restricts air flow into and out of these units, compromising thermal conditions and IAQ within the controlled zone. Unit ventilator supply and return openings should always remain unobstructed.
3.29. HVAC systems provide adequate ventilation to prevent reasonable health complaints and to remove or dilute contaminants within the capacity of the system.	Adequacy of ventilation can be difficult to evaluate. The Ohio Mechanical Code (OMC) recommends air flow standards, but these standards may be different based on the age of the building. The OMC has adopted and ODH recommends the following ASHRAE guideline be used as a standard for gauging adequacy of ventilation. Indoor CO2 concentrations should not exceed 700 ppm above the outdoor ambient level. Should ventilation not conform to these guidelines, a qualified HVAC professional should more thoroughly assess the situation and develop remediation recommendations.
 3.30. Animal containers or cages are free from excessive accumulation of animal waste.	Animals that live in an unclean environment can become ill and the animal or the animal's environment may produce undesirable odors. Animal waste should be removed on a daily basis to protect the health of the students and staff and the health of the animal.
 3.31. Animal containers or cages are equipped with properly fitting lids and/or doors.	To prevent animals from escaping from their cages/containers and roaming the school building freely, all cages/containers should be equipped with tight fitting lids and/or doors with latches or locks.



3.32. Hand washing facilities are available and immediately used when animals are handled in the classroom.	Certain animals can transmit bacteria to humans through handling. Reptiles, including turtles, lizards, and snakes, can carry germs that make people sick. Of greatest importance is salmonellosis. An estimated 70,000 people get salmonellosis from contact with reptiles in the United States each year. Proper hand washing facilities include warm running water, soap and disposable towels. The CDC has the following recommendations regarding hand washing (CD) when handling reptiles and amphibians: • Wash hands thoroughly with soap and water right after touching or feeding amphibians or reptiles, anything in the area where they live or roam, or water from their housing or habitats. • Adults should supervise hand washing for young children. • If soap and water are not readily available, use a hand sanitizer right away and then wash your hands thoroughly with soap and water as soon as you can.
	Recommendations for preventing transmission of Salmonella from reptiles and amphibians to humans: • Pet-store owners, health-care providers, and veterinarians should provide information to owners and potential purchasers of reptiles and amphibians about the risks for and prevention of salmonellosis from these pets. • Persons at increased risk for infection or serious complications from salmonellosis (e.g., children aged <5 years and immunocompromised persons) should avoid contact with reptiles and amphibians and any items that have been in contact with reptiles and amphibians. • Reptiles and amphibians should be kept out of households that include children aged <5 years or immunocompromised persons. A family expecting a child should remove any pet reptile or amphibian from the home before the infant arrives. • Reptiles and amphibians should not be allowed in childcare centers. • Persons always should wash their hands thoroughly with soap and water after handling reptiles and amphibians of their cages. • Reptiles and amphibians should not be allowed to roam freely throughout a home or living area. • Pet reptiles and amphibians should be kept out of kitchens and other food-preparation areas. Kitchen sinks should not be used to bathe reptiles and amphibians or to wash their dishes, cages, or aquariums. If bathtubs are used for these purposes, they should be cleaned thoroughly and disinfected with bleach. • Reptiles and amphibians in public settings (e.g., zoos and exhibits) should be kept from direct or indirect contact with patrons except in designated animal-contact areas equipped with adequate hand-washing facilities. Food and drink should not be allowed in animal-contact areas.

 3.33. Animals are prohibited from roaming in the school building, except for therapy animals or animals that are used for assistance.	Animals can pass diseases to humans by way of bite, scratch and/or fecal contamination. Examples of diseases that can be transmitted by animals include rabies, ringworm, roundworm, tapeworm and histoplasmosis, among many others. (For a complete list, visit http://www.cdc.gov/healthypets/index.html.) Furthermore, individuals with suppressed immune systems may be more susceptible to contracting a disease from an animal. Biologics associated with animals such as hair and fecal matter can also cause respiratory inflammations and asthma complications in children. Some children are allergic to pet dander (skin flakes of animals), as well as their saliva and urine and these substances can cause sneezing, wheezing and running eyes and nose in those affected.
 3.34. Animals are prohibited from being on surfaces where food or drink is prepared or consumed.	Food and drink should not come in contact with any pet materials or secretions, to avoid cross contamination and human infection. The materials animals secrete, including urine, saliva and feces, can contaminate food and cause the transfer of disease from animal to human. Such diseases include E. coli and salmonellosis, among many others. (For a complete list, visit http://www.cdc.gov/healthypets/index.html.) It is therefore important that pets and pet secretions do not come in contact with areas used to prepare food or drink, to ensure the health and safety of those in the school environment.
 3.35. All animal feed is in tightly sealed in labeled containers and separate from human food.	Tightly sealing and labeling animal food containers can help prevent accidental human ingestion, eliminate odors, discourage consumption by pests, and help maintain food quality.
 3.36. The following types of animals are prohibited from classroom and grounds (i) Nonhuman primates; (ii) Rabies vector species, including raccoons, bats, skunks, coyotes or fox; (iii) Wolves or wolf-dog hybrids; (iv) Aggressive or unpredictable animals; (v) Stray animals with unknown health and vaccination history; (vi) Venomous or toxin-producing spiders, insects, reptiles and amphibians; (vii) Dogs, cats and ferrets under sixteen weeks of age; and (viii) Dogs, cats and ferrets that are not current on rabies vaccinations.	Only animals that present minimal risk to humans should be permitted on school property.

 3.37. In addition to the animals listed above, the following animals are prohibited from classrooms with children under five years of age (i) Ferrets; (ii) Reptiles and amphibians; and (iii) Chicks, ducklings and hatching eggs.	Young children are especially at risk for illness because their immune systems are still developing and because they are more likely than others to put their fingers or other items into their mouths. It is important to wash hands immediately after touching poultry or anything in the area where they live and roam, because the germs on your hands can easily spread to other people or things.
3.38. All plumbing fixtures are in good repair.	Water leaks from plumbing can be costly because of increased water bills and because of increased potential for mold growth and pest infestation. All leaking plumbing fixtures should be repaired immediately and the area affected dried and cleaned. All plumbing should be maintained in good repair.
 3.39. Drinking fountain streams crest a minimum of one inch above the mouth guard of the fountain but not so high as to promote water spillage onto the floor.	The human mouth contains a multitude of microorganisms that can be transmitted to others via the mouth guard on the drinking fountains. The water stream should be from a free jet projected at an angle from the vertical. To prevent students from touching the mouth guard while taking a drink, the water should stream at least one inch above the mouth guard but not so high that the floor beneath the fountain becomes wet.
 3.40. Floor drains, strainers, and grates are clean and in good repair.	All drains should be able to receive all water and waste into the sanitary sewer system. When drains become clogged, they can overflow onto the floor creating an unsanitary environment. When using chemical drain cleaners, follow manufacturer's instructions and prevent student exposure. Add water to plumbing drains that receive little use to avoid dry traps which can allow sewer gas to enter the building.
3.41. Pipe chases are sealed.	Pipe chases must be sealed to eliminate the possibility of pests such as insects and rodents from nesting in these areas. Pipe chases are partially or fully sealed areas surrounding plumbing that run between floors of buildings.

 3.42. Paper products or cardboard boxes are stored away from moist areas and are not in direct contact with the floor or the walls.	Avoid storage of paper and cardboard material on floors or against walls to prevent mold development from unseen moist areas.
 3.43. Hand washing facilities are available in rooms where restroom assistance is provided.	There are students in the school environment who have special needs and require assistance when using the restroom. Specially designated areas where this assistance occurs should be equipped with hand washing facilities to prevent the spread of disease and to promote good hygiene. Hand washing facilities should be equipped with warm running water, soap and disposable hand towels.
 3.44. Diapering facilities are sanitary and in good condition.	There are a multitude of different bacteria that are shed in fecal material that can be transmitted to people and cause illness. All diapering surfaces should be disinfected after each use to prevent and control the spread of disease.
3.45. Elevated diapering facilities are properly equipped to prevent falls.	Any time personal hygiene assistance for an occupant in the school environment occurs on an elevated surface, staff is constantly present to prevent falls.
3.46. If a light ballast is found to be leaking PCBs, it is immediately removed and disposed of, along with any PCB-contaminated materials, at an EPA-approved facility (40 CFR 761.60, 761.61, 761.65, 761.79).	In 1979, the U.S. Environmental Protection Agency (EPA) banned the commercial production of PCBs, citing health and environmental concerns. EPA has found that PCB containing lighting ballasts can be a significant source of PCBs in school air. Health concerns related to PCB exposure include, but are not limited to, cancer, reproductive effects and neurological effects. PCBs are contained within some fluorescent light ballast capacitors and potting compound manufactured prior to 1979. PCB-containing fluorescent light ballasts that are currently in use have either approached or exceeded their designed life span, so they should be properly removed from buildings to prevent indoor air exposure. Sudden rupture of light ballasts may pose health risks to the occupants, and is difficult and costly to remediate. Removal of PCB-containing light fixtures, as part of lighting upgrades or a stand-alone project, is an investment that pays off with long-term benefits to students, school staff, the community, and the environment. Do not attempt to remove PCB-containing lighting ballasts by yourself. PCBs should be removed by personnel wearing protective equipment who should follow proper procedures to minimize the spread of PCBs. For more information, view the EPA “Understanding and Reducing Exposures to PCBs in Schools” at http://www.epa.gov/region10/children/sensiblesteps/webinars/W10PCBs.wmv

3.47. Learning environment is free of excessive noise in the school building so not as to create hearing hazards (OSHA 29 CFR 1910.95(b)(1)) or disrupt classroom instruction.

Recent studies have shown that student performance on standardized tests is inversely correlated with noise levels. As noise increases, performance decreases. We also know that 13 in 100 students demonstrate some level of hearing loss that impacts their ability to hear instruction in the presence of background noise. The most frequent culprits for noise in the school environment are outside noise (traffic or industry) and noise from within the school (instrumental music rooms, industrial arts rooms, or gymnasium).

The Occupational Safety and Health Administration (OSHA) requires worksites that register above 85 decibels institute a hearing loss reduction program. A standard threshold for residential noise and what is usually recommended in the school environment is 70 decibels. However, noise levels above 58 decibels can interfere with voice communications and for some people can affect thought processes.

A number of techniques are used to reduce noise levels in schools and emanating from schools, including:

- Building finishes and construction details designed to minimize noise impacts in sensitive areas such as instrumental music rooms, technology workshops and gymnasiums.
- Timing and arrangement of concurrent classes next to noise producing rooms to minimize noise.
- A noise program within the school to train building occupants about the hazards of noise and how to reduce it.
- A range of solutions to deal with road traffic noise, including acoustically sealing walls closest to the noise source, mechanically ventilating rooms and construction of barriers between the noise source and the affected site.
- Measures to deal with air traffic noise, including orientation of rooms to reduce noise exposure; use of noise-attenuating materials and construction techniques; larger than normal roof overhangs and heavily insulated roofs with acoustically absorbent eaves linings; and soft finishes to the ground immediately adjacent to windows to reduce sound reflection into openings.
- Careful siting of rooms housing noise-producing activities (e.g. instrumental music rooms and workshops) to minimize impacts on other classrooms within the building and on neighbors beyond the school boundaries. This may also include careful location of windows.

3.48. Box and stand fans are properly guarded, clean and equipped with electrical cords that are maintained in good repair. Ceiling fans are clean and in good repair (OSHA 29 CFR 1910.212(a)(5)).	Poorly maintained portable box fans can become hazardous when electrical cords shred and wires become exposed. These exposed wires can prove to be an electrical hazard and can cause electrical fires and shortages. It is also important that fans plugged in to any outlet are placed out of walkways, to prevent tripping and falling over electrical cords. Ensuring that all fan blades are also properly guarded helps prevent injury by exposed fan blades. Proper installation of ceiling fans is crucial to prevent injury by way of a fan falling from its supports. Local professionals should be contacted to undertake this task. These fans, once properly installed, should be maintained and cleaned regularly to prevent malfunction.
 3.49. All electrical cords, including extension cords, are in good condition with no damage or fraying (OSHA 29 CFR 1910.303(b)(1)(iv)).	Power cords should be in good condition. Damaged or frayed cords should be removed from use until they are repaired or replaced. In addition, electrical cords should not traverse aisles or walkways in such a manner as to pose a tripping hazard.
3.50. Use of ungrounded extension cords or use of extension cords for permanent equipment is prohibited (OSHA 29 CFR 1910.304(g)(5)).	For temporary use, only heavy duty, grounded extension cords should be allowed. For more permanent situations portable insulated strips with overload protection must be used. If a cord is damaged it should immediately be removed from use and repaired or replaced. Extension cords should not be used in lieu of permanent wiring.
3.51. Electrical switches and electrical outlets are in good repair (OSHA 29 CFR 1910.303(b)(1)).	Switches and outlets should be covered, functional and allow for grounded cords.

4. Specialty Classrooms Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

 4.1. All doors to the specialty classrooms are locked when the classroom is not occupied.	Equipment and chemicals commonly found in the specialty classroom pose numerous safety hazards to students. Chemicals may also represent an attractive nuisance to students inclined toward their misuse. Student access to any classroom containing specialty equipment or chemicals should be restricted to class periods only; doors should be locked during non-class periods when teachers are not present. Such controls will significantly reduce the likelihood of chemical exposures or injury from intentional misuse or by accident. This section does not supersede the OBC, section 1008.1.8 which requires all egress doors to be readily opened from the egress side without the use of a key or special knowledge or effort.
 4.2. Staff is present while the room is occupied.	The teacher is responsible for ensuring that students are properly supervised in the specialty classroom. Students should not be left unattended, except in an emergency where the potential harm is greater than the perceived risk to students. Even then, risk should be minimized or responsibility transferred to another authorized person if the situation allows.
4.3. If gas is used, classroom gas shutoff valve is clearly labeled, easily accessible in the classroom and immediately operable by staff.	The master gas shutoff valve controls the flow of natural gas to all classroom fixtures. Clearly labeled signs pointing out the valve location and ensuring easy access to this valve will significantly reduce the time it takes students or teachers to access the valve in the event of a fire or other emergency.
 4.4. Consumption of food and drinks by students during classroom instruction or in storage rooms or other areas where chemicals are used or stored is prohibited.	The science classroom commonly contains chemicals that are poisonous if they are ingested. These chemicals may be deposited on virtually any surface in the lab including, but not limited to chemical containers, desks, lab benches, equipment and books. Through hand contact with these surfaces, chemicals on the hands are transferred directly onto the foods and drinks as they are consumed. Food or drinks brought into the lab will significantly increase the likelihood of accidental ingestion and therefore should never be permitted in the science classroom.
 4.5. Aisles are unobstructed.	Trips and falls in this classroom area can result in serious injury. Also, classroom conditions may require rapid evacuation of the room. Therefore, aisles should be maintained free of clutter or debris.

4.6. Elemental mercury or thermometers, barometers or other portable devices containing elemental mercury in the classroom or storage room are prohibited.	Mercury is a naturally occurring element found in the air, water and soil. It exists in several forms: elemental or “metallic mercury,” inorganic mercury compounds and organic mercury compounds. Elemental or metallic mercury is a shiny, silver-white metal and is liquid at room temperature. It is used in thermometers, fluorescent light bulbs and some electrical switches. Short-term or long-term exposures to elemental mercury can lead to serious health problems. Human exposure to elemental mercury occurs primarily from breathing contaminated air. Young children, who often play on the floor where elemental mercury may have been spilled, are particularly at risk. Mercury vapors are readily absorbed into the bloodstream from the lungs, and may damage the central nervous system. This is a major concern for small children as the central nervous system is still developing during the first few years of life. Elemental mercury can also affect a developing fetus. Other health effects related to elemental mercury poisoning include tremors, changes in vision or hearing, insomnia, weakness, difficulty with memory, headache, irritability, shyness and nervousness. Once released into the environment, mercury is very difficult and expensive to clean up. (Photographs here) When dropped, elemental mercury breaks into smaller droplets that can slip through small cracks or become strongly attached to certain materials. At room temperature, exposed elemental mercury can evaporate to become an invisible, odorless, and highly toxic vapor. People can be exposed to elemental mercury vapor when products that contain mercury break and release mercury to the air, particularly in poorly-ventilated spaces. Mercury is a serious concern in schools due to its toxic properties and the difficulty involved in detecting it in the environment. To minimize the amount of mercury at school, you must first identify where it is. Mercury can be found in a number of common science classroom equipment including thermometers and barometers. It may also be found on the chemical storage shelf in its elemental liquid form. School districts may contact the Ohio Environmental Protection Agency 24 hours a day, 365 days a year for technical advice in the event of a mercury spill at 800-282-9378. For cleanup, a commercial contractor should be contacted. For information about cleanup contractors, go to: http://epa.ohio.gov/derr/ersis/er/er.aspx#113462747-program-infoservices. THE HEALTH HAZARD POSED BY ELEMENTAL MERCURY, COMBINED WITH THE READY AVAILABILITY OF SAFER ALTERNATIVES, MAKE THE USE OR STORAGE OF MERCURY ON SCHOOL PROPERTY BOTH UNNECESSARY AND UNDESIRABLE.
4.7. Surfaces are free of excessive dust or sediment build up.	Refer to Section 3.35 – “Dust & Clutter” – Dust and clutter can pose increased risk in specialty classrooms where dust or debris may contain more hazardous contamination than in general classrooms.

4.8. Personal protective equipment is in good repair and available for use when appropriate (OSHA 29 CFR 1910.132(a)). PPE is tested as required by manufacturer or code.	American National Standards Institute approved safety goggles, coded ANSI/ISEA Z87.1, should be provided for each student when there is danger of chemical or projectile hazard. Specially marked, non-vented goggles should be available for contact lens wearers. Sanitizing and/or sterilizing equipment or materials, e.g., ultraviolet cabinets or alcohol swabs should be available and used between classes to clean safety cover goggles. Nonabsorbent, chemical-resistant aprons should be provided for each student during laboratory activities where there is a danger of spillage or spattering of chemicals or hot liquids. Personal protective equipment (PPE) should be used only when other means of control are exhausted, such as substitution of less toxic materials or less hazardous techniques, ventilation or appropriate housekeeping. If PPE is needed it should meet standards set by OSHA. Types of PPE and some general information are provided below. Head Protection: There is always a danger of hair becoming entangled in moving parts. Students with long hair should have their hair tied back, secured or tucked underneath their clothing. Eye and Face Protection: Students' eyes can be exposed to a variety of hazards (i.e., flying objects, splashes of corrosive liquids or molten metal, dust, laser lights or infrared light). Eye protection should be designed to meet the standards for each activity. Hearing Protection: When source control is not effective at lowering noise levels, or when a person in the facility cannot avoid direct exposure to noisy equipment or tools, hearing protection should be used. Many types of personal hearing protection devices are available, ranging from ear plugs to cup-type hearing protectors. Respiratory Protection: The human respiratory system presents the quickest and most direct avenue of entry of hazardous materials, because it is connected with the circulatory system and the need to oxygenate tissue cells. Air may be contaminated with dusts, fumes and sprays. The most important objective is to prevent atmospheric contamination. This should be accomplished by engineering control measures (e.g., enclosure or confinement of operation, general and local ventilation and substitution of less toxic air). When effective engineering controls are not feasible, appropriate masks or respirators should be used. Hand Protection: Statistics indicate injuries to the arms, hands and fingers account for more than a quarter of all disabling mishaps. Many industrial incidents are the result of operating machinery, using tools or handling materials. Gloves supplement good work practices to prevent hand injuries during handling of tools and
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4.8. continued	materials. There are many types of gloves that are suitable for scrapes, cuts, oils, chemical, radiation, heat and flame. Body, Foot and Leg Protection: Students require protection from the hazards of molten metal, sparks, splashing liquids, heat, cutting and impact. Welders need aprons made of fire-resistant fabric or leather. Personal protective footwear can protect feet against injuries, such as those from falling objects, accidental contact with sheet metal and sparks from welding and cutting operations. Although safety shoes may present the ideal protection for feet, this may be impractical in certain situations. Some alternatives that may better fit particular situations could be foot guards, which protect the toes and instep against falling objects or a combination foot and skin guard, which protects both against flying particles and sparks from cutting/welding.
4.9. Hand washing facilities are available in the classroom and are supplied as outlined in Section 7.9-7.12 of this manual. Laboratory sinks may fulfill this requirement, if properly supplies	Hand washing facilities include hot and cold running water, soap or soap dispenser and paper towels.
4.10. All containers of chemicals used in the classroom are properly labeled, with the exception of containers used during an immediate classroom period (OSHA 29 CFR 1910.1200(f)(6)).	The following information should appear on all chemical container labels: 1. Chemical name and/or trade name of the product. 2. Chemical manufacturer or supplier-including address and telephone number. 3. Date received or date placed in the container. 4. Strength/concentration of the chemical. 5. Precautions to be observed and warning properties to note during handling or mixing. 6. Appropriate hazard symbol NFPA rating (see below). 7. Disposal method. NOTE: Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for use by the individual performing the transfer, within a single class period or work day, need NOT be labeled. NOTE: Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for use by the individual performing the transfer, within a single class period or work day, need NOT be labeled.

 4.11. Safety Data Sheets (SDS) are accessible to staff for all classroom chemicals (OSHA 29 CFR 1910.1200(g)(8)).	An SDS should be kept on file and readily accessible to building occupants for all hazardous chemicals used or stored in the lab. SDS should be referenced for proper storage and for appropriate PPE. In addition, quick access to SDS during an emergency will give first responders a clearer understanding of the hazards they may face and improve the quality and effectiveness of their response. Paper copies of SDS should be kept in the chemical storage room and in the principal's office. The following information should appear on all SDS: 1. Chemical name and composition 2. Manufacturer and distributor name and address 3. Chemical and physical properties 4. Health/flammability/chemical reactivity hazard ratings 5. First-aid measures 6. Firefighting measures 7. Accidental release/spill measures 8. Proper handling and storage procedures 9. Exposure limits 10. Toxicological information 11. Personal Protective Equipment 12. Disposal considerations
 4.12. Chemical storage rooms and chemical storage cabinets are inaccessible to students or locked while not in use.	The multiple hazards posed by laboratory chemicals warrant their strict control and limited student access. Such controls will significantly reduce the likelihood of accidental exposures or intentional misuse by students. This section does not supersede the OBC, section 1008.1.8 which requires all egress doors to be readily opened from the egress side without the use of a key or special knowledge or effort.

4.13. A current comprehensive chemical inventory list and disposal log are present and immediately accessible to staff (OSHA 29 CFR 1910.1200(e)(1)(i)).	The chemical inventory list should include the chemical name, quantity and date received of every chemical on site. The chemical inventory should be maintained by either the science teacher or the head of the science department. The disposal log should contain the chemical name, date of disposal, method of disposal, responsible district employee, and receiver for each chemical disposed of. Existing accumulations of outdated, unknown, poorly labeled, improperly stored, degraded, and excessive quantities of hazardous chemicals are present in many schools. These chemicals pose safety and health risks to students and school personnel. Properly identifying and removing these chemicals is a key step in preventing accidents. An important part of responsible chemical management is the creation of an accurate chemical inventory. A chemical inventory identifies the quantities and physical locations of, as well as the potential hazards associated with, all of the chemicals used and stored in a school. Conduct periodic cleanouts by identifying and removing unnecessary hazardous materials and expired chemicals through appropriate recycling and/or disposal methods. Chemical inventories should be conducted prior to cleaning out chemicals from schools. Contact your local state agency, college or university, industry partner, chemical supplier, or someone with technical qualifications to identify potentially dangerous situations (i.e., school staff should not move very old chemicals because of the extreme hazard they may present) and properly handle the chemicals during a chemical cleanout. For more information see US EPA webpage “Chemical Use & Management” which can be found at: http://www.epa.gov/schools/chemicals. A model Chemical Hygiene Plan can be found in Appendix C.
4.14. The school chemical inventory is updated at least annually. Unused, unneeded, and unknown chemicals are identified and disposed of properly.	Existing accumulations of outdated, unknown, poorly labeled, improperly stored, degraded, and excessive quantities of hazardous chemicals are present in many schools. These chemicals pose safety and health risks to students and school personnel. Properly identifying and removing these chemicals is a key step in preventing accidents. An important part of responsible chemical management is the creation of an accurate chemical inventory. A chemical inventory identifies the quantities and physical locations of, as well as the potential hazards associated with, all of the chemicals used and stored in a school. Conduct periodic cleanouts by identifying and removing unnecessary hazardous materials and expired chemicals through appropriate recycling and/or disposal methods. Chemical inventories should be conducted prior to cleaning out chemicals from schools. Contact your local state agency, college or university, industry partner, or chemical supplier, or someone with technical qualifications to identify potentially dangerous situations (i.e., school staff should not move very old chemicals because of the extreme hazard they may present) and properly handle the chemicals during a chemical cleanout. For more information see US EPA webpage Chemical Use & Management which can be found at: http://www.epa.gov/schools/chemicals & http://ehs.unc.edu/manuals/laboratory/12-1.shtml A model Chemical Hygiene Plan can be found in Appendix C.



4.15. Chemicals are stored according to chemically compatible families and are properly labeled (OSHA 29 CFR 1910.1200(h)(3)(iii)).

Perhaps the single most important rule of chemical storage is to segregate incompatible chemicals which, if accidentally mixed, could cause fire, explosion or the generation of toxic gases. Hazardous chemical reactions can occur from improper storage when incompatible materials mix due to:

- Accidental breakage
- Container failure
- Fires, earthquakes and other natural disasters
- Mixing of gases or vapors from poorly closed containers
- Mistakenly storing incompatibles together because of improperly labeled containers

Store each of the following groups of chemicals separately from one another - either in separate locations or in appropriate tubs or secondary containers. Clearly and legibly label each container and storage location to indicate its compatibility group.

Recommended Chemical Storage Pattern: updated 2014

<http://ehs.unc.edu/manuals/laboratory/appendix4a.shtml>

Suggested Shelf Storage Pattern

Compatibility Group	Group Name	Chemical Class
Group A	Inorganic Acids, Inorganic Salts	inorganic acids (except nitric), sulfur, arsenic, halides, sulfates, sulfites, thiosulfates, halogens, phosphorus, phosphates
Group B	Inorganic Bases	hydroxides, oxides, silicates, carbonates
Group C	Organics	alcohols, glycols, amines, amides, hydrocarbons, esters, aldehydes, phenol cresols, organic sulfides, organic acids
Group D	Flammables, Combustibles	ethers, aliphatic solvents, aromatic solvents
Group E	Inorganic Oxidizers	borates, chromates, manganates, permanganates, chlorates, perchlorates, chlorites, hypochlorites, hydrogen peroxides, amides, nitrates, nitrites, azides
Group F	Organic Peroxides and Explosives	peroxides, azides, hydroperoxides
Group G	Reactives	air and water reactives, metals and hydrides
Group H	Cyanides, Sulfides	cyanides, cyanates, sulfides, carbides, nitrides
Group I	Highly Toxics, Carcinogens, Reproductive Toxins	highly toxic compounds, carcinogens, mutagens, teratogens

4.16. Acids and bases are stored in separate, dedicated cabinets.	It is not uncommon to find acids and bases stored in the same cabinet, especially when the storage system employed is mistakenly based on alphabetical categorization. Acids and bases react violently when brought together and should never be stored together. Instead, acids and bases should always be kept in separate, clearly labeled corrosives storage cabinets.
 4.17. Nitric acid is stored separately from all other acids.	Nitric acid, when mixed with acetic acid, can react and may sometimes produce a fire. It is therefore recommended that nitric acid be stored in a secondary container/compartiment within the acid storage cabinet. Some chemical cabinet manufacturers actually sell acid cabinets with just such a secondary containment device.
4.18. All flammable or combustible and corrosive liquids are stored separately, in approved cabinets and properly labeled.	Flammable and combustible liquids should be stored only in certain types of approved containers. Approval for containers is based on specifications developed by organizations such as OSHA, NFPA or ANSI. Containers used by the manufacturers of flammable and combustible liquids generally meet these specifications. Many types of containers are required depending on the quantities and classes of flammable or combustible liquids in use. A safety can is an approved container of not more than five gallons capacity that has a spring closing lid and spout cover. Safety cans are designed to safely relieve internal pressure when exposed to fire conditions. A closed container is one sealed by a lid or other device so that liquid and vapor cannot escape at ordinary temperatures. A flammable liquid storage cabinet is an approved cabinet that has been designed and constructed to protect the contents from external fires. Storage cabinets are usually equipped with vents, which are plugged by the cabinet manufacturer. Although venting is generally not required by local codes, the absence of a vent may prevent the cabinet from protecting its contents. Storage cabinets should also be conspicuously labeled: “FLAMMABLE – KEEP FIRE AWAY” Requirements governing the storage of flammable and combustible liquids may be found in the Code of Federal Regulations Standard 29CFR 1910.106
4.19. Chemicals containers are undamaged.	Chemical containers must be maintained in good condition to prevent leaks of liquid and vapor.

 4.20 Shelves or shelving units for chemical storage are in good repair, adequately supported, and secured to the wall or floor.	The tipping of storage units containing chemicals may result in container breakage and the inadvertent mixing of incompatible chemicals. Such inadvertent mixing may result in fires, explosions, or the generation of corrosive and toxic compounds in the indoor environment. Storage shelving should be capable of supporting the weight of the shelf contents without bowing. The shelving should be attached to the cabinet or anchoring point securely (i.e., no missing clips). In addition, shelving units should be securely attached to the wall or floor to help prevent accidentally tipping the entire shelving unit. The tipping of a shelving unit or the collapse of a shelf of chemicals could result in unintended combinations of volatile chemicals and could cause serious environmental and health problems. Anti-roll lips will help to prevent chemical containers from sliding over the front edge of storage shelves during use.
 4.21. Storage of chemicals in fume hoods, on floors, on lab tables or above user's line of sight is prohibited.	Chemical fume hoods are not designed to prevent contact between incompatible chemicals. As such, the potential for fire, explosion or the generation of toxic compounds is adequate justification for prohibiting chemical storage within hoods. Chemicals stored on the floor may be easily knocked over due to foot traffic. Leaks or spills will be uncontained and flow directly onto the floor posing an unnecessary slipping hazard in addition to the hazards defined above. Chemicals should be stored so the user can see the container to ensure safe container removal from the storage unit without inadvertently knocking other containers over in the process.
 4.22. Storage of food and drinks in refrigerators storing chemicals or specimens is prohibited.	Refer to Section 4.4 as the same potential cross contamination applies.
4.23. There is a chemical management team at the school with direct involvement in or knowledge of chemical management at the school, from the purchase of chemicals to their ultimate disposal.	The management team should consist minimally of representatives of the school administration, maintenance and science faculty.

4.24. Chemical storage rooms may be vented with a mechanical exhaust system. If an exhaust system is present, it operates continuously.	All chemical storage rooms should be equipped with a functioning exhaust fan. This exhaust fan should remain on continuously. It should also be vented directly to the outside at least eight feet above the building roof line and located at least 50 feet away from any outside air intakes. In situations where these guidelines are not met, the school district should be encouraged to contact an industrial hygienist for further evaluation and recommendations.
4.25. Emergency showers and eyewash stations are operational, unobstructed and located within ten seconds of all workstations. Eyewash stations have at least fifteen minutes of continuous water flow with adequate pressure and are capable of flushing both eyes simultaneously (OSHA 29 CFR 1910.151(c)).	Hand pull, forearm or foot-operated face/body sprayers with adequate water pressure, should be strategically placed within approximately 10 seconds of any location in the room. Multiple faucet-type portable eyewash stations should be strategically placed within approximately 10 seconds of any location in the room. Eyewash stations should be forearm or foot-operated for hand-free operation. Proper functioning should be tested by activating the unit to verify adequate flow. School staff should test these devices weekly to ensure proper functioning and to flush the devices with sufficient water to ensure that only clean water is available for eye washing during emergencies. Some portable eyewash stations come “preloaded” with the appropriate amount water in the cartridge or a storage reservoir so no plumbing is needed. In this case, the manufacturer’s recommended water replacement procedures should be followed as well. Eyewash stations should be able to provide at least 15 minutes of uninterrupted water flow. This precludes the use of squeeze bottle eyewash devices. Simply installing emergency equipment is not a sufficient means of assuring safety. Staff and students must be trained in the location of emergency equipment and in its proper use. Emergency equipment must be regularly maintained (including weekly activation of the equipment) to assure that it is in working order and inspected at least annually for compliance with the ANSI / ISEA Z358.1-2009 standard.
 4.26. Documentation that emergency showers and eyewash stations have been tested weekly is available upon inspection (OSHA 29 CFR 1910.151(c)).	To test whether the safety shower is properly functioning, a bucket should be placed directly beneath the shower head, then activated to ensure adequate flow. Showers and eyewash stations should be tagged indicating they have been tested weekly.

 4.27. Squeeze bottle eyewash devices are prohibited.	Personal eyewash equipment does not meet the requirements of plumbed or gravity-feed eye wash equipment as required by ANSI Z358.1-2009 Standard and cannot be used as a substitute. Such devices are ineffective and may actually be dangerous. Squeeze bottle devices only wash one eye at a time and are unable to provide the volume of water necessary to effectively wash the eyes of chemical contaminants. They are also prone to biological contamination should wash solutions become unsterile. Finally, they may also become contaminated from the introduction of other chemicals or body fluids due to horseplay or vandalism.
 4.28. First aid and chemical spill kits are appropriately supplied and immediately accessible to staff.	First aid kits should always be available and accessible to staff in the event of an emergency. Recommended supplies in the first aid kit are assorted bandages, cotton balls, splints, cold pack, tongue blades, face mask or shield, disposable gloves and isopropyl alcohol. This list is not all inclusive. ACID/BASE SPILLS: Containers of diatomaceous earth should be available in the classroom for general chemical spills. Spilled acids are best neutralized with powdered sodium hydrogen carbonate (sodium bicarbonate/baking soda) and bases with vinegar (5 percent acetic acid solution). Diatomaceous earth may be spread to absorb neutralized chemicals, swept and then disposed of properly.
 4.29. Use or storage of dry or powdered pigments or dry or powdered clays is prohibited.	If dry pigments must be used, they should be mixed within a glove box or inside a laboratory-type fume hood.
 4.30. Use or storage of highly toxic pigments, paints, glazes or etchants is prohibited.	The main hazard in standard painting is accidental ingestion of pigments due to eating or drinking with inadvertent hand-to-mouth contact. If methods such as spraying, heating, or sanding are employed, then there is opportunity for inhalation of toxic pigments. The classic example of a toxic inorganic pigment in painting is white lead, or flake white. Lead pigments can cause anemia, gastrointestinal problems, peripheral nerve damage, kidney damage and brain damage in children. Health effects associated with other inorganic pigments include skin ulceration, skin cancer or lung cancer. In addition, the mixing of powdered clay in the classroom, particularly without adequate ventilation, may expose staff and students to large amounts of dust, which may contain silica or other contaminants. Exposure can result in respiratory irritation or more serious health concerns with chronic exposure.

4.31. Use of solvents in elementary classrooms is prohibited unless an AP label from ACMI is present. Solvents used in secondary education classrooms are covered or capped during instructional or activity periods and when not in use and are properly labeled (including markers).

Inhalation of almost any solvent can cause some degree of eye, nose and throat irritation as well as central nervous system depression. Intense exposure can result in serious health consequences including cancer and death. SDSs will identify whether a solvent is highly toxic. Highly toxic solvents include most of the aromatic and chlorinated HCs (toluene, benzene, xylene, styrene, carbon tetrachloride, methylene chloride, ethylene dichloride, and perchloroethylene) as well as solvents such as methyl butyl ketone, hexane, methyl cellosolve, phenol and nitrobenzene. There should be adequate supervision when any solvents are being used. Use only markers with the seal of the Art and Craft Materials Institute:



All organic solvents release vapors into the ambient air in a process known as evaporation. Some solvents inherently produce significantly more vapor than others. Keeping containers covered or capped is an effective means of minimizing the amount of solvent vapor that evaporates into the indoor environment. This, in turn, will minimize the inhalation hazard posed by these substances. When solvents come in contact with the skin, they can dissolve the protective barrier of oils causing burning, irritation and possibly dermatitis. Many solvents form vapors at room temperature and cause irritation of the eyes and respiratory tract. Organic solvents can also be fire and explosion hazards, so should be stored and isolated from sources of heat, sparks, flame and static electricity. It is therefore important that water-based solvents be used in all possible instances, or least-toxic solvents when necessary.

4.32. Aerosol sprays are used under local exhaust systems, while using the appropriate personal protective equipment and under staff supervision.	The use of aerosol sprays results in the production of mist droplets fine enough to enter the lungs through inhalation. This is more hazardous than simply inhaling solvent vapors, since the spray mists are liquid droplets that contain more solvent. These extremely fine particles can remain in the air where they can be inhaled for up to two hours, even though an odor may no longer be detectable. It is best to avoid spraying whenever possible by using other techniques such as dipping or brushing. If spraying is required, it should be done with adequate local exhaust to remove contaminants from the classroom and students should wear a NIOSH approved respirator with organic vapor cartridges and dust and mist filters. Avoid sprays that use organic solvents whenever possible. NOTE: Spraying outdoors is not an acceptable alternative as wind speed may not be sufficient, or in the sufficient direction, to carry contaminants away from the student's face. If done near the building, contaminants may be re-entrained into the building through open windows or outside air intakes.
4.33. Local exhaust systems or fume hoods are in use when hazardous airborne contaminants are generated as part of classroom activities. Local exhaust systems and fume hoods are properly maintained in accordance with manufacturer's instructions and inspected annually (OSHA 29 CFR 1910.134(a)(1)).	An operational chemical fume hood, vented to the outside to at least eight feet above the roof line should be employed where projects are conducted involving the generation of airborne contaminants. The hood(s) should not be within 10 feet of an exit or adjacent to a main aisle. Flow of air should be sufficient to capture contaminants and should flow away from the breathing zone of the student or teacher. If this is not the case, the district should consult a certified industrial hygienist for recommendations. A qualitative assessment of the system may be performed using an air current test plume. Using this method, a visible plume of smoke is released parallel to the face opening of the exhaust device at multiple locations across the face. Visible and even movement of the smoke into the exhaust device across the entire face opening may be interpreted as confirmation of sufficient air flow into the device. Slow or uneven movement of the test smoke into the exhaust device across the entire face opening may be interpreted as a preliminary indication of a system deficiency. Such results signal the need for more thorough evaluation. When metals or their alloys are heated above their melting point, some of the molten metal begins to vaporize. Metal vapors and fumes produced in activities such as soldering, welding, metal casting, jewelry making, kiln firings, and glass blowing, can cause serious acute and chronic health conditions. Students involved in such activities should be closely supervised and local exhaust should be maintained continuously.

4.34. If kilns are in use, ventilation conforms to manufacturer's recommendations and kilns are used under staff supervision (OSHA 29 CFR 1910.134(a)(1)).	Gases produced from kiln firing including chlorine, fluorine, sulfur dioxide, nitrogen dioxide, ozone, carbon dioxide and metal fumes. These gases can cause severe acute or chronic lung problems or more serious health hazards. All kilns, both electric and fuel fired, should be vented directly to the outside by a local exhaust system. General ventilation is usually not sufficient. An overhead canopy is the best choice. Local exhaust fans should be vented directly to the outside at least eight feet ABOVE the building roof line and located at least 50 feet away from any outside air intakes. If this is not the case, the district should consult a certified industrial hygienist for recommendations. NOTE: Due to the high temperatures and exposure hazards, kilns should be kept in a separate room to prevent accidental burn injuries.
4.35. Documentation of all maintenance and inspections of fume hoods and local exhaust systems is readily available upon inspection.	
4.36. Equipment is in general good repair (OSHA 29 CFR 1910.242(b)(2)(iii)).	Damaged or defective tools should be repaired or replaced. Tools should be used only in accordance with the intended purpose.
4.37. Welding shields or screens are present, in good repair and available for use during welding (OSHA 29 CFR 1910.242(b)(2)(iii)).	Screens or shields should be used to protect students from exposure to sparks and the possibility of flash injury to the eyes.

4.38. Guards on blades, belts or other devices are operational, secure and in place when equipment is in use (OSHA 29 CFR 1910.212(a)(3)(iii)).	Cuts and abrasions are among the most common injuries sustained in shop classes. Belts, shafts, coupling, fan blades and the like should be guarded to prevent entanglement or injury.
4.39. Control switches, including emergency shut off switches, are accessible to any person in the classroom (OSHA 29 CFR 1910.303(f)).	Students should be able to reach the power switch for a machine they are using. Should an emergency situation arise or should the student suddenly need to leave the station, they should be able to power off tools or machinery.
4.40. Equipment that poses a tipping hazard is securely anchored (OSHA 29 CFR 1910.212(b)).	Portable machinery, mounted on bases, should be locked or blocked to prevent movement or shift while machinery is in operation. Stationary machinery should be secured to prevent walking, moving, or tripping during operation.
 4.41. All electrical cords, including extension cords, are in good condition and are free of damage or fraying (OSHA 29 CFR 1910.303(b)(1)(iv)).	Power cords for machinery and hand tools should be in good condition. Machinery or tools with damaged or frayed cords should be removed from use until they are repaired or replaced. In addition, electrical cords should not traverse aisles or walkways in such a manner as to pose a tripping hazard.
4.42. Use of ungrounded extension cords or use of extension cords for permanent equipment is prohibited (OSHA 29 CFR 1910.305(g)(1)(iv)).	Industrial arts instructors should provide and allow use of only heavy duty, grounded extension cords for temporary use and portable insulated strips with overload protection for extended situations. If a cord is damaged, it should immediately be removed from use and repaired or replaced. Extension cords should not be used in lieu of permanent wiring.

4.43. Electrical switches and electrical outlets are in good repair (OSHA 29 CFR 1910.303(b)(1)).	Switches and outlets should be covered, functional, and allow for grounded cords.
4.44. Teachers and staff receive chemical management training as mandated under the Occupational Safety and Health Administration's Laboratory Safety Standard (OSHA 29 CFR 1910.1450 (f)(4)).	Proper training of staff and students on the handling of chemicals and products containing chemicals will help prevent accidents, thus reducing exposure to harmful chemicals. Training at various levels should be provided for all school employees and students on basic chemical hygiene, storage and handling procedures, and how to respond in the event of a chemical spill or accident. • Establish a hazardous chemicals management and safety training program that addresses how school employees (and students, as applicable) are to be properly trained to handle certain chemicals and products and how to respond to a chemical spill or release, to understand the hazards of these materials, and to understand the types of liability associated with accidents involving chemical usage in schools. Targeted employees should include school management, custodial and maintenance personnel, and appropriate teaching staff. The training program should include a review of the chemical hygiene plan, hazard communication plan, and approved products listing. Training sessions should be documented in a log for each employee and repeated periodically (e.g., on an annual basis) to serve as a refresher for existing personnel. Training also should be conducted for new hires. • Contact a local health department, environmental management agency, hazardous waste agency, or chemical supplier to provide a training session with school employees that raises their awareness of using less toxic alternatives to certain chemicals, chemical substitutions, green purchasing, and performing small-scale experiments. (Chemical Management Resource Guide for School Administrators, p. 16, http://www.epa.gov/opptintr/pubs/chemmgmt/resourceguide.pdf).
 4.45. Students are instructed in proper chemical management and laboratory safety prior to performing experiments in the classroom.	Students must be made aware of the hazards of chemical use. Those that are absent when the training is presented must receive the training before managing chemicals.

4.46 Green curricula is implemented in the classroom.	See U.S. EPA information: http://www2.epa.gov/children/complete-lessons-1-9-childrens-health-curriculum
4.47. Chemicals and chemical products are chosen using the safest possible ingredients.	See the following sources for information on green cleaning and purchasing: • http://www.epa.gov/schools/chemicals/products.html • http://cleaningforhealthyschools.org/ • http://www.healthyschools.org/documents/CHS_healthyshoppinghealthyschools.pdf

5. Indoor Athletic Facilities Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

5.1. All gym equipment and associated loose furnishings are safe, sanitary and in good repair.	Protrusions or projections on physical education and/or sports training equipment should not be capable of entangling a student's clothing or cutting or puncturing a student's skin. Clothing entanglements can cause death by strangulation. Jewelry (necklaces), jackets and sweatshirts with hoods and/or drawstrings have been involved in such entanglement/strangulation incidents. All physical education and sports training equipment should be in proper working order to prevent injuries to those using the equipment. Exercise mats are designed to give participants a softer surface to perform their sport or exercise and to provide protection from injury when coming into contact with a harder surface (floor, wall). It is imperative that these exercise mats maintain the proper padding and shock absorbency to prevent injury upon impact. Mats that are torn or have holes should be replaced because the exposed padding in the mat can harbor bacteria, viruses and fungi from the body and potentially pose a threat to other users. If the mats can be repaired without the integrity and purpose of the mat being compromised, that is acceptable.
5.2. Cleaning supplies are readily available for use under staff supervision.	Exercise mats and equipment in gymnasiums and training rooms may come into contact with sweat and at times blood. When exercise equipment or mats come in contact with blood, use of the equipment or mat should cease and the equipment or mat disinfected immediately in accordance with the school's blood-borne pathogen policy. (A model BBP policy may be found in Appendix C). To help prevent the transmission of bacteria, viruses, and fungi [including methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)] from one user to the next, these pieces of equipment should be cleaned and disinfected between users and/or after events. More information may be obtained at the following web sites: • http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/eh/school%20environmental%20health/mrsaschoolsfactsheet.ashx • http://www.cdc.gov/mrsa/community/team-hc-providers/index.html

5.3. Appropriate protective matting is provided.

Protective padding in a gymnasium is generally thought to protect basketball players from injury, but protective padding is also useful for other activities, such as rope/wall climbing, gymnastics, wrestling and physical education activities. ASTM specification F 2440-04, section 7.1 states, “Wall padding is normally produced in sections that are assembled prior to use. The padding should be installed such that these sections are fastened securely together to prevent them from becoming separated during use. (Warning-Areas of padding missing coating or covering are considered health hazards).”

Section 8 of the same specification states, “Padding should be used on walls and other facility features in or around the playing area that an athlete might contact during play. The length and width dimensions of the mats should be appropriate to provide protection for that area. Padding is typically installed no more than 4 inches from the floor up to 6 ft.”

The preceding ASTM sections were extracted, with permission, from F2440-04 Standard Specification for Indoor Wall/Feature Padding, copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. A copy of the complete standard may be obtained from ASTM (<http://www.astm.org>).

5.4. All bleachers, folding and telescopic seating and grandstands are inspected at least once annually by a qualified person (ORC 4167.04(a)(1)). Qualified person as used in this paragraph means an individual familiar with the design, installation, operation and maintenance of folding and telescopic bleachers and grandstands. Documentation of annual inspections is available to the sanitarian at the time of the school inspection.	Under Section 1024.1.1 of the OBC (OAC 4101:1), school districts are required to comply with the ICC Standard on Bleachers, Folding and Telescopic Seating and Grandstands (ICC-300) for new and existing temporary and permanent bench bleachers, folding and telescopic seating and grandstands. Note that the inspection items included herein constitute only a portion of the requirements included in ICC-300. Therefore, compliance with this section does not ensure compliance with the entirety of ICC-300. An initial inspection should be conducted to evaluate compliance with the manufacturer's installation and operational instructions including an inspection during the opening and closing of such seating. Inspections should be conducted annually, thereafter. More information may be found at: http://www.ncef.org/rl/athletic_maintenance.cfm
5.5. Indoor aquatic facilities are in compliance with OAC 3701-31.	Chapter 3701-31-31-05.1 contains the administrative rules governing the operation of public swimming pools and spas.
5.6 Indoor pool facilities are well ventilated to control humidity levels.	High humidity can result in uncomfortable conditions, especially for pool facility occupants, as well as condensation in or on the structure, which can lead to rapid deterioration of structural elements and finish materials.

5.7. Hot and cold, or tempered running water are supplied to all faucets and showers that are operational.	There are many types of diseases transmitted through lack of good hygiene. Good hygiene is promoted through supplying hot and cold water to showers and faucets. All showers used by the students and/or staff should be maintained with hot and cold running water. Section 607.1 of the OBC requires, “In occupied structures, hot water should be supplied to all plumbing fixtures and equipment utilized for bathing, washing, culinary purposes, cleansing, laundry, or building maintenance. Tempered water should be delivered from public hand-washing facilities.” Hot water is defined as “Water at a temperature greater than or equal to 110° F.” Tempered water is defined as “Water having a temperature range between 85° F to 110° F.”
5.8. Locker rooms are free of evidence of sustained water condensation, water intrusion, water damage or suspected mold on any surface.	Mold and mildew grow on wet surfaces. Mold may exacerbate allergy or asthma symptoms in sensitive individuals. Whenever mold or mildew is visible on surfaces in locker rooms, the underlying moisture source supporting it should be identified and mitigated and the mold should be removed. An example of mitigating a moisture source is installation and maintenance of exhaust fans to remove water vapor at its source. When paint is properly applied to a surface, it should not peel. High humidity in locker rooms, mostly due to the steam from the showers, may lead to paint failure more rapidly than areas of lower humidity. All peeling paint should be stabilized to prevent further peeling and flaking. For school buildings built before 1978, refer to section 3.18 for more information on paint stabilization due to the possible presence of lead.
5.9. Operational showers used by students have non-slip mats or non-slip surfacing in the vicinity of showers where wet floors may pose a slip hazard.	No-slip surfaces help prevent slip hazards in wet conditions.
5.10. Drain traps servicing floors, sinks, and toilets contain sufficient water to prevent the migration of sewer gas into the indoor environment.	When drains become dry, sewer gases can escape and release odors into the environment. When drains are functioning properly, water acts as a seal in the trap to prevent sewer gas from entering the enclosed space. Drain traps in floors, sinks, and toilets should be checked for the presence of water routinely. If there is a time of year when these areas are not used frequently, water should be poured down the drains to seal the traps.

5.11. Storage in operational showers is prohibited.	Showers and shower areas are generally large open spaces. In schools where the showers are provided, but are not used, shower areas are often used for storage. If the showerheads in these areas are supplied with water, there is a potential for storage items to get wet. If the items become wet, mold can quickly grow and become a problem.
5.12. Non-operational showers used for storage are clean, sanitary and supplied with a non-operable water source and drains that prevent infiltration of sewer gas.	Showers should not be used for storage unless the water has been turned off to the showerheads. In this case, floor drains should also be capped off to prevent sewer gas intrusion. When a decision has been made to change the use of the shower area from showering to storage, a change-of use request should be processed by the local building department and approved prior to the implementation of the change.
5.13. Weightlifting equipment and benches are sanitary and in good repair.	Weight lifting equipment that is poorly maintained could cause injury to the user. Equipment should be evaluated monthly to determine proper working order and any repairs to equipment should be made promptly. Weight benches should be disinfected between uses. Bench covers that become worn or torn should be repaired to prevent contamination of the padding. Bodily fluids will readily absorb into the unprotected padding and possibly transmit microorganisms to other users.
 5.14. Cleaning supplies are readily available for use under staff supervision.	Weight benches should be disinfected between uses in order to prevent transmission of bacteria, fungi, and viruses among athletes, including MRSA. Disinfectant solutions should be used between uses and under supervision, if used by students.
5.15. Therapeutic whirlpools are sanitary, in good repair and the area is equipped with an operable exhaust fan.	Whirlpools that are used for therapeutic purposes under the supervision of a person certified by the State Medical Board are not required to be licensed by the State of Ohio. Generally the person in the school setting certified by the State Medical Board is the athletic trainer. Therapeutic whirlpools are single-use pools used for limited amounts of time, generally no more than 20 minutes. After each use, the whirlpools should be rinsed, cleaned and disinfected. The disinfectant used could be a bleach solution or any other disinfectant approved by the State Medical Board and supplied by the local school district. The water temperature for the whirlpool should not exceed 104°F. The whirlpools should be plugged into a ground fault circuit interrupter (GFCI) outlet. The room in which the whirlpool is being utilized will often be steamy and have a higher humidity level than the other athletic rooms. It is recommended that these areas be equipped with their own operable exhaust fan to remove steam and moisture. Removing steam and moisture in an efficient manner will help prevent mold from growing in these areas.

6. Health Care Area Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

6.1. An accessible health care office is provided.	The office should be located on the ground floor, which is easily accessible by students, families and staff, and is handicap accessible. It is ideal for the office to be located near the main school administrative office but should not be in a high-traffic area in order to maintain privacy/confidentiality and decrease noise levels.
6.2. Heating and ventilation are adequate for health care office space.	It is important to promote infection control and support students with respiratory conditions such as asthma. There should be adequate heating, and air conditioning is highly recommended to help filter allergens in the air. In order to promote infection control, functioning windows are recommended to allow outside air ventilation.
6.3. Adjustable lighting is provided in the health care office.	Within the health office, lighting is important in order to conduct health assessments and screenings as well as when providing treatments. Adjustable lighting is recommended in order to darken the room for vision exams and for students who are resting due to illness.
6.4. A toilet and sink, not used by the general student population, are adjacent to the area.	Facilities which are compliant with the Americans with Disabilities Act (ADA) and have adequate ventilation, a toilet and a sink with hot and cold water should be in the health clinic or immediately adjacent to it. It is critical that ill persons in the school building be able to quickly reach these facilities, where privacy is available and monitoring by the nurse or responsible adult can be provided.
6.5. A computer with internet and access to a scanner/printer is available.	A desk for a computer with access to internet and a printer/scanner should be provided in order to maintain computerized health records and to save medical information electronically.
6.6. A telephone is readily accessible.	A telephone should be easily accessible in all clinics to facilitate communication in the event of an emergency.
6.7 A locked storage cabinet for any health records kept in the clinic is present.	Locked files should be available for student health record storage in order to maintain confidentiality.

6.8. A cot is available that can be cleaned between student uses and is located in an area with direct staff supervision.	Ideally, the cot for resting should be placed in a quiet, private area in the clinic where the ill or injured student can be observed by the nurse or responsible adult. The cot and mattress should be easily cleanable. The mattress cover should be waterproof and disinfected between uses by students. All bedding used on the cot either should be disposable or washed between student uses.
6.9. Locked storage for medications is provided (ORC 3313.713), except when other law allows for the carrying and self-administration of medication by the student.	ORC Section 3313.713 requires that all medications “should be stored in a locked storage place, except that drugs that require refrigeration may be kept in a designated medication refrigerator that is not used for other purposes.” The exception to this requirement is cited in ORC 3313.713, which allows students to carry their own asthma inhalers as long as the defined procedures are followed.
 6.10. The door to health care office is lockable to provide privacy for exams and counseling, and security for clinic supplies.	The health care area should provide a private space that may be locked when necessary so the nurse can discuss specific health issues and concerns with students, staff and parents, as well as perform health assessments and screenings, and provide treatments in order to maintain confidentiality.

6.11. General health care equipment is available	The equipment needed for a school health office depends on the population of the students and the Ohio Department of Health screening requirements. Students with special healthcare needs may require additional equipment that may be written into their IEP or 504 plan. The following is a list of general equipment that is recommended in order to care for students and conduct required screenings: • Audiometer- for hearing screening • Eye occlude- for vision screening • Flashlight/Penlights- for examining mouth/throat • Ishihara Book- for screening color vision • Otoscope-for looking in students ears • Pulse oximetry- for measuring oxygen level • Scale- for accurately measuring weight • Scoliometer- for scoliosis screening (Middle School) • Sharps container- Any time syringes or other sharps are used in the school environment, a properly identified sharps container must be available to safely store used sharps. The contents of the sharps container should be properly disposed of and sealed in designated biohazard containers. (OSHA 29 CFR 1910.1030(d)(4)(iii)(A)) • Snellen chart-for measuring visual acuity • Sphygmomanometer with child, adult and extra-large cuffs; a thigh cuff may be needed at the High School level (Non-mercury)-for blood pressure (BP) measurement • Stadiometer -for accurately measuring height • Random dot E equipment-for stereopsis testing • Stethoscope-for checking BP and assessing heart, lung and bowel sounds • Thermometer, both oral and tympanic temporal (Non-mercury)-for measuring body temperature Other equipment that may be needed for screening includes: • Photo-screener-for vision screening of students unable to have screening done in the traditional manner, such as special needs students and students too young to follow directions • Otoacoustic Emissions screener (Audex)-for hearing screening for students who may not be able to be screened with the traditional audiometer, such as students with special needs or too young to follow direction
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 6.12. A sharps container is present and used when sharps disposal is necessary (i.e., needles, broken glass, etc.) (OSHA 29 CFR 1910.1030(d)(4)(iii)(A)).	Any time syringes or other sharps are used in the school environment, a properly identified sharps container should be available to safely store used sharps. The contents of the sharps container should be properly disposed of and sealed in designated biohazard containers.
 6.13. When thermometer and sphygmomanometers are present they are non-mercury containing.	Mercury-containing thermometers and sphygmomanometers (used for measuring blood pressure) should not be used due to the high potential for exposure to mercury when thermometers and sphygmomanometers are broken. There are alternatives to mercury thermometers and sphygmomanometers that can be used in the school environment. Alcohol based thermometers and aneroid sphygmomanometers may be used because these are mercury free.
6.14. Automated External Defibrillator (AED) and AED alarm cabinet are located in a common area of the building.	Automated External Defibrillator (AED) with alarmed storage cabinet are an essential for school. They should be placed in a common high-traffic area of the building where students gather such as the main entrance area or near the cafeteria or gym area. They ARE NOT to be locked in an office, but like a fire extinguisher, accessible at all times by all people. R.C. § 3313.717 (Effective Date: 08-27-2004) states, “The board of education of each school district and the administrative authority of each chartered nonpublic school may require the placement of an automated external defibrillator in each school under the control of the board or authority. If a board or authority requires the placement of an automated external defibrillator as provided in this section, the board or authority also shall require that a sufficient number of the staff persons assigned to each school under the control of the board or authority successfully complete an appropriate training course in the use of an automated external defibrillator as described in section 3701.85 of the Revised Code. (C) In regard to the use of an automated external defibrillator that is placed in a school as specified in this section, and except in the case of willful or wanton misconduct or when there is no good faith attempt to activate an emergency medical services system in accordance with section 3701.85 of the Revised Code, no person shall be held liable in civil damages for injury, death, or loss to person or property, or held criminally liable, for performing automated external defibrillation in good faith, regardless of whether the person has obtained appropriate training on how to perform automated external defibrillation or successfully completed a course in cardiopulmonary resuscitation.”

6.15. General first aid supplies are available.	First aid supplies should always be available and accessible to staff in the event of an emergency. Supplies should be adequate to meet the needs of the school's population. A list of supplies is included in the Emergency Guidelines for Schools book at http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/chss/school%20nursing/emergencyguidelinesforschools2007.ashx. This list is not all inclusive, nor required, but can be used as a guide. EXPENDABLE SUPPLIES (Recommended): • Eyewash bottles • Current first aid reference document • Cotton-tipped applicators • Alcohol wipes • Assorted bandaids • Telfa Pads Non-adherent—assorted sizes • Gauze pads • Kling wrap • Cloth tape-assorted sizes • Elastic bandages-assorted sizes • Drinking cups • Cotton balls • Splints • Cold packs or ice • Triangular bandages for sling • Tongue blades • Seventy percent Isopropyl alcohol (if indicated for cleaning thermometer) • Safety pins • Soap • Disposable facial tissues • Paper towels • Disposable gloves (latex free) • Pocket mask/face shield for CPR • Emergency tooth preserving system such as Hank's Balanced Salt Solution (HBSS) or 1/3 cup of powdered milk (for mixing with water to make a liquid solution) • Bleach or EPA-approved tuberculocidal solution (or agent that will kill hepatitis B)
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6.16. A refrigerator for medications is available (ORC 3313.713).	A refrigerator for medications and cold packs is essential (ORC 3313.713). Some medications require refrigeration (e.g., Insulin). These refrigerators should have a temperature control and a thermometer to monitor the temperature. Ideally no food should be stored in the same refrigerator as medication but if food needs to be stored in the same refrigerator medication should be kept in a separate sealable container.
6.17. Individual locked drawers in the clinic for diabetic students to access their own individual supplies for diabetes self-management is available.	ORC Section 3313.713 requires that all medications “should be stored in a locked storage place, except that drugs that require refrigeration may be kept in a designated medication refrigerator that is not used for other purposes.” The exception to this requirement is cited in ORC 3313.713, which allows students to carry their own asthma inhalers as long as the defined procedures are followed.
6.18. A refrigerator with an automatic ice-maker is available.	A refrigerator with an icemaker or a separate icemaker is beneficial for ice when providing first aid.
6.19. Additional cots for student populations are available, if needed.	More than one cot is ideal in the case that more than one student may need to lie down at one time. If there is limited space, cots that can be folded and stored are available and might be used.
6.20. Book shelves or book cases are available for reference materials.	It is helpful for health care workers to have reference material at hand. Reference materials recommended for a school health office would include but not be limited to, National Association of School Nurses publications, a mediation reference book, a medical dictionary, school district policy and procedure manuals and other medical materials.
6.21. Bulletin boards and display racks for health education and promotional materials are available.	Bulletin boards and display racks are an effective way to provide health education for students, staff and parents. Also, bulletin boards can be used for posting essential information such a first aid guidelines, exit routes for fire drills, and OSHA information.
6.22. Chairs for the waiting and examining areas are available.	Extra chairs in the health office or in the waiting area should be available to provide adequate seating for all students, staff and parents waiting to be seen in the health office. These chairs should be waterproof so they can be cleaned as needed.

6.23. Sink with gooseneck mixing faucet for mixing hot and cold running water with a mounted soap dispenser and an automated, hands-free, paper towel dispenser is available. Paper towel dispenser is mounted without an electrical outlet below.	Having a sink in the health office, outside of the bathroom facilities can be beneficial, allowing for access to running water in order to be able to wash hands, administer medication and provide first aid at all times. Having hands-free equipment helps prevent the spread of infection.
6.24. Foot controls for sink for hands-free use or sink handles that can be turned on and off with the elbow are present.	Having hands-free equipment helps prevent the spread of infection.
6.25. A water fountain attachment for the faucet (for taking medications) and a flexible sprayer (to direct flow of water at various angles) are present.	A water fountain attachment allows students to drink water without needing cups and can double as an eyewash when an eyewash attachment is not available.
6.26. A washer and dryer are available for use by clinic staff.	A washer and dryer available in the school allows for washing soiled clothing, blankets, towels and other items. Being able to wash soiled clothing helps students to be able to stay in school and helps prevent the spread of illness and infection.

6.27. Shower for flushing of chemical spills and clean-up of body fluids is available for use by clinic staff.	Having a shower facility in a school allows for the ability to clean someone who has been exposed to a chemical spill or an allergenic substance. The ability to clean-up bodily fluids may help prevent a blood borne pathogen or other exposure.
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7. Non-Classroom Areas Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

7.1. Hallways and stairwells are free of stored furniture or other items that may impede egress from the building (OSHA 29 CFR 1910.37(a)(3)).	Students should be able to move through the hallways and stairwells during school hours in a manner that does not impede the flow of traffic. Furniture or other items placed in the hallway or stairwell pose a fire hazard as they may impede the egress of the building by its occupants and/or cause a tripping hazard.
7.2 Stair treads and handrails are secure and in good repair (OSHA 29 CFR 1910.24(f)(1910.23(d)(1)).	Stair treads should allow the user to step securely. Stair treads that are not properly maintained can lead to falling and/or tripping hazards. Improperly maintained stair treads also make thorough cleaning difficult. As a result, dirt and dust can accumulate. Hand rails are used as a safety measure; in the event a person begins to fall, he or she can grab the hand rail and prevent the fall. Hand rails are also used to steady a person while climbing or descending staircases. When hand rails are not secured and in good condition, falls may result.
7.3 Portable banquet tables, cafeteria tables and other portable furniture items, when not in a position intended for use, are stored in a manner that is inaccessible to students or are secured to the wall or floor to prevent injuries from tipping. Heavy furniture items are moved only by authorized personnel. The edge of the stage is clearly marked.	Cafeteria tables that fold up and are mobile should not be stored unsecured around children. There are documented cases where children have been killed or seriously harmed when these tables have fallen on them. A warning label should be affixed to these types of tables to indicate the danger of tip-over when these tables are in the upright position. Mobile tables should be stored secured to the wall in a manner that will prohibit possible tip over or in a storage room that is inaccessible to students. More information on these tables can be found at the following link: http://www.cpsc.gov/PageFiles/122335/5062.pdf or by going to the US Consumer Product Safety Commission at http://www.cpsc.gov/. The edge of the stage should ideally be marked with dimmable lights rather than tape or a lipped edge. Tape is difficult to see in the dark, and lipped edges pose a tripping hazard.

7.4. The cafeteria tables are cleaned and sanitized between each use.	Cleaning tables between uses is an integral part of effective environmental hygiene in the school environment. Studies have shown that cold and flu germs are able to survive on, and be transferred from, many commonly touched surfaces for up to 48 hours. Effective cleaning of any food residue will also contribute to integrated pest management. The cleaning solution used to clean the tables should be approved and provided by the school district.
7.5. Floors are cleaned after spills and after periods when food is served.	Cafeteria floors should be cleaned after lunch periods and other events when food is served. When spills occur, they should be promptly cleaned to prevent slipping and to discourage pests.
7.6. Books and shelves are free of dust, suspected mold or other material (OSHA 29 CFR 1910.22(a)(1)).	Dust is a known allergy and asthma trigger and readily accumulates in nooks and crannies. Therefore, it is important that book shelves in a library are dusted regularly to prevent the buildup of dust on books and shelves. Mold will grow readily on paper. The humidity levels in the library should be kept below 60 percent (ideally between 30 and 50 percent) relative humidity. Relative humidity can be measured with a moisture or humidity meter, a small, inexpensive (\$10-\$50) instrument available at many hardware stores. Routine visual inspection of these surfaces and prompt attention to a problem when discovered should help in preventing issues with mold and dust from occurring. For more information on mold and mold cleanup, please refer to section 3.1.
7.7. Televisions and heavy equipment that may pose a hazard by tipping or falling are securely anchored to a cart, wall or floor and are moved only by authorized personnel.	Carts are commonly employed in schools to hold televisions and computer monitors for better classroom viewing by students. Unfortunately, such assemblies are inherently unstable due to their high centers of gravity. The use of anchoring bolts or straps will prevent the TV or other equipment from falling off of the cart in the event of tipping – potentially injuring nearby students. Note, however, that the addition of such anchors does nothing to lower the inherent instability in the assembly. The addition of weight, in the form of sandbags or other dense material, to the base of the cart (near the wheels) is one way to effectively lower the centers of gravity for such assemblies. However, this will add significantly to the overall weight of the assembly making the unit more difficult to move.
7.8 Free standing or mobile shelving that may pose a tipping hazard is secured and is moved only by authorized personnel (OSHA 29 CFR 1910.176(b)).	The height, depth, and weight distribution of a given bookcase will determine its center of gravity and inherent stability. Because unstable bookcases may fall on nearby students and staff, such units should be physically anchored to prevent tipping.

7.9 All plumbing fixtures are sanitary, operable, properly supplied and in good repair.	To ensure proper sanitation and good hygiene, plumbing fixtures in restrooms need to be working properly. Leaky plumbing can allow mold to grow and attract pests. Fixtures that become broken or inoperable should be fixed immediately to prevent mold growth and pest infestations and to allow for proper hygiene. All drains should be able to receive all water and waste into the sanitary sewer system. When drains become clogged, they can overflow onto the floor creating an unsanitary environment. When using chemical drain cleaners, follow manufacturer's instructions and prevent student exposure. Sinks collect dirt and bacteria from our bodies. Sinks should be kept clean to limit bacterial growth on the surfaces. An all-purpose bathroom cleaner, approved and provided by the school district, should be sufficient to clean all surfaces of the sink including the underside. (Narration doesn't match the checklist item.)
7.10 Sinks supplied by automatic or low-flow fixtures provide a continuous flow of water for at least ten seconds.	Hand washing is the single most important behavior in preventing the spread of infectious disease. Proper hand washing requires lathering for approximately 20 seconds, or longer if necessary. Proper hand washing is essential in preventing the transmission of germs and illness from person to person. Automatic sinks reduce the amount of contact necessary with the sink surface, which also promotes proper hand cleaning.
 7.11. Hand washing sinks are provided with hand cleaning liquid, powder, or bar soap and individual, disposable towels, continuous towel system that supplies the user with a clean towel or a heated-air hand drying device.	Soaps and a sanitary drying method, in addition to water flow, are essential elements for good hygiene and for preventing the spread of infection.
7.12. Hot and cold, or tempered water is available at all sinks.	There are many diseases that are transmitted through lack of good hygiene. In order to encourage people to wash their hands, the temperature of the water should be comfortable. Section 607.1 of the Ohio Plumbing Code requires, "Tempered water shall be supplied through a water temperature limiting device that conforms to ASSE 1070 and shall limit the tempered water to a maximum of 110 degrees F (43 degrees C)." (OAC 4101:3-6-01) "Hot water" is defined as "Water at a temperature greater than or equal to 110 degrees F (43 degrees C)." (OAC 4101:3-2-01)

	7.13. Hand-washing posters are visible from all sinks.	Improper hand washing is a major contributor to the spread of infectious diseases. To remind students and staff to wash their hands and wash them correctly, a hand washing poster should be visible from all sinks designated for hand washing. Two examples of hand washing posters are shown below. Hand washing posters are available for download from the Internet, including the CDC Web site (http://www.cdc.gov/handwashing/posters.html). Hand washing posters should include information about using soap and about how and how long to wash hands. http://www.odh.ohio.gov/features/odhfeatures/seasflu/flufightertools.aspx
	7.14. Toilet tissue is available at each toilet.	Toilet paper should be provided in each toilet stall to promote good hygiene. Toilets and urinals should be kept clean to prevent the spread of disease. An all-purpose bathroom cleaner should be sufficient to clean all surfaces of the toilets and urinals including the underside. Toilets and toilet seats should be constructed of materials that are easily cleanable. Toilets seats should be secured and maintained intact to prevent injury.
	7.15. Floors are clean and dry.	Soiled floors are unsanitary and promote the spread of disease. Staff or students who walk on contaminated floors may spread contamination throughout the building. The floors in the restrooms should be cleaned daily or more frequently, as needed. Restroom floors should also be kept dry to prevent slipping or falling. Any leaky plumbing should be promptly repaired. When the floor becomes wet, proper signage should be placed in that area.
	7.16. Adequate waste receptacles are conveniently located.	A waste receptacle should be kept next to or in close proximity to the hand wash sinks wherever disposable towels are used to dry hands. Covered waste receptacles should be provided in all girls restrooms.
	7.17. Diapering facilities are sanitary and in good condition.	Diapering facilities should be clean and free of debris to prevent the transmission of illness. Ensuring they are also in good repair is essential to preventing unnecessary injury due to falling. Diapering facilities should be regularly inspected to make certain that all equipment is safe and in good repair.
	7.18. Elevated diapering facilities are properly equipped to prevent falls.	Any time personal hygiene assistance for an occupant in the school environment occurs on an elevated surface, proper guarding to prevent falls should be in place.

7.19. Exhaust fans are operable and continually operating while the building is occupied.	Restrooms are the source of various odors. Strong odors can cause health complaints or serve as an asthma trigger for sensitive individuals. Exhaust fans should run continuously throughout the school day to remove contaminants and eliminate odors. Excessive odors could be an indication that the ventilation system in the restrooms is not working properly. Excessive odors may also be an indication of malfunctioning plumbing. All toilets should flush adequately so that all sewage is disposed, all sinks should drain properly and floor drains should not be clogged. To prevent odors from being circulated into the building, the exhaust fans should be vented directly to the outside and should be located away from outside air intakes.
7.20. Floor drains, strainers, and grates are clean.	Water should be poured into infrequently used drains to prevent sewer odors.
7.21. Pipe chases are sealed.	Unsealed pipe chases can provide harborage areas for insects and rodents.
 7.22. Mops and buckets are clean, dry and stored appropriately.	Mops should be positioned to dry when not in use to discourage mold development.
7.23. A mold prevention and remediation plan is established.	Controlling moisture is the key to mold control. Water leaks or other moisture issues should be immediately reported and addressed to prevent mold growth. When remediation is required the underlying cause of water accumulation must be rectified or mold will recur. Remediation should be conducted in a manner that will remove or clean contaminated materials in order to prevent spread of mold to other clean areas. For more information about mold see: http://www.epa.gov/mold/mold_remediation.html
7.24. A flood cleanup plan is established.	In order to minimize damage and return facilities back to normal, plan ahead for the possibility of flooding. Take photos or make a video of the contents of the school for verification purposes. Review insurance policies to make sure it covers flood damage. Store back-up records off-site. And have a communication plan in place for communicating with staff, students and parents. Decide what equipment will be needed for clean-up in the event of a flood and determine where that equipment will be obtained as needed.
7.25. Records are kept to monitor improvements in moisture management.	When following a mold prevention and remediation plan, a school will want to track incidences of mold and moisture complaints at the start of the plan, and as the plan is implemented. In this way it can be demonstrated which preventative measures are most effective.

7.26. Information and updates on mold and moisture management are integrated into newsletters, school announcements, and other outreach material.	By communicating positive results of a mold and moisture management plan to parent organizations and the community schools make a public statement of commitment to the health and safety of children, staff and the community as a whole. When financial savings are documented, fiscal responsibility is demonstrated to stakeholders and further builds supportive relationships for the school. As public awareness of school environmental health increases, schools can reap large public relations benefits if they publicize their program's achievements.
 7.27. The custodial closet is inaccessible to unauthorized individuals.	Many of the chemicals and supplies commonly found in the custodial closet pose fire, safety, and health hazards to students. Such chemicals may also represent an attractive nuisance to students inclined toward their misuse. Access to all custodial closets should be restricted and doors kept locked while not physically occupied by school custodial staff. Such controls will significantly reduce the likelihood of accidental chemical exposures, other accidents, or intentional misuse by students. This section does not supersede the OBC, section 1008.1.8 which requires all egress doors to be readily opened from the egress side without the use of a key or special knowledge or effort.
7.28. SDSs are readily accessible to staff for all hazardous chemicals used or stored in the custodial closet (OSHA 29 CFR 1910.1200(g)(8)).	A Safety Data Sheet (SDS) should be kept on file and readily accessible to building occupants for all hazardous chemicals used or stored in the custodial area. SDS should be referenced for proper storage and for appropriate Personal Protective Equipment. In addition, quick access to SDS during an emergency will give first responders a clearer understanding of the hazards they may face and improve the quality and effectiveness of their response. Paper copies of SDS should be kept in the custodial storage room and in the principal's office. The following information should appear on all SDS: 1. Chemical name and composition 2. Manufacturer and distributor name and address 3. Chemical and physical properties 4. Health/flammability/chemical reactivity hazard ratings 5. First-aid measures 6. Firefighting measures 7. Accidental release/spill measures 8. Proper handling and storage procedures 9. Exposure limits 10. Toxicological information 11. Personal Protective Equipment 12. Disposal considerations For more information see: https://www.osha.gov/dsg/hazcom/index.html

7.29. Chemical product labels and SDS recommendations are read and followed.	Improper use of chemical products can lead to accidents. It is extremely important to read labels and follow the information printed there. This information will provide safety advice which may prevent or minimize adverse effects on the health of building occupants as well as the environment.
7.30. All containers of chemicals are properly labeled (OSHA 29 CFR 1910.1200(F)(6)).	The following information should appear on all chemical container labels: 1. Chemical name and/or trade name of the product. 2. Chemical manufacturer or supplier-including address and telephone number. 3. Date received or date placed in the container. 4. Strength/concentration of the chemical. 5. Precautions to be observed and warning properties to note during handling or mixing. 6. Appropriate hazard symbol NFPA rating (see below). 7. Disposal method.
7.31. Facility and custodial staff are proficient with regard to cleaning practices and policies, as well as procedures for handling a chemical spill.	Facilities maintenance workers use a wide variety of chemical products to perform their jobs. Not all of these chemicals are dangerous, but many are capable of causing injury through inhalation, ingestion and skin contact. In order to avoid costly injuries, facilities staff must be trained in the proper use of these chemicals as well as how to respond to chemical spills. This training should take place annually and prior to working with a chemical or process for the first time. As often as possible, facilities staff should be trained to use least toxic chemicals to protect the health of all building occupants.

7.32. A current inventory of approved cleaning products is maintained. Products that are outdated, unknown, or not needed as stated in school policy are properly disposed of.	Existing accumulations of outdated, unknown, poorly labeled, improperly stored, degraded, and excessive quantities of hazardous chemicals are present in many schools. These chemicals pose safety and health risks to students and school personnel. Properly identifying and removing these chemicals is a key step in preventing accidents. An important part of responsible chemical management is the creation of an accurate chemical inventory. A chemical inventory identifies the quantities and physical locations of, as well as the potential hazards associated with, all of the chemicals used and stored in a school. Conduct periodic cleanouts by identifying and removing unnecessary hazardous materials and expired chemicals through appropriate recycling and/or disposal methods. Chemical inventories should be conducted prior to cleaning out chemicals from schools. Contact your local state agency, college or university, industry partner, chemical supplier, or someone with technical qualifications to identify potentially dangerous situations (i.e., school staff should not move very old chemicals because of the extreme hazard they may present) and properly handle the chemicals during a chemical cleanout. (RR) For more information see US EPA webpage Chemical Use & Management which can be found at: http://www.epa.gov/schools/chemicals. A model Chemical Hygiene Plan can be found in Appendix C.
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7.33. Cleaning products are selected that do not contain fragrances or strong odors that might trigger asthma symptoms.	According to the Coalition for Healthier Schools, “Products used to clean and maintain schools today often contain toxic chemicals. Of the 85,000 synthetic chemicals in commercial use today, only a few have been individually tested for toxicity. Despite this, a wide variety of toxic or hazardous chemicals are routinely used for cleaning homes and offices. Schools are no different, except the majority of school occupants are children. New research on children and their vulnerability to toxic chemicals gives reason to urge preventive measures to protect children. “Proper cleaning will effectively reduce the amount of microorganisms on surfaces. In many cases, disinfectants and sanitizers may not be required. 1. Using a third party certified all-purpose cleaner, microfiber cloths and ordinary friction can remove most germs and is good for most situations. 2. Sanitizing is often sufficient for food prep areas and in childcare diapering areas, etc. 3. Use disinfectants only when required and or in high-risk areas (door knobs); know the law; follow label directions exactly. If sanitizers or disinfectants are needed, avoid those containing active ingredients that are known respiratory sensitizers, such as chlorine bleach (sodium hypochlorite), quaternary ammonium chloride compounds (“quats” or hydrogen chloride, as well as ortho-phenyl phenol, which is a known human carcinogen. Instead, use sanitizers or disinfectants with reduced asthma and cancer risks, such as those that contain hydrogen peroxide, citric or lactic acid or thymol (derived from the herb thyme).” For more information go to www.CleaningforHealthySchools.org.
7.34. Cleaning products are selected with positive environmental attributes (i.e., low or no volatile organic compound (VOC) emissions, no potential carcinogens) recognized by third-party eco-certification programs, including EPA’s Design for the Environment, Green Seal and Ecologo.	Third party certifications, such as Green Seal, EcoLogo, and Design for the Environment, are important because they ensure that independent organizations reviewed the manufacturer’s documentation to ensure that products meet standards that are protective of health and of the environment. Consider asking your vendors to carry third party certified products. For more information, see the following web sites: Design for the Environment: http://www.epa.gov/dfe/ Green Seal: http://www.greenseal.org/ Ecologo: http://industries.ul.com/environment/certificationvalidation-marks/ecologo-product-certification

7.35. When purchasing neutral cleaners, glass cleaners, bathroom cleaners, and disinfectants, consider products that have high dilution rates, are designed to reduce waste, and have lower end-use costs.	According to the Green Purchasing Institute and Green Schools Initiative, “Although ‘green’ cleaners may sometimes appear more expensive than conventional products, they most often cost the same-or less-to use. Many school districts as well as local and state agencies that have switched to environmentally preferable cleaners have saved money by replacing a ready to use’ conventional cleaning product with a highly concentrated ‘green’ cleaner. All institutional cleaning products certified by Green Seal and EcoLogo are concentrates. “The cost savings are even more dramatic when institutions start using automatic dilution equipment, which reduces the unnecessary, expensive and potentially hazardous over-concentration of cleaning products diluted manually. Moreover, many schools that have embarked on a green cleaning program have saved money by reducing the number of cleaning products they need to stock by eliminating unnecessary products. Finally, some school districts have negotiated comparable prices for green cleaners from their vendors or through cooperative purchasing agreements.”
7.36. Facilities and custodial staff are involved in the selection and testing of cleaning products.	Facilities staff may be involved in the evaluation and testing of new cleaning products and methods. In order to do so, develop a pilot project to test one or two products in one area. Train staff in the use of new products and/or methods, then track success. This may take a more subjective form, such as solicited feed-back, or an objective form such as tracking changes in school nurse visits and attendance data.
7.37. Green cleaning concepts and practices are incorporated into school preventive maintenance plan such as: 1) Spray cleaning cloths with product rather than the surface to be cleaned; 2) Use microfiber cleaning cloths and other tools to minimize the amount of cleaning products used; and 3) Purchase products as concentrates and dilute on site.	A “green cleaning plan” is an approach to cleaning which uses safer, less toxic products; it achieves a cleaner and healthier school environment; and it releases fewer harmful and toxic substances into the environment. Healthier products are combined with dirt reducing strategies such as walk off mats, micro-fiber cloths and mats and high filtration vacuums. A tool for developing such a plan may be found at the following web site: http://www.greencleanschools.org

7.38. Teachers and school staff are encouraged to refrain from bringing in cleaning chemicals and products and to use cleaning chemicals and products provided by the school.	Because chemicals can be harmful to both human and environmental health, it's important to reduce how many different chemicals are used. Remind staff that creating a safe and healthy environment takes a commitment from all building occupants. Bringing chemicals from home can potentially interfere with a healthy cleaning plan. Children may have easy access to harmful chemicals and/or some cleaning products may introduce toxins into the environment that negatively affect indoor air quality and can trigger asthma and allergy attacks in sensitive individuals.
7.39. Measures that demonstrate improvement in adopting healthier cleaning and maintenance practices have been developed and are being documented. (i.e., Number of green cleaning products piloted; Number of training workshops held and number of participants; Pounds of toxic chemicals avoided by switching to more environmentally friendly, less toxic cleaning products; money saved; improvements in health or reduction in health complaints)	When new cleaning and maintenance practices and outcomes are documented, the school has a clear measure for evaluating the effectiveness of these practices and products and is able to make permanent changes based on real-time evidence. In addition, results may be communicated to parent organizations and the community and will serve as a statement of commitment to the health and safety of children, staff and the community as a whole. When financial savings are documented, fiscal responsibility is demonstrated to stakeholders and further builds supportive relationships for the school. As public awareness of school environmental health increases, schools can reap large public relations benefits if they publicize their program's achievements.

 7.40. All sinks are equipped with backflow prevention devices or air gaps.	Faucet spouts on custodial sinks are often outfitted with hoses to minimize splashing and facilitate bucket filling. However, such a configuration constitutes a serious water-supply contamination hazard due to the potential siphoning that can occur within the plumbing distribution system. Should the open end of faucet-mounted hoses become immersed in liquid contained in either the sink or a bucket – such contaminant liquids may be inadvertently sucked into the water supply system, posing a water-contamination hazard for the entire system.
7.41. All flammable or combustible liquids are stored in approved flammable storage cabinets. (OSHA 29 CFR 1910.106(e)(2)(iv)(c))	There should be requirements in place to control flammable or combustible liquids in order to protect school attendees, personnel and the environment. These liquids should be stored in accordance with the International Fire Code and the amount of liquids stored should be limited to the amount required for the operation of office equipment, maintenance, demonstration, treatment, or laboratory work. Only U.S. testing agency approved containers and/or tanks should be used to store flammable or combustible liquids.
 7.42. All doors to the mechanical room are locked.	To prevent access to the mechanical room by unauthorized individuals, the door should be equipped with an operable lock. The door to the mechanical room should be kept locked when not occupied by facilities/maintenance staff. Mechanical rooms, by their function, contain machinery and chemicals that pose serious potential hazards to outside students or staff. This section is not meant to be in conflict with the OBC, section 1008.1.8 which requires all egress doors to be readily opened from the egress side without the use of a key or special knowledge or effort.
7.43. Floors are free of slip, trip and fall hazards (OSHA 29 CFR 1910.22).	Mechanical rooms typically house equipment including boilers, condensers, steam traps, etc. that release water in small quantities. This water should drain directly to floor drains which should be inspected frequently to ensure water is draining effectively to the drainage system. Water on the floor could cause a person to slip and fall. In addition to water, oil leaks from machinery or spills during maintenance and repair activities constitute another slip/fall hazard in the mechanical room. It is also important to ensure these rooms remain free from general obstructions (boxes, crates, portable equipment, etc.) to ensure free and safe passage through the space.

7.44. All flammable or combustible liquids are stored in an approved flammable storage cabinet (OSHA 29 CFR 1910.106(e)(2)(iv)(c)). Seek advice from local fire marshal to discuss alternatives, if necessary.	There should be in place requirements to control flammable or combustible liquids in order to protect school attendees, personnel and the environment. These liquids should be stored in accordance with the International Fire Code and the amount of liquids stored should be limited to the amount required for the operation of office equipment, maintenance, demonstration, treatment or laboratory work. Only approved containers and/or tanks should be used to store flammable or combustible liquids.
7.45. Mechanical rooms are free of stored items that inhibit or restrict routine maintenance or cleaning.	Mechanical rooms house the HVAC equipment and other large machinery. Because the HVAC equipment is what moves and circulates the air, it is important that these rooms remain clean so nothing harmful is introduced into the ventilation system. Any item that restricts or inhibits cleaning in these areas should be removed. All storage containers should be able to be easily cleaned and moved when necessary.
 7.46. All food in break rooms is properly stored to limit attraction of pests. Storage of chemicals or specimens in refrigerators in break rooms is prohibited.	Any area where food is prepared should be kept clean in order to prevent disease transmission and to prevent the attraction of pests. Food attracts insects and rodents into the indoor environment. All perishable foods should be stored in sealed containers or in the refrigerator. Non-food items should not be permitted in refrigerators to avoid accidental ingestion.
7.47. All appliances used in a break room are clean and in good repair.	Appliances should be kept clean in order to prevent disease transmission and to prevent the attraction of pests. Refrigerators should be kept clean and contain a thermometer so it is easy to see if it is being maintained at an appropriate temperature to prevent spoilage of food (41 degrees F).

 7.48. Identify if the school has a public water system served by a community water system, a public water system served by its own well, or a private water system (serving less than 25 people).	The majority of schools receive their water from water utilities or water suppliers such as cities, towns and water districts (community). A small number of schools get water from a public water system served by its own water source, and very few have private water systems. Private water systems and public systems served by their own water sources are subject to certain requirements (outlined below), therefore it is important to identify by which type of water system each school is served. “Public Water Supply” is defined in Ohio Administrative Code 3745-81-01 (DDDD) “Private Water Supply” is defined in Ohio Administrative Code 3701-28-01 (PPP) A policy to clarify the definition of a public water system is located at: http://epa.ohio.gov/Portals/28/documents/pws/PWS-01-002.pdf Although the majority of schools receive drinking water from public water supplies, some schools and child care facilities maintain their own water supply and are regulated under the Safe Drinking Water Act (SDWA). http://water.epa.gov/infrastructure/drinkingwater/schools/upload/epa816b13002.pdf http://water.epa.gov/infrastructure/drinkingwater/pws/factoids.cfm
7.49. If a school is a private water system, it: 1) Complies with all private water systems rule requirements; and 2) Notifies students, staff, and parents if the system fails to meet primary drinking water standards, and when compliance is achieved.	Clean drinking water is necessary for good health. Harmful chemicals and micro-organisms in school drinking water can pose a threat to the health of students and staff. Private Water System rules are at Ohio Administrative Code 3701-28. Schools and child care facilities that have their own water supply and are considered non-transient, non-community water systems (NTNCWSs) are subject to the Lead and Copper Rule (LCR) requirements. The LCR was developed to protect public health by minimizing lead and copper levels in drinking water. The most common source of lead and copper in drinking water is corrosion of plumbing materials. Plumbing materials that can be made with lead and copper include pipes, solder, fixtures, and faucets. The LCR established an action level of 0.015 mg/L (15 ppb) for lead and 1.3 mg/L (1300 ppb) for copper based on the 90th percentile level of tap water samples. This means no more than 10 percent of your samples can be above either action level. If lead or copper levels are found above the action levels, it does not signal a violation but can trigger other requirements that include water quality parameter (WQP) monitoring, corrosion control treatment (CCT), source water monitoring/treatment, public education, and lead service line replacement.

7.50. An individual is identified who is responsible for managing the water system.	For both public and private water systems, responsibility for monitoring water systems and quality should be clearly designated to a school staff member. Schools may also wish to contract with an Ohio EPA certified operator or laboratory to take samples and/ or perform testing. For more information and a list of contractors see: http://www.epa.ohio.gov/ddagw/opcert.aspx
7.51. Source water assessments are conducted and any surrounding activities or sources that might have an adverse effect on water quality are identified.	Source water assessments should be conducted for both public and private water systems. For a discussion of source water assessments go to: http://www.epa.state.oh.us/ddagw/swap.aspx
7.52. Annual testing is done for, at a minimum: Total Coliform, E. coli, Nitrates, Arsenic, and Lead.	Schools may wish to contract with an Ohio EPA certified operator or laboratory to take samples and/ or perform testing. Public water systems are required to have both a certified operator and use a certified laboratory. For more information and a list of contractors see: http://www.epa.ohio.gov/ddagw/opcert.aspx
 7.53. Drinking water taps are maintained by routinely cleaning faucet aerators and disinfecting drinking water outlets and water fountains.	Drinking fountains may have aerators at the end of the spout. These aerator screens may collect metal debris or particles detached from lead solder over time, which can contribute to elevated lead levels in drinking water. Regularly remove and clean these by simply rotating the aerator device counterclockwise to detach it from the faucet; remove and clean out the residues collected on the screen, and install it back onto the faucet. Drinking fountains harbor germs and bacteria. These can cause minor illnesses like colds, or they can transmit more serious conditions. School drinking fountains are used by large numbers of people every day. To avoid spreading any type of illness, clean drinking fountains every day. Following manufacturer's instructions for cleaning of drinking fountains will help to maintain a sanitary state.
7.54. Drinking fountains identified on EPA's list of known lead-containing models have been replaced with fountains that do not contain lead.	Specific brands of water fountains contain lead parts or have lead lined water tanks. Since 1988 it has been mandated that water fountains be lead free but older facilities may have outdated models. Replacement outlets or fixtures/faucets must be manufactured with "lead-free" materials (according to NSF/American National Standards Institute (ANSI) Standards 61 and 372. http://www.epa.gov/ogwdw/schools/pdfs/lead/toolkit_leadschools_guide_3ts_leadschools.pdf

7.55. Measures that demonstrate maintenance or improvement in drinking water quality have been developed and are being recorded.	
7.56. Students are involved in drinking water test evaluation. A teacher or facilities manager should ensure testing is completed according to established procedures to obtain meaningful results. This activity can be integrated into science and mathematics courses, as well as senior projects.	Exposure to lead is a significant health concern, especially for young children and infants whose growing bodies absorb more lead than the average adult. Testing water in schools and child care facilities is important because children will likely be drinking water in school. See 7.31-38 above. http://water.epa.gov/drink/info/lead/testing.cfm
7.57. A school might or might not be connected to a public wastewater system. Schools with their own wastewater management system (e.g., septic system) inspect and maintain their own system according to EPA recommended Wastewater Management guidance.	A school may use a septic system as an on-site method of treating and disposing of sanitary wastewater. Septic systems are commonly found in rural and suburban areas where people often rely on ground water for their drinking water. Septic systems that are properly sited, designed, constructed, operated, and maintained pose little threat to drinking water sources. However, poorly designed, maintained, or operated septic systems can contaminate ground water or surface water. It is important that schools inspect and maintain septic systems according to EPA regulations in order to protect underground sources of drinking water and to provide a safe and cost-effective means of disposing of wastewater. More information on properly managed large capacity septic systems may be found at the EPA's web site: http://water.epa.gov/type/groundwater/uic/class5/types_lg_capacity_septic.cfm. It is recommended that schools share inspection results with state or local governing authority.

7.58. Water pipes are inspected for leaks and corrosion.	Leaking water can result in mold development. Corroded pipes may contaminate drinking water.
7.59. School files have been reviewed to assure plumbing surveys have identified areas of high risk for lead sources. If these records do not exist, or if significant plumbing modifications have been made since the last survey, a recent plumbing survey has occurred or is scheduled within the next month.	While the vast majority of public drinking water systems are safe and dependable, drinking water pipes, taps, solder and other plumbing components may contain lead. Lead in plumbing components may leach into water and pose a health risk when consumed. Exposure to lead is a significant health concern, especially for young children and infants whose growing bodies absorb more lead than the average adult. Testing water in schools and child care facilities is important because children will likely be drinking water in school.
7.60. HVAC Systems are free of any suspected mold or other debris on any system component.	Mold or debris on HVAC system components is problematic because of the likelihood of the airborne dispersal of those contaminants and possible inhalation by occupants. Excessive debris on HVAC system components is an indication of inadequate or deferred system maintenance and should be removed by thorough cleaning. The presence of visible mold is also an indicator of a possible moisture problem requiring further investigation. A small amount of dust on duct surfaces is normal. Parts of the duct susceptible to contamination include areas with restricted airflow, duct lining or areas of moisture or condensation. Problems with biological pollutants can be prevented by: • Minimizing dust and dirt buildup (especially during construction or renovation) • Promptly repairing leaks and water damage • Keeping system components dry that should be dry • Cleaning components such as coils and drip pans • Regular filter maintenance • Proper housekeeping in occupied spaces.

7.61. HVAC systems have pleated air filtration media in central air handling units.	Proper air filtration is critical to controlling airborne particulate concentrations in the occupied space. Air filters are particularly effective for removing particulate material from the air stream. Airborne particulate material is a complex mixture that may contain a variety of constituents ranging in size from hair strands to viruses. When considering the effectiveness of various air filtration media, we should be particularly concerned with its ability to remove respirable particulate material. These include particles 10 microns in diameter and smaller. Woven mesh filters are not effective at removing respirable particulate material from the air stream. As such, higher efficiency filters are often recommended as a cost-effective means of improving indoor air quality (IAQ). Ensure all filtration media selected are consistent with the manufacturer's performance specifications for each air handling unit serviced. Air filters having a minimum efficiency reporting value (MERV) of 7 (=25-30 percent dust spot efficiency) will provide a minimum acceptable level of filtration against respirable airborne particulate material without imposing an excessive power burden upon the lower capacity air handling units still in service in older schools across Ohio. NOTE: Air filters should be visually inspected on at least TWO of each type of HVAC system present within a given school building. An authorized representative of the school maintenance staff should be present to actually open HVAC units and remove filters for inspection. To ensure maximum effectiveness, all air filters should fit properly onto the filter support racks within the AHU with no gaps or openings between the rack and the filters or between the unit housing and the filters. In addition, filters should fit snugly against one another with spacers provided to hold them tightly in place. The mere presence of visible particulate deposition or dirt on an air filter is not an effective indicator of filter change frequency. Filters are designed to capture and hold particulate material from the air stream. Depending on the nature and color of the contaminant stream, soiling may appear within only a few days following replacement. Conversely, a predominantly white contaminant stream on a white filter may not appear to be a problem, even though the filter in question is fully loaded. Excessively loaded filters pose the risk of equipment failure by choking air flow sufficiently to freeze cooling coils during the cooling season. All air filters should be replaced on a regular basis, based on pressure drop across the filter (where such instrumentation exists) or on a scheduled basis. Generally, a two- to three-month change interval is warranted for general classroom spaces. Low-efficiency filters [American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Dust Spot rating of 10 percent-20 percent], if loaded to excess, will become deformed and even blow out leading to clogged coils, dirty ducts, reduced IAQ, and greater energy use.
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7.62. HVAC systems provide adequate ventilation to prevent reasonable health complaints and to remove or dilute contaminants within the capacity of the system.	Adequacy of ventilation can be difficult to evaluate. The Ohio Mechanical Code (OMC) recommends air flow standards, but these standards may be different based on the age of the building you are inspecting. ASHRAE Standard 62.1-2013 has been adopted into OMC and ODH recommends it be used as a standard for gauging adequacy of ventilation. Indoor CO2 concentrations should be at or below 700ppm above outdoor ambient levels. Should ventilation not conform to these guidelines, further investigation may be necessary. Start with asking school facilities staff to provide documentation that the current system was installed correctly and is being operated and maintained according to manufacturer's/designer's specifications. If documentation cannot be provided and conditions cannot be resolved to meet guidelines, it should be recommended the school contact a qualified HVAC professional to more thoroughly assess the situation and to develop remediation recommendations.
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7.63. A regular schedule for inspecting and changing filters is established and implemented.

All air filters should be replaced on a regular basis, based on pressure drop across the filter (where such instrumentation exists) or on a scheduled basis. Generally, a 2-3 month change interval is warranted for general classroom spaces.

Proper air filtration is critical to controlling airborne particulate concentrations in the occupied space. Air filters are particularly effective for removing particulate material from the air stream. Airborne particulate material is a complex mixture that may contain a variety of constituents ranging in size from hair strands to viruses. When considering the effectiveness of various air filtration media, we must be particularly concerned with its ability to remove respirable particulate material. These include particles 10 microns in diameter and smaller. Woven mesh filters are not effective at removing respirable particulate material from the air stream. As such, higher efficiency filters are often recommended as a cost-effective means of improving IAQ. Ensure that all filtration media selected is consistent with the manufacturer's performance specifications for each AHU(s) serviced.

NOTE: Air filters should be visually inspected on at least TWO of each type of HVAC system present within a given school building. An authorized representative of the school maintenance staff should be present to actually open HVAC units and remove filters for inspection.

To ensure maximum effectiveness, all air filters should fit properly onto the filter support racks within the AHU with no gaps or openings between the rack and the filters or between the unit housing and the filters. In addition, filters should fit snugly against one another with spacers provided to hold them tightly in place.

The mere presence of visible particulate deposition or "dirt" on an air filter is not an effective indicator of filter change frequency. Filters are designed to capture and hold particulate material from the air stream. Depending on the nature and color of the contaminant stream, soiling may appear within only a few days following replacement. Conversely, a predominantly white contaminant stream on a white filter may not appear to be a problem, even though the filter in question is fully loaded.

Excessively loaded filters pose the risk of equipment failure by "choking" air flow sufficiently to freeze cooling coils during the cooling season.

Low efficiency filters (ASHRAE Dust Spot rating of 10%-20%), if loaded to excess, will become deformed and even "blow out", leading to clogged coils, dirty ducts, reduced IAQ and greater energy use.

 7.64. A regular cleaning schedule for air supply diffusers, return registers, and outside air intakes is established and implemented.	Obstructions on air supply diffusers and return grilles typically occurring in the form of debris or man-made barriers can severely restrict the flow of air through those components and compromise system performance, adversely impacting IAQ within those spaces. All such obstructions should be removed via cleaning or other means – a 2-3 month interval is recommended. Man-made baffles or barriers affixed to air supply diffusers are often an expression of occupant dissatisfaction toward some aspect of HVAC system operation. Before such fixtures are removed, occupants should be interviewed by a representative of the maintenance staff to determine the exact concern giving rise to their installation and attempts to mitigate concerns should be made in order to assure adequate ventilation. Most often complaints arise from misdirected baffles causing drafts. Unit ventilators are often used as auxiliary shelving units by teachers and students in need of additional storage space for books, projects, or equipment. Unfortunately, such use invariably restricts air flow into and out of these units, compromising thermal conditions and IAQ within the controlled zone. Unit ventilator supply and return openings should always remain unobstructed. Outside air intakes must be protected from animal and insect entry via screens and grates. Such screens must be inspected regularly to prevent the accumulation of excessive debris which could severely restrict the flow of outside air to the occupied zones.
 7.65. HVAC system settings fit the actual schedule of building use (including night and weekend use).	Having a balanced HVAC system is crucial for regulating temperature and providing adequate ventilation. With newer HVAC systems, functioning is set and controlled automatically. Mistakes in programming can take place or over time settings can be compromised by time changes, power outages or slippage. Therefore, periodic inspection (every 2-3 months) or when there are frequent complaints of temperature or ventilation problems will assure systems are functioning as intended.
7.66. A HVAC maintenance plan is established and implemented.	For more information, see: http://www.chps.net/content/288/CHPS_IV_2004.pdf Scroll in above document to 134, page 125

7.67. Indoor CO₂ concentrations are at or below 700ppm above outdoor ambient levels (ASHRAE Standard 62.1-2013).	Carbon dioxide (CO₂) is present in outdoor air. It is also a by-product of human breathing. Carbon dioxide by itself is not considered a health issue by any of the regulatory agencies until those levels reach as much as 5,000 ppm. The real issue focuses on the contaminants commonly found in indoor environments. Contaminants such as particles from construction activities or dust, gases (from personal care items or cleaning chemicals) and biologicals caused by molds or bacteria, can all be present in the occupied environment. As CO₂ levels, produced by the occupants of a building space, rise in response to low outside air supplies, so might levels of other contaminants rise, leading to IAQ complaints. Bringing in outside air to dilute CO₂ levels will also help to dilute the other health-affecting contaminants in the space. CO₂ does not cause human health symptoms at levels commonly found in even poorly ventilated school buildings. However, poor ventilation may be frequently associated with headache and fatigue. The amount of outdoor air considered adequate for proper ventilation has varied substantially over time. Because updating building codes often takes several years, the building code, if any, that was in force when your school HVAC system was designed, may well have required a lower amount of ventilation than what is currently considered adequate. In keeping with ANSI/ ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality, ODH recommends that indoor CO₂ concentrations not exceed outdoor levels by more than 700 ppm.
 7.68. Use of ozone generators is prohibited.	Ozone generators that are sold as air cleaners intentionally produce the gas ozone. Often the vendors of ozone generators make statements and distribute material that lead the public to believe that these devices are always safe and effective in controlling indoor air pollution. For almost a century, health professionals have refuted these claims. http://www.epa.gov/iaq/pubs/ozonegen.html

7.69. Lighting is provided within 10% of the proper level of foot-candles, as found in Appendix B of this manual, in all areas of the school building and is equipped with guarding when appropriate.	Adequate lighting levels are essential for a quality educational environment. Every school should have enough light for students to learn and see all areas of the classroom, for teachers to use different media for instruction and for custodial staff to properly clean. The lighting used in a school building should be a combination of natural (indirect) and artificial (direct). “T” type light bulbs have a self-extinguishing feature that shuts off the light within 15 minutes after the outer bulb is broken. “T” type light bulbs may be used in either open fixtures or enclosed fixtures. FDA requires packaging for “T” type light bulbs to include the following statement: “This lamp should self-extinguish within 15 minutes after the outer envelope is broken or punctured. If such damage occurs, TURN OFF AND REMOVE LAMP to avoid possible injury from hazardous shortwave ultraviolet radiation.” “R” type light bulbs are not self-extinguishing. “R” type light bulbs should be installed only in light fixtures that are fully enclosed by a lens or glass or plastic to shield people from the UV radiation, or in areas where people will not be exposed to UV radiation if the outer bulb breaks. FDA requires packaging for “R” type light bulbs to include the following statement: “WARNING: This lamp can cause serious skin burns and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken are commercially available.” Lighting fixtures may need some type of guarding over the bulb to prevent cuts from broken bulbs and ultra-violet (UV) radiation from mercury vapor light bulbs. Mercury vapor lights are commonly used in gymnasiums. The U.S. Food and Drug Administration issued a warning regarding ultraviolet radiation burns from high intensity metal halide and mercury vapor lights in December 2005. Injury from exposure generally occurs to the eyes and skin of exposed individuals. As a result of those injuries, the FDA recommends that schools use “T” type mercury vapor light bulbs or fully enclose the fixtures that contain the “R” type light bulbs that have been found to cause the injuries.
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7.70. Replacement of light ballasts which are known to be manufactured prior to 1979 or unlabeled and known to be manufactured between 1979 and 1998 is prioritized.	Older lighting fixture ballasts may contain Polychlorinated Biphenyls (PCBs). PCBs have been demonstrated to cause a variety of adverse health effects. Care must be taken in removal and disposal of such ballasts to minimize exposure. See the following information for details: http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=50000RBO.txt
7.71 High-efficiency vacuums and filters (e.g., high efficiency particulate air filters-HEPA) are used.	High efficiency particulate air (HEPA) filtration vacuum cleaners are designed to prevent dirt and soil from contaminating surfaces, thus reducing the amount of chemicals required for cleaning. In addition, vacuums without appropriate filters do not capture soils well and frequently stir them into the air where building occupants can inhale the particles, creating a potential health hazard.
7.72. Screens are installed or repaired, if applicable.	If doors and windows are kept in the open position, screens should be installed and maintained in order to prevent entrance of pests.

8. Policies Additional Information



= Indicate items that can be accomplished quickly or easily and are generally low cost

8.1. CHEMICAL HYGIENE PLAN in accordance with 29 CFR 1910.1450 to protect employees and students from health hazards associated with the use of hazardous chemicals.	As defined by the U.S. Occupational Health and Safety Administration (OSHA) in 29 CFR 1910.1450, a Chemical Hygiene Plan is “a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that (i) are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace and (ii) meets the requirements of paragraph (e) of this section.” Paragraph (e) includes: • Protecting employees from health hazards associated with hazardous chemicals in that laboratory • Keeping exposures below specified limits • Ready availability to employees, employee representatives and, upon request, to the Assistant Secretary of OSHA. • Specific measures that the employer will take to ensure laboratory employee protection • Standard operating procedures relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals • Criteria that the employer will use to determine and implement control measures to reduce employee exposure to hazardous chemicals including engineering controls, the use of personal protective equipment and hygiene practices; particular attention shall be given to the selection of control measures for chemicals that are known to be extremely hazardous • A requirement that fume hoods and other protective equipment are functioning properly and specific measures that shall be taken to ensure proper and adequate performance of such equipment • Provisions for employee information and training • The circumstances under which a particular laboratory operation, procedure or activity shall require prior approval from the employer or the employer’s designee before implementation • Provisions for medical consultation and medical examinations https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10107
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8.2. SCHOOL SAFETY PLAN in accordance with ORC 3313.53.6 and that includes providing immediate notification to the appropriate fire department and board of health in the event of any spill or release of a hazardous substance on school grounds 29 CFR(1910.120(a)(1)(v)).	ORC 3313.536 (HB487) requires the board of education of each city, exempted village, and local school district and the governing authority of each chartered nonpublic school to file a comprehensive school safety plan and floor plan for each school building under the board's or governing authority's control. Assign the responsibility of submitting school safety plans to a current staff member. If that staff member does not already has access to the SAFE system, the staff can establish that access by clicking here: https://safe.ode.state.oh.us/portal/. For more information on the SAFE system go to: http://education.ohio.gov/getattachment/Topics/Other-Resources/School-Safety/School-Safety-Online-Submission-How-to-Guide-1.pdf.aspx The law should be read and followed in its entirety at: http://codes.ohio.gov/orc/3313.536v2 Additional Information is available from the Ohio Department of Education at: http://education.ohio.gov/Topics/Other-Resources/School-Safety
8.3 HAZARD COMMUNICATION PLAN in accordance with 29 CFR 1910.1200(a)(1).	The purpose of this section is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The requirements of this section are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets and employee training.
8.4. BLOODBORNE PATHOGENS TRAINING in accordance with 29 CFR (1910.1030(c)(1)).	If any employee could be exposed to blood while conducting regular job duties (i.e., nurses, coaches, etc.), the school should have a blood-borne pathogen policy and an exposure control plan. For further information, schools may contact the Ohio Public Employee Risk Reduction Program at 1-800-750-0750
 8.5. MEDICATION ADMINISTRATION POLICY in accordance with ORC 3313.713.	Section 3313.713 requires schools to have a policy on the administration of prescribed drugs. For further information, schools may contact ODH, School and Adolescent Health Services at 614-466-1930.
8.6. CHOKING POLICY in accordance with ORC 3313.815.	Ohio Revised Code 3313.815, effective 9-6-2002, requires any school that operates a food service program to have at least one employee who has received training on how to prevent choking. An employee that has demonstrated they are able to perform the Heimlich maneuver must be present while students are served food.

8.7. FOOD ALLERGY POLICY in accordance with ORC 3313.719.	Ohio Revised Code Sec. 3313.719: The board of education of each city, local, exempted village, and joint vocational school district and the governing authority of each chartered nonpublic school shall establish a written policy with respect to protecting students with peanut or other food allergies. The policy shall be developed in consultation with parents, school nurses and other school employees, school volunteers, students, and community members. Implemented Oct.16, 2009 http://education.ohio.gov/Topics/Other-Resources/Food-and-Nutrition/Resources-and-Tools-for-Food-and-Nutrition/Food-Allergy-Policy-Requirements-and-Guidance The board of education of each city, local, exempted village, or joint vocational school district may procure epinephrine autoinjectors for each school operated by the district to have on the school premises for use in emergency situations identified under division (C)(5) of this section. A district board that elects to procure epinephrine autoinjectors under this section is encouraged to maintain, at all times, at least two epinephrine injectors at each school operated by the district. If the board elects to procure the autoinjectors see 3313.7110 of the ORC for requirements. http://codes.ohio.gov/orc/3313.7110
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8.8. ASBESTOS MANAGEMENT PLAN in accordance with 40 CFR Part 763 is submitted and available for review or an exclusionary statement is filed with the U.S. Environmental Protection Agency (Chicago Regional Office).	Federal regulations, in effect since 1986, require that public and not-for-profit nonpublic, elementary and secondary schools be inspected to determine the presence of asbestos- containing building materials and that asbestos management plans be developed as a result of those inspections. A model plan may be found at the following web site: http://www2.epa.gov/asbestos/united-states-environmental-protection-agency-model-ahera-asbestos-management-plan-local. A list of requirements may be found at: http://www2.epa.gov/sites/production/files/documents/aherarequirements_1_0.pdf. The Local Education Agency (LEA) must designate a person (designated person) to ensure that the responsibilities of the LEA, as detailed in the regulations, are properly implemented. The LEA must verify that this individual has received proper training. The individual is not required to be a licensed asbestos consultant. There is no specific training course for the designated person; however, the EPA has developed a “Designated Person’s Self-Study Guide” that details the required specific background knowledge the designated person must have. You can find this guide at: http://www2.epa.gov/asbestos/how-manage-asbestos-school-buildings-ahera-designated-persons-self-study-guide. The Asbestos Management Plan (AMP) for schools must include a true and correct statement signed by the designated person certifying that the general responsibilities of the LEA have been or will be met. In the event that the designated person leaves his or her position, the LEA must ensure that a new individual is identified and appropriately trained to serve as the designated person. The newly identified designated person must then sign the aforementioned statement of certification. The designated person must have a basic knowledge of the health effects of asbestos, the detection, identification and assessment of asbestos containing material, options for controlling asbestos-containing material, asbestos management programs, and relevant federal and state regulations concerning asbestos. In addition, records of inspection, which are conducted every three years by a state licensed Asbestos Hazard Evaluation Specialist, must be available for review. An annual notice to parents, teachers, and employee organizations of the plan, planned actions and actions taken must be on file. Once the plan is implemented, periodic surveillance of the building is required every six months, and these records must be on file. If the building contains asbestos material, all custodial and maintenance staff must receive training and documentation of this must be on file. Records of all activities must be available for review.
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8.8. ASBESTOS MANAGEMENT PLAN continued	If there is no evidence of asbestos in a school, the LEA does not need to develop a complete management plan; however there needs to be a Designated Person in place. The LEA also needs to submit an Exclusionary Statement (40 C.F.R. 763.99(7)) signed by an accredited inspector (in Ohio an Asbestos Hazard Evaluation Specialist) that no asbestos-containing building material was specified as a building material and have that document on file at the school building. If the school building is asbestos free, the LEA is not required to conduct three year re-inspections, periodic surveillances, etc. Maintain the original Exclusionary Statement and send a copy to: Phil King Regional Asbestos Coordinator (DT-8J) Waste, Pesticides & Toxics Division U.S. EPA, Region 5 77 W. Jackson Blvd. Chicago, IL 60604 Tel: (312) 353-9062 Fax: (312) 353-4788 e-mail king.phillip@epa.gov An exclusionary statement is also required for abatements or renovations that otherwise render a building asbestos-free. There are currently no statutory or regulatory bans or prohibitions in effect concerning the manufacture and sale of most asbestos-containing products and building materials. An exclusionary statement only exempts the affected school building(s) from inspection and reinspection requirements, not from the other requirements of the federal regulation. For more information go to: http://www2.epa.gov/sites/production/files/documents/abcsfinal.pdf http://www2.epa.gov/sites/production/files/documents/aherarequirements_1_0.pdf http://www2.epa.gov/asbestos/school-buildings#management
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**8.9. NO SMOKING
SIGNS POSTED in
accordance with ORC
3794.**

As a result of the passage of Issue 5 on the Nov. 7, 2006, ballot, Ohio became the 12th state to protect all workers and the public from exposure to secondhand smoke in workplaces and public places, including schools.

In accordance with section 3794.06 of the Revised Code, “No Smoking” signs or the international “No Smoking” symbol (consisting of a pictorial representation of a burning cigarette enclosed in a red circle with a red bar across it) should be conspicuously posted, by either affixing to real property or posting by other means, in every public place and place of employment where smoking is prohibited by Chapter 3794. of the Revised Code, including at each entrance to the public place or place of employment.

All signs are required by section 3794.06 of the Revised Code to contain the telephone number **1-866-559-OHIO (6446)** for reporting violations and may also contain a designee’s telephone number for reporting violations.

Signs should be of sufficient size to be clearly legible to a person of normal vision throughout the areas they are intended to mark.

Signs posted in public places and places of employment should be posted at a height and location easily seen by a person entering the public place or place of employment.

Signs posted in vehicles should be firmly affixed to the vehicle dashboard, or firmly affixed to each passenger door window, or firmly affixed to other areas visible to all passengers.

Signs should be posted at all pedestrian points of transition from areas where smoking is not regulated by Chapter 3794. Of the Revised Code or this chapter to all areas that are regulated.

Nothing in this rule should prohibit public places and places of employment from posting signs in addition to those required to comply with Chapter 3794 of the Revised Code.

8.10. INTEGRATED PEST MANAGEMENT PLAN (IPM). Schools should have a written IPM plan that includes identification of pests and conditions that attract pests; prevention techniques such as sanitation, vacuuming, structural repair and sealing; monitoring; education and training; approved least toxic chemical use only as a last resort; and pre-notification of chemical use. (if policy exists, it must be in accordance with OAC 901:5-11-14)	The goal of the school IPM program is to protect human health by suppressing pests that cause diseases, reduce losses from pest damage, reduce environmental pollution, reduce human exposure to pesticides (particularly that of children) and reduce costs of pest control. In IPM programs, treatments are not made according to a fixed schedule; they are made only when and where monitoring has indicated that the pest will cause unacceptable economic, aesthetic or medical injury or damage. In an IPM program, if treatments are needed, they are selected and timed to be most effective on the pest, least disruptive to its natural control and least hazardous to humans and the environment. An IPM program is built around the following components: monitoring the pest populations and other relevant factors; accurate identification of the pest; determining injury and action levels that trigger treatments; timing treatments to the best advantage; spot treating the pest (to minimize human and other nontarget organism exposure to pesticides); selecting least disruptive tactics; evaluating the effectiveness of treatments to fine-tune future actions; and educating all people involved with the pest problem. There are five treatment options under the IPM plan, which are: 1) education; 2) pest habitat modification (i.e., design or redesign of structures and landscape plantings, improved sanitation, eliminating water sources for pests and eliminating the pest habitat); 3) physical controls (i.e., vacuuming, trapping, erecting barriers, controlling the indoor climate, and removing pests by hand); 4) biological controls; and 5) least-toxic chemical controls.
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**8.11. PESTICIDE
APPLICATION POLICY
in accordance with ORC
921. and OAC 901-5**

The Ohio Pesticide Safety Education Program at the Ohio State University has developed the following information to clarify Ohio regulations regarding pesticide application on school property. This information and more can be found at <http://pested.osu.edu/schools.html>. Ohio has adopted a set of rules for structural pesticide use inside classroom buildings of schools buildings and perimeter treatments. The rules are designed to reduce exposure risk to pesticides for school children and staff. The Ohio Department of Agriculture (ODA) is the enforcement agency. The main components of the regulation are defining the three situations for pesticide applications and establishing a prior notification policy and a school contact person. These rules apply if the pesticide is applied by a licensed school employee or a contracted company. A complete version of the rules can be found in Ohio Administrative Code, or on ODA's website at:

http://www.agri.ohio.gov/apps/odaprs/doc/ipm/901-5-11-15_final.pdf

There are three situations under which pesticide applications are made, based on the time of the application, the type of products used and the proximity of children and school personnel during the application. The situations are:

1. Applications During Off-School Hours

When an application is made after school hours or during a day when school is not scheduled to be in session, there is no posting, restricted entry or product requirements other than those on the label. An application that is made prior to the school day must allow at least a four-hour re-entry period (unless a longer period is specified by the label.)

2. Applications During School Hours with Lower Exposure Potential

Certain pesticide product applications can be applied during school hours with no posting or restricted entry requirements. These types of product applications are:

- Manufactured paste or gel bait
- Paraffin-based rodent control products placed in industry-identified, tamper-resistant bait stations
- Termite-baiting stations
- Rodenticides which are placed in wall voids or other areas that are inaccessible to humans and pets
- Dusts in unoccupied areas of the building
- Disinfectants, sanitizers, germicides and anti-microbial agents

8.11. PESTICIDE APPLICATION POLICY continued	3. Other Applications of Pesticides During School Hours Restricted entry and posting are required for any other pesticide applications than those listed above that are applied during school hours. No children or staff (other than the pesticide applicator or necessary staff) may enter the treatment area during the treatment and for either four hours or the minimum time specified on the product label (whichever is longer). The entrance to the area must be posted with: • A sign that measures at least 8-1/2 by 11 inches • And, the sign must be printed in at least one-inch letters saying, “Pesticide Treatment Area. Do Not Enter Before (date and time where re-entry will be permitted into the treatment area). Prior Notification Policy: The school district must develop a policy to provide prior notification of pesticide applications to anyone who requests it. This includes parents or guardians of minor children, adult students, faculty or staff. The school can determine the method of prior notification, such as e-mail or list-serves. Documentation must be kept to show that requested notifications were made according to the policy developed by the individual school district. Contact Person and Recordkeeping for Notification: A school employee must be designated as a contact person for pesticide applications. The school contact person must maintain the pesticide application information required for notification and the documentation that prior notifications were sent to the persons who requested them. Outside service companies must supply this pesticide application information to the school contact person. The information must be available for inspection during normal school hours. The school must maintain the information for one year. The pesticide application information that must be kept by the school contact person include: • Date and time of the pesticide application • Treatment area • Target pests • Brand name and EPA registration number • Time or conditions for re-entering the treatment area as specified by the label of the pesticide applied, if any is specified.
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8.11. PESTICIDE APPLICATION POLICY continued	Additional Reminders Not in This New Rule: Under existing Ohio Pesticide Law all school employees who make pesticide applications must be a licensed commercial applicator or trained serviceperson working under the direct supervision of a licensed applicator. They must keep complete records of all pesticide applications for three years that include more items than those listed above for the notification policy. Comprehensive IPM plans for schools are optional. However, if schools want to develop an IPM program, the new IPM standards for Ohio must be followed. For the actual language of the new pesticide in school regulation, please refer to Ohio Administrative Code: OAC 901: 5-11-15 on the ODA website at www.agri.ohio.gov
8.12. RADON TESTING. The school has a radon rule or protocol and evidence that the school has been tested for radon within the past five years.	Model Policy - New school buildings should be built radon-resistant using radon resistant construction techniques. Older buildings and those not built radon resistant should be tested for radon every five years. Radon is a naturally occurring gas that enters buildings from the surrounding soil. It is colorless, odorless, tasteless, and radioactive. Elevated levels of radon have been found in homes and schools across Ohio. Increased radon levels increase the risk of lung cancer in humans. Radon is the second-leading cause of lung cancer in the United States, second only to tobacco smoking.
 8.13. HAND WASHING PROTOCOL. Each school has a rule or protocol on hand washing.	Model Policy - Keeping hands clean is one of the simplest and most effective methods for preventing the transmission of common colds, influenza, and food-borne illnesses. Hand washing facilities need to be conveniently accessible to students and staff and their frequent use encouraged by school staff members. The prospect of a major pandemic of flu raises the importance of routine hand washing at school. However, the evidence suggests that good hand hygiene is not routinely practiced in many schools. An appropriate hand washing policy will include: • Commitment to promote hand washing by administration • Methods by which school occupants will be instructed on appropriate technique • Statement on when or in what circumstances building occupants will be encouraged to wash hands • Posting of hand washing posters



**8.14. 100% TOBACCO
FREE POLICY.**

Model Policy - Ninety percent of adult tobacco users start before the age of 19. Because of the addictive nature of tobacco, once adolescents begin tobacco use, it can become a lifelong habit. Every two years the Ohio Youth Tobacco survey documents tobacco use by middle school and high school students. Although there has been a significant decline in tobacco use since the 2000 survey, the 2008, 2010, and 2012 surveys indicate a leveling off. Twenty-six percent of high school students in 2010 reported tobacco use in the past thirty days. Eleven percent and nine percent of middle school students reported use for the same years. Over thirty-three percent of high school seniors reported tobacco use in 2010. Use of other tobacco products may also be increasing as the tobacco industry introduces and markets more smokeless products. Over nineteen percent of high school students reported hookah or water pipe usage. Smoking prevalence of cigars approaches that of cigarettes, and smokeless tobacco use by high school males was nearly ten percent in 2010. (Strategic Plan)

Appendix B-Lighting Levels

Room Type Classification	Direct Lighting Foot-candle Levels (1)	Indirect Lighting Foot-candle Levels (2)
Administrative Areas		
Offices/Receptionist	50	40
Storage Rooms	25	25
Restrooms	25-30	25-30
Conference/Resource Rooms	50	40
Healthcare Area	50	40
Teacher Prep/Work Room	50	40
Classrooms		
Visual Arts Rooms	50	40
Modular Technology Labs	50	40
Computer Aided Design Drafting Labs	30	30
Industrial Arts Rooms	60	60
Computer Labs	40	40
Graphics Labs	50	40
Family and Consumer Science Rooms	50	50
Science Rooms/Labs	50	50
Laundry Rooms	25	25
Music Rooms	50	40
Large Lecture Rooms	50	40
Library	50	40
Auditoriums	20	N/A
Athletic Areas		
Gymnasium-Elementary School	50	N/A
Gymnasium-Middle School	50	N/A
Gymnasium-High School	60	N/A
Multi-use Physical Education Rooms	50	N/A
Locker Rooms	25	25
Walking Areas		
Hallways	20	20
Stairwells	20	20
Maintenance Areas		
Custodial Closets	30	30
Mechanical Rooms	30	30
Notes:		
1. Direct lighting refers to light that is being directed in a downward direction towards the surface it is illuminating.		

2. Indirect Lighting refers to light that is directed in an upward direction or is reflected in some manner towards the surface it is illuminating.
3. Lighting levels should be obtained from pertinent work surfaces that are being used in a manner consistent with those found on this chart.
4. Levels found within 10% of those indicated on this chart are considered to be acceptable.

Bloodborne Pathogens Model Policy

Part 1 Bloodborne Pathogens Standard

The following model for an Exposure Control Plan includes all elements required by the OSHA bloodborne pathogens standard (29 CFR 1910.1030). The intent of this model is to provide employers with an easy-to-use format that may be used as a template to develop a written exposure control plan tailored to the individual requirements of their establishments.

Model Exposure Control Plan

POLICY

[Name of School/ School District] is committed to providing a safe and healthful work environment for our entire staff. In pursuit of this goal, the following exposure control plan (ECP) is provided to eliminate or minimize occupational exposure to bloodborne pathogens in accordance with OSHA standard 29 CFR 1910.1030, “Occupational Exposure to Bloodborne Pathogens.”

The ECP is a key document to assist our organization in implementing and ensuring compliance with the standard, thereby protecting our employees. This ECP includes:

- Determination of employee exposure
- Implementation of various methods of exposure control, including: Universal precautions Engineering and work practice controls Personal protective equipment Housekeeping
- Hepatitis B vaccination
- Post-exposure evaluation and follow-up
- Communication of hazards to employees and training
- Recordkeeping
- Procedures for evaluating circumstances surrounding exposure incidents

Implementation methods for these elements of the standard are discussed in the subsequent pages of this ECP.

PROGRAM ADMINISTRATION

- *[Name of responsible person or department]* is (are) responsible for implementation of the ECP. *[Name of responsible person or department]* will maintain, review, and update the ECP at least annually, and whenever necessary to include new or modified tasks and procedures. Contact location/phone number: _____.

- Those employees who are determined to have occupational exposure to blood or other potentially infectious materials (OPIM) must comply with the procedures and work practices outlined in this ECP.
- *[Name of responsible person or department]* will provide and maintain all necessary personal protective equipment (PPE), engineering controls (e.g., sharps containers), labels, and red bags as required by the standard. *[Name of responsible person or department]* will ensure that adequate supplies of the aforementioned equipment are available in the appropriate sizes. Contact location/phone number: _____.
- *[Name of responsible person or department]* will be responsible for ensuring that all medical actions required by the standard are performed and that appropriate employee health and OSHA records are maintained. Contact location/phone number: _____.
- *[Name of responsible person or department]* will be responsible for training, documentation of training, and making the written ECP available to employees, OSHA, and NIOSH representatives. Contact location/phone number: _____.

EMPLOYEE EXPOSURE DETERMINATION

The following is a list of all job classifications at our establishment in which all employees have occupational exposure:

(Example) Job Title/Department_Location School Nurse/Health Care Area

(use as many lines as necessary)

The following is a list of job classifications in which some employees at our establishment have occupational exposure. Included is a list of tasks and procedures, or groups of closely related tasks and procedures, in which occupational exposure may occur for these individuals:

(Example) Job Title/Department_Location/Task_Procedure Facilities Manager/Environmental Services/Handling Regulated Waste

(use as many lines as necessary)

NOTE: Part-time, temporary, contract and per diem employees are covered by the bloodborne pathogens standard. The ECP should describe how the standard will be met for these employees.

METHODS OF IMPLEMENTATION AND CONTROL

Universal Precautions: All employees will utilize universal precautions.

Exposure Control Plan

Employees covered by the bloodborne pathogens standard receive an explanation of this ECP during their initial training session. It will also be reviewed in their annual refresher training. All employees can review this plan at any time during their work shifts by contacting *[Name of responsible person or department]*. If requested, we will provide an employee with a copy of the ECP free of charge and within 15 days of the request.

[Name of responsible person or department] is responsible for reviewing and updating the ECP annually or more frequently if necessary to reflect any new or modified tasks and procedures that affect occupational exposure and to reflect new or revised employee positions with occupational exposure.

Engineering Controls and Work Practices

Engineering controls and work practice controls will be used to prevent or minimize exposure to bloodborne pathogens. The specific engineering controls and work practice controls used are listed below:

(For example: non-glass capillary tubes, SESIPs, needleless systems)

Sharps disposal containers are inspected and maintained or replaced by *[Name of responsible person or department]* every *[list frequency]* or whenever necessary to prevent overfilling.

This facility identifies the need for changes in engineering controls and work practices through (Examples: Review of OSHA records, employee interviews, committee activities, etc.)

We evaluate new procedures and new products regularly by (Describe the process, literature reviewed, supplier info, products considered) _____.

Both front-line workers and management officials are involved in this process in the following manner:

[Describe employees' involvement]

[Name of responsible person or department] is responsible for ensuring that these recommendations are implemented.

Personal Protective Equipment (PPE) is provided to our employees at no cost to them. Training in the use of the appropriate PPE for specific tasks or procedures is provided by *[Name of responsible person or department]*.

The types of PPE available to employees are as follows:

(gloves, eye protection, etc.)_____

PPE is located *[List location]* and may be obtained through *[Name of responsible person or department]*. *[Specify how employees will obtain PPE and who is responsible for ensuring that PPE is available.]*

All employees using PPE must observe the following precautions:

- Wash hands immediately or as soon as feasible after removing gloves or other PPE.
- Remove PPE after it becomes contaminated and before leaving the work area.
- Used PPE may be disposed of in *[List appropriate containers for storage, laundering, decontamination, or disposal.]*
- Wear appropriate gloves when it is reasonably anticipated that there may be hand contact with blood or OPIM, and when handling or touching contaminated items or surfaces; replace gloves if torn, punctured or contaminated, or if their ability to function as a barrier is compromised.
- Utility gloves may be decontaminated for reuse if their integrity is not compromised; discard utility gloves if they show signs of cracking, peeling, tearing, puncturing, or deterioration.
- Never wash or decontaminate disposable gloves for reuse.
- Wear appropriate face and eye protection when splashes, sprays, spatters, or droplets of blood or OPIM pose a hazard to the eye, nose, or mouth.
- Remove immediately or as soon as feasible any garment contaminated by blood or OPIM, in such a way as to avoid contact with the outer surface.

The procedure for handling used PPE is as follows:

(may refer to specific procedure by title or number and last date of review; include how and where to decontaminate face shields, eye protection, resuscitation equipment)

Housekeeping Regulated waste is placed in containers which are closable, constructed to contain all contents and prevent leakage, appropriately labeled or color-coded (see the following section “Labels”), and closed prior to removal to prevent spillage or protrusion of contents during handling.

The procedure for handling sharps disposal containers is: (may refer to specific procedure by title or number and last date of review)

The procedure for handling other regulated waste is: (may refer to specific procedure by title or number and last date of review)

Contaminated sharps are discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leak proof on sides and bottoms, and appropriately labeled or color-coded. Sharps disposal containers are available at (must be easily accessible and as close as feasible to the immediate area where sharps are used).

Bins and pails (e.g., wash or emesis basins) are cleaned and decontaminated as soon as feasible after visible contamination.

Broken glassware that may be contaminated is only picked up using mechanical means, such as a brush and dustpan.

Laundry The following contaminated articles will be laundered by this company:

Laundering will be performed by *[Name of responsible person or department]* at *[time and/or location]*.

The following laundering requirements must be met:

- handle contaminated laundry as little as possible, with minimal agitation
- place wet contaminated laundry in leak-proof, labeled or color-coded containers before transport. Use *[specify either red bags or bags marked with the biohazard symbol]* for this purpose.
- wear the following PPE when handling and/or sorting contaminated laundry: *[List appropriate PPE]*.

Labels The following labeling methods are used in this facility:

Equipment to be Labeled:

(ex. specimens, contaminated laundry, etc.)

Label Type: (size, color)

(ex. red bag, biohazard label)

[Name of responsible person or department] is responsible for ensuring that warning labels are affixed or red bags are used as required if regulated waste or contaminated equipment is brought into the facility. Employees are to notify *[Name of responsible person or department]* if they discover regulated waste containers, refrigerators containing blood or OPIM, contaminated equipment, etc., without proper labels.

HEPATITIS B VACCINATION

[Name of responsible person or department] will provide training to employees on hepatitis B vaccinations, addressing safety, benefits, efficacy, methods of administration, and availability.

The hepatitis B vaccination series is available at no cost after initial employee training and within 10 days of initial assignment to all employees identified in the exposure determination section of this plan.

Vaccination is encouraged unless:

- 1) documentation exists that the employee has previously received the series;
- 2) antibody testing reveals that the employee is immune; or
- 3) medical evaluation shows that vaccination is contraindicated.

However, if an employee declines the vaccination, the employee must sign a declination form.

Employees who decline may request and obtain the vaccination at a later date at no cost.

Documentation of refusal of the vaccination is kept at *[List location]*.

Vaccination will be provided by *[List health care professional responsible for this part of the plan]* at *[location]*.

Following the medical evaluation, a copy of the health care professional's written opinion will be obtained and provided to the employee within 15 days of the completion of the evaluation. It will be limited to whether the employee requires the hepatitis vaccine and whether the vaccine was administered.

POST-EXPOSURE EVALUATION AND FOLLOW-UP

Should an exposure incident occur, contact *[Name of responsible person]* at the following number

_____ .

An immediately available confidential medical evaluation and follow-up will be conducted by *[name of licensed health care professional]*. Following initial first aid (clean the wound, flush eyes or other mucous membrane, etc.), the following activities will be performed:

- Document the routes of exposure and how the exposure occurred.
- Identify and document the source individual (unless the employer can establish that identification is infeasible or prohibited by state or local law).
- Obtain consent and make arrangements to have the source individual tested as soon as possible to determine HIV, HCV, and HBV infectivity; document that the source individual's test results were conveyed to the employee's health care provider.
- If the source individual is already known to be HIV, HCV and/or HBV positive, new testing need not be performed.
- Assure that the exposed employee is provided with the source individual's test results and with information about applicable disclosure laws and regulations concerning the identity and infectious status of the source individual (e.g., laws protecting confidentiality).
- After obtaining consent, collect exposed employee's blood as soon as feasible after exposure incident, and test blood for HBV and HIV serological status
- If the employee does not give consent for HIV serological testing during collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days; if the exposed employee elects to have the baseline sample tested during this waiting period, perform testing as soon as feasible.

ADMINISTRATION OF POST-EXPOSURE EVALUATION AND FOLLOW-UP

[Name of responsible person or department] ensures that health care professional(s) responsible for employee's hepatitis B vaccination and post-exposure evaluation and follow-up are given a copy of OSHA's bloodborne pathogens standard.

[Name of responsible person or department] ensures that the health care professional evaluating an employee after an exposure incident receives the following:

- a description of the employee's job duties relevant to the exposure incident
- route(s) of exposure
- circumstances of exposure
- if possible, results of the source individual's blood test
- relevant employee medical records, including vaccination status

[Name of responsible person or department] provides the employee with a copy of the evaluating health care professional's written opinion within 15 days after completion of the evaluation.

PROCEDURES FOR EVALUATING THE CIRCUMSTANCES SURROUNDING AN EXPOSURE INCIDENT

[Name of responsible person or department] will review the circumstances of all exposure incidents to determine:

- engineering controls in use at the time
- work practices followed
- a description of the device being used (including type and brand)
- protective equipment or clothing that was used at the time of the exposure incident (gloves, eye shields, etc.)
- location of the incident (O.R., E.R., patient room, etc.)
- procedure being performed when the incident occurred
- employee's training

[Name of Responsible Person] will record all percutaneous injuries from contaminated sharps in a Sharps Injury Log.

If revisions to this ECP are necessary *[Responsible person or department]* will ensure that appropriate changes are made. (Changes may include an evaluation of safer devices, adding employees to the exposure determination list, etc.)

EMPLOYEE TRAINING

All employees who have occupational exposure to bloodborne pathogens receive initial and annual training conducted by *[Name of responsible person or department]*. *[Attach a brief description of their qualifications.]*

All employees who have occupational exposure to bloodborne pathogens receive training on the epidemiology, symptoms, and transmission of bloodborne pathogen diseases. In addition, the training program covers, at a minimum, the following elements:

- a copy and explanation of the OSHA bloodborne pathogen standard
- an explanation of our ECP and how to obtain a copy
- an explanation of methods to recognize tasks and other activities that may involve exposure to blood and OPIM, including what constitutes an exposure incident
- an explanation of the use and limitations of engineering controls, work practices, and PPE
- an explanation of the types, uses, location, removal, handling, decontamination, and disposal of PPE
- an explanation of the basis for PPE selection
- information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine will be offered free of charge
- information on the appropriate actions to take and persons to contact in an emergency involving blood or OPIM
- an explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available
- information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident
- an explanation of the signs and labels and/or color coding required by the standard and used at this facility
- an opportunity for interactive questions and answers with the person conducting the training session. Training materials for this facility are available at *[name location]*.

RECORDKEEPING

Training Records: Training records are completed for each employee upon completion of training. These documents will be kept for at least three years at *[Location of records]*. The training records include:

- the dates of the training sessions
- the contents or a summary of the training sessions
- the names and qualifications of persons conducting the training
- the names and job titles of all persons attending the training sessions

Employee training records are provided upon request to the employee or the employee's authorized representative within 15 working days. Such requests should be addressed to *[Name of responsible person or department]*.

Medical Records

Medical records are maintained for each employee with occupational exposure in accordance with 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records."

[Name of responsible person or department] is responsible for maintenance of the required medical records. These confidential records are kept in *[List location]* for at least the duration of employment plus 30 years.

Employee medical records are provided upon request of the employee or to anyone having written consent of the employee within 15 working days. Such requests should be sent to *[Name of responsible person or department and address]*.

OSHA Recordkeeping

An exposure incident is evaluated to determine if the case meets OSHA's Recordkeeping Requirements (29 CFR 1904). This determination and the recording activities are done by *[Name of responsible person or department]*.

Sharps Injury Log In addition to the 1904 Recordkeeping Requirements, all percutaneous injuries from contaminated sharps are also recorded in a Sharps Injury Log. All incidences must include at least:

- date of the injury
- type and brand of the device involved (syringe, suture needle)

- department or work area where the incident occurred
- explanation of how the incident occurred.

This log is reviewed as part of the annual program evaluation and maintained for at least five years following the end of the calendar year covered. If a copy is requested by anyone, it must have any personal identifiers removed from the report.

HEPATITIS B VACCINE DECLINATION (MANDATORY)

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (*HBV*) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Signed: (*Employee Name*) _____

Date: _____

Model Chemical Hygiene Plan

[School District]

Chemical Hygiene Plan

Sample chemical hygiene plan created by the Ohio Bureau of Workers' Compensation, 2009.

Purpose

[School District] is committed to managing chemical safety in an effort to maintain a safe environment for all employees and students. This Chemical Hygiene Plan sets forth operating procedures and work policies designed to control chemical hazards.

Scope

To protect employees and students from health hazards associated with the use of hazardous chemicals. We will accomplish this through the following:

- identifying hazardous chemicals;
- developing an outline of responsibilities in the district;
- developing safe procedures;
- discussing procedures for procurement, distribution, and storage of chemicals;
- implementing a plan for monitoring safety equipment and storage areas;
- developing a written plan to address accidents involving chemicals;
- establishing a chemical hazard training program; and
- developing a chemical waste disposal program.
- This plan will be located in the following areas:
 - Principal's Office
 - Media Center
 - Central Office
 - *[School District]* Webpage

This plan will be reviewed annually by the Chemical Hygiene Officer and updated as necessary.

Chemicals

A school data base for all chemicals will be maintained at each school using the *[Insert type of data base or*

system] safety system.

Responsibilities

In order to properly manage the chemicals in our school, we will establish a Chemical Hygiene Officer (CHO). The CHO will have authority to make needed decisions regarding this plan in order for it to remain effective and relevant.

The Chemical Hygiene Officer selected for *[School District]* is *[Name/Title of CHO]*.

Chemical Hygiene Officer

Duties will include:

- Being familiar with all aspects of the Chemical Hygiene Plan.
- Being a contact person for distributing information involving chemical safety.
- Being a resource on matters involving the use of chemicals.
- Advising school Principals of any chemicals that pose risks to health or safety.
- Maintaining copies of chemical inventories.
- Coordinate pickup and disposal of unwanted chemicals from the schools annually.

Principal

The Principal of the school is responsible for enforcement of all federal, state, and local health, safety and environmental regulations and policies including the Chemical Hygiene Plan.

School Chemical Hygiene Officer

The School Chemical Hygiene Officer is selected by the building Principal. Their responsibilities include:

- Providing copies of the MSDS sheets for all chemicals in the building.
- Monitoring chemical handling and storage procedures
- Coordinate with district CHO for disposal of unwanted chemicals.

School District Employees

School district employees who are responsible for:

- Participating in training programs provided by the school district.
- Maintaining an awareness of health and safety procedures
- Awareness of location and use of MSDS.

- Using and modeling good personal chemical hygiene habits.
- Reporting accidents, injuries, unsafe practices, and unsafe conditions.
- Providing safety training for all students participating in school laboratories.
- Consulting the CHO prior to bringing any chemical on site.

Students

Students should adhere to safety procedures and good chemical hygiene habits. They should report accidents and maintain an awareness of health and safety procedures.

Safe Operating Procedures

A. Safety Practices

- MSDS (Material Safety Data Sheets) will be maintained and readily accessible to all occupants.
- The School Chemical Hygiene Officer will ensure that all chemicals have an MSDS and proper labeling.
- Appropriate personal protective equipment must be worn to avoid contact with chemicals.
- Chemical splash goggles must be worn any time chemicals, glassware or open flame are used in the laboratory.
- Ensuring that each lab is equipped with appropriate ventilation.

B. Safety Rules

General Laboratory Rules and Procedures

- The school Principal will be contacted when any accident occurs.
- Emergency telephone numbers shall be posted in the chemical storage area.
- Discarding chipped, etched or cracked glassware.
- Teach everyone how to use the eyewash station and shower.
- An accident report shall be completed by the end of the work day.
- Fire extinguishers are accessible and the appropriate type.
- Employees and students shall be knowledgeable of primary and secondary evacuation routes.
- Drinking from lab glassware or other lab vessels is prohibited.
- Eating or drinking is not allowed in the laboratory.

- Cosmetics shall not be applied in laboratories.
- All unlabeled chemicals are prohibited.
- Know the hazards and precautions before using any chemical.
- Follow proper disposal procedures of all chemicals.
- Provide emergency eye wash and showers in labs where needed. Eye wash and showers shall be tested monthly.
- All exits, emergency equipment, and master utility controls shall remain clear and unobstructed.
- When hazardous airborne contaminants are generated, fume hoods shall be in use. Fume hoods shall be inspected monthly.
- No chemicals shall be stored in the fume hood.

Chemical Procurement, Distribution, Storage Guidelines

- The district will identify all “approved” chemicals allowed to be purchased, stored, and used on school premises.
- Employees shall consult the CHO prior to bringing any chemical on site that is not on the “approved” list.
- All chemicals shall be properly labeled at all times.
- The district will ensure proper chemical storage by using the *[Name of system]* system for all storerooms/cabinets.
- All chemicals shall be kept under lock and key. All laboratories shall be locked when not in use.
- Chemicals shall be checked out and used only by trained and authorized employees.
- An inventory of all chemicals shall be conducted annually and all unwanted chemicals shall be gathered for disposal. Chemical containers shall be inspected during the annual inspection for container integrity and proper labeling.

Record Maintenance

The district will establish and maintain documentation of:

- Any accidents and incidents involving chemicals.
- Comprehensive inventory of hazardous chemicals.
- Monthly inspections of equipment. Annual inspections of storage areas.
- All chemical disposal operations conducted.

Emergency Plans for Spills and/or Accidents

The district will provide a spill kit accessible for each laboratory. This kit might include:

- Neutralizing agents for acid spills.
- Neutralizing agents for alkali spills
- Spill absorbing materials such as sand, kitty litter, or other spill control materials.
- Quantities of cleanup materials shall be sufficient for the largest anticipated spill.

Each school should have a system for prevention, containment, cleanup, and reporting of chemical spills.

Training Programs

The district will develop and implement chemical training for all employees that includes:

- Awareness and location of written Chemical Hygiene Plan.
- Elements of OSHA's Hazard Communication Program.
- Appropriate safety measures and safe work practices.
- Training at new employee orientation, new assignments, and annually.

Chemical Waste Disposal

- The district will develop a chemical waste disposal process.
- The District Chemical Hygiene Officer shall be responsible for the chemical waste disposal process.
- The chemical waste disposal process shall include:
 - Collection and containment of waste chemicals.
 - Procedures for safe transport.
 - List of contact personnel.
 - Historical data of all disposed chemicals including:
 - Date of disposal;
 - Name and quantity of each disposed chemical;
 - Method of disposal (including name of disposal company, if used).

Model IPM Policy

Introduction

The *[School District]* recognizes that maintenance of a safe, clean and healthful environment for students and staff is essential to learning. It is the goal of the district to provide safe and effective pest control while protecting students, staff, the environment and district properties and assets. The district adopts a least-hazardous integrated pest management (IPM) policy. It is the policy of the district to focus on and develop long-term pest-prevention methods and give nonchemical methods first consideration when selecting appropriate control measures. The full range of alternatives will be considered, giving preference to nonchemical methods and then chemicals that pose the least hazard to people and the environment.

Pest management objectives

Pests will be controlled to protect the health and safety of the students and staff; to maintain a productive learning environment; and to maintain the integrity of the school buildings and grounds. Pest control will be economically feasible over the long term and efficacious. The superintendent or designee shall ensure the district follows IPM procedures so as to use the most appropriate and least-hazardous method of control. Sanitary measures shall be enforced and buildings regularly cleaned and repaired in order to prevent infestations, minimize the use of pesticides and eliminate routine spraying.

Elements of the Least-hazardous IPM Policy

- Identifying and monitoring pests to determine pest population levels and identify decisions and practices that could affect pest populations.
- Setting of action levels to determine when vegetation or a pest population at a specific site cause(s) unacceptable economic or medical damage wherein corrective action should be taken.
- Modifying and/or eliminating pest habitats to deter pest populations and minimize pest infestations.
- Considering use of a range of potential treatments for the pest problem including physical, horticultural and biological methods of pest control.
- Using chemical controls only as a last resort and only those chemicals that pose the least possible hazard to people and the environment.

IPM Coordinator

The superintendent shall designate *[staff person name or position]* to coordinate the IPM program. The IPM coordinator shall be educated in the principles and practice of least-hazardous IPM and be responsible for:

- Oversight for the successful implementation of the program consistent with this policy and coordinate all district efforts to adopt IPM.
- Overall program management and providing proposed regulations or procedures and products for use in managing pest populations.
- Determining the action level that triggers treatment to prevent pest numbers from reaching the injury level.
- Posting warning signs for pesticide applications.
- Record keeping guidelines for any chemical pesticide application.
- Education and training for IPM personnel.
- Optional: A list of approved procedures and products.

Training

Training of personnel is critical to the success of an IPM program. Staff, students, pest managers and the public shall be educated about potential school pest problems, the IPM policy and procedures that will be used to achieve the desired pest management objectives.

Monitoring

Monitoring shall be regular and will include ongoing inspection of areas where pest problems do or might occur. The IPM coordinator shall document and keep this information in an organized fashion. Monitoring shall consist of identifying the target pest to help determine if treatment is needed along with where, when and what kind of treatments ought to be administered.

Notification

At least 72 hours before application of a pesticide other than a least toxic pesticide, *[name of school]* will post a sign that provides notice of the application of the pesticide: (A) in a prominent place that is in or adjacent to the location to be treated; and (B) at each entrance to the building or school ground to be treated. The sign will remain posted for at least 72 hours after the end of the treatment; be of uniform design with a symbol people who cannot read can easily understand.

Contractors

All pest control companies contracted by the district shall follow all provisions of the policy. Licensed and certified pest control operators are required to include information on any school pesticide application that they perform.

Model Parent/Guardian Letter for IPM

[Date]

[School Name and Address]

Dear Parent or Guardian:

The [Name] School District uses an Integrated Pest Management (IPM) approach for managing insects, rodents and weeds. Our goal is to protect every student from pesticide exposure by using an IPM approach to pest management. Our IPM approach focuses on making the school building and grounds an unfavorable habitat for these pests by removing food and water sources and eliminating their hiding and breeding places. We accomplish this through routine cleaning and maintenance. We routinely monitor the school building and grounds to detect any pests that are present. The pest monitoring team consists of our building maintenance and all other members of our school community. Pest sightings are reported to our IPM Coordinator who evaluates the “pest problem” and determines the appropriate pest management techniques to address the problem. The techniques can include increased sanitation, modifying storage practices, sealing entry points, physically removing the pest, etc.

From time to time, it may be necessary to use pesticides registered by the Environmental Protection Agency to manage a pest problem. A pesticide will only be used when necessary, and will not be routinely applied. When a pesticide is necessary, the school will try to use the least toxic product that is effective. Applications will be made only when unauthorized persons do not have access to the area(s) being treated. Notices will be posted in these areas 72 hours prior to application and for two days following the application.

Parents or guardians of students enrolled in the school may request prior notification of specific pesticide applications made at the school. To receive notification, you must be placed on the school’s notification registry. If you would like to be placed on this registry, please notify the district in writing at the address listed above. Please include your email address if you would like to be notified electronically. If a pesticide application must be made to control an emergency pest problem, notice will be provided by telephone to any parent or guardian who has requested such notification in writing. Exemptions to this notification include disinfectants and antimicrobial products, self-containerized baits placed in areas not accessible to students, and gel type baits placed in cracks, crevices or voids.

Each year the district will prepare a new notification registry. If you have any questions, please contact *[Name and Title]* at *[Phone number]*.

Sincerely,

[Name]

[Title]

Model Radon Policy

What is Radon?

Radon is a cancer-causing, radioactive gas. You cannot see, smell or taste radon. The U.S. Environmental Protection Agency (U.S.EPA) ranks indoor radon among the most serious environmental health problems facing us today. After smoking, it is the second-leading cause of lung cancer in the United States causing an estimated 21,000 lung cancer deaths a year. Radon can be found in any building, including schools. In fact, elevated levels of radon have been found in schools across the United States. Therefore, it is important that students, teachers and parents be aware that a potential problem could exist in their school, as well as their home. A nationwide survey of radon levels in schools estimates that nearly one in five has at least one schoolroom with a radon level above the action level of 4.0 pCi/L (picoCuries per liter) - the U.S. EPA's action level. The U.S. EPA estimates more than 70,000 schoolrooms in use today have elevated radon levels. Testing data for Ohio indicates 40 percent of Ohio schools have radon levels above 4.0 pCi/L.

School Radon Protocol

ODH has prepared a sample radon protocol for schools to use. At a minimum the protocol shall contain the following elements:

- Section discussing if the school was constructed using radon resistant new construction techniques as described in the U.S. EPA publication Radon Prevention in the Design and Construction of Schools and Other Large Buildings [EPA 625-R-92-016, June 1994] or any substantially equivalent techniques approved by the Director of Health in writing.*
- Section describing the school's commitment for radon testing
 - Who will conduct the testing
 - Testing frequency
 - Retention of records
- Section describing the school's commitment for radon mitigation
 - Under what circumstances will the school mitigate elevated radon levels
 - Who will mitigate
- Section describing the school's commitment for reporting and record retention
 - Reporting of results to parents and ODH

- Location of the records
- Length of time the records will be maintained.

Radon resistant New Construction

- It is typically easier and much less expensive to design and construct a new school building with radon-resistant construction methods than to mitigate elevated levels of radon after a building has been constructed and occupied. For assistance in designing and constructing buildings using radon resistant techniques refer to the U.S. EPA's Radon Prevention in the Design and Construction of Schools and other Large Buildings publication or any substantially equivalent techniques approved by the director of Health in writing.*

Once your school has been built with radon-resistant construction techniques, it is important to keep documentation of the methods used for construction and the post construction radon testing results.

Radon Testing

The only way to determine if a radon problem exists is to test. Conducting radon testing in schools can be a difficult task. A school may hire an ODH-licensed radon professional or use its own personnel to test. The task of radon testing in schools is more complicated than testing in homes. For example, licensed testers and mitigation specialist are required to develop and maintain a quality assurance project plan throughout the radon testing and mitigation process. A quality assurance project plan is unique to each school and includes how testing will be conducted as well as how quality assurance measurements will be taken and tracked. This gives the school a means of traceability, accountability and reproducibility to their radon test results. This quality assurance project plan is discussed in the documents referenced below. If a school chooses to use its own personnel to test, it is specifically recommended these personnel attend Ohio approved radon measurement training and to at least pass the national exam associated with the training. Information about radon measurement training is available by calling the ODH Radon Action Line at 1-800-523-4439.

Radon Mitigation

After testing is performed and the results indicate radon levels above the action level of 4.0 pCi/L, the school must decide the next appropriate actions. ODH recommends that the school building administrator hire an ODH-licensed radon mitigation contractor to design and install a radon mitigation system. If a school chooses to use its own personnel to design and install a radon mitigation system,

it is recommended these personnel attend Ohio approved radon mitigation training and pass the exam(s). (This training includes a radon measurement course with an exam and the mitigation portion of the course with an exam) Information about radon mitigation training is available by calling the ODH Radon Action Line at **1-800-523-4439**. Additional information on radon testing and mitigation in schools, and radon-resistant new construction techniques can be found in EPA publications **or any substantially equivalent techniques approved by the director of Health in writing.*** The EPA publications are available through the U.S. EPA's **National Center for Environmental Publications (NSCEP)**. NSCEP operates a toll-free phone service for EPA Publication assistance with live customer service representative assistance 9:00am-5:30pm eastern time Monday through Friday. Voice mail is available after operating hours. Call **1-800-490-9198**. You can fax your publication requests to **(301) 604-3408**. E-mail publication requests are also available: nscep@bps-lmit.com. Some documents can also be downloaded from the web site: <http://www.epa.gov/ncepihom>. Information on other publications will be available through contact with the ODH Radon Action Line at **1-800-523-4439**. The following is a list of some materials for reference:

Radon Prevention in the Design and Construction of Schools and Other Large Buildings.

The EPA states it is typically easier and much less expensive to design and construct a new building with radon-resistant and/or easy-to-mitigate features than to add these features after the building is completed and occupied.

[EPA 625-R-92-016, June 1994]

Radon Measurement in Schools (Revised Edition)

This report has been prepared to provide school administrators and facilities managers with instructions on how to test for the presence of radon. The findings from U.S. EPA's comprehensive studies of radon measurements in schools have been incorporated into these recommendations. This report supersedes Radon Measurements in Schools - An Interim Report (EPA 520/1-89-010).

[EPA 402-R-92-014, July 1993]

Reducing Radon in Schools: A Team Approach.

This document will assist you in determining the best way to reduce elevated radon levels found in a school. It is designed to guide you through the process of confirming a radon problem, selecting the best mitigation strategy, and directing the efforts of a multidisciplinary team assembled to address elevated radon levels in a way that will contribute to the improvement of the overall IAQ of the school.

[EPA 402-R-94-008, April 1994]

Radon Measurement in Schools Self-Paced Training Workbook

The purpose of this workbook is to provide trainees with experience to plan a radon-test project for a school, interpreting those test results, implementing quality assurance during school testing and documenting the testing process for a school building. This workbook should be used by qualified personnel in conjunction with radon measurement training.

[EPA 402-B-94-001, October 1994]

If you have any questions regarding radon, please call the ODH Radon Action Line at **1-800-523-4439**.

***Other publications are those that are currently under review with AARST.
(The American Association of Radon Scientist and Technologists)**

Sample Radon Testing and Mitigation Policy

The U.S. EPA ranks indoor radon among the most serious environmental health problems facing us today. After smoking, it is the second-leading cause of lung cancer in the United States causing an estimated 21,000 lung cancer deaths a year. For this reason, [name of school or school district] has implemented the following radon testing policy.

New Construction

- If a new school is built, the building will be built using radon-resistant new construction (RRNC) techniques as defined by U.S. EPA's publication Radon Prevention in the Design and Construction of Schools and Other Large Buildings [EPA 625-R-92-016, June 1994] or any substantially equivalent techniques approved by the director of Health in writing.

Routine Testing

If the school was built radon resistant (and initial tests are within acceptable limits) or after an initial test of an existing building that indicates radon levels are within acceptable limits, each school building will be retested at least every five years.

If a test is performed on an existing school and radon levels are found to be at or above 4.0 pCi/L, *[place name of school here]* will develop a mitigation plan to reduce radon levels to acceptable levels. If installation of a mitigation system is necessary, *[place name of school here]* will employ an ODH-licensed radon-mitigation contractor to design and install a mitigation system and the building will be tested every two years.

If the building undergoes major renovation of the HVAC system or of the building structure, the building will be tested prior to the renovation and immediately upon completion of the renovation and thereafter at a frequency of every five years (with no elevated levels) or every two years (after mitigation for elevated levels).

Who can test and mitigate

[Name of school] will employ or use only trained school personnel or a company or individual licensed by the ODH to conduct testing in our school.

If installation of a mitigation system is necessary, *[place name of school here]* will employ an ODH-licensed radon- mitigation contractor to design and install a mitigation system.

School/District Responsibilities

[Name of responsible person and their position] will be responsible for coordinating testing and mitigation, as necessary.

Reporting and Records Retention

Upon completion of testing (and mitigation, if necessary), the school will report radon levels and specifics of the mitigation to the ODH, Bureau of Radiation Protection at 246 N. High St., Columbus, Ohio 43215. (BRadiation@odh.ohio.gov)

Records pertaining to testing and mitigation will be kept on file at *[place name/description of location of files here]* for a minimum of five years and then archived for another five years. After this time period, *[building or district record retention schedule should be followed]*.

Superintendent

Effective Date

Model Hand Washing School Policy

Studies have shown that hand washing and personal hygiene are the most important measures a person can use to prevent illness and communicable disease. Many germs can live for long periods on tables, counters and other hard surfaces. Hand washing with soap and warm water for a minimum of twenty (20) seconds and paying close attention to the surfaces between the fingers and on the back of the hands is best for removing dirt and germs. The proper use of hand sanitizers is also useful in controlling the spread of germs.

It is the policy of *[Name of School]* that:

1. Students and staff will wash their hands with soap and water
 - After using the rest room
 - Before and after eating
 - If their hands are visibly soiled
 - If the student or staff member has encountered chemicals or other items, such as soil, in a science lab, art room, vocational facility or other educational venue that soils hands
 - If the student or staff member encountered chemicals during cleaning the school environment
 - After cleaning animal habitats or handling animals
 - Before and after each task when preparing food in any class such as family science or an integrated class
 - After athletic practices and games
 - If the student or staff member has encountered bodily fluids (e.g., blood, nasal discharge, mucous from coughing, etc.)
 - After recess
 - After sneezing or coughing
2. When soap and water are not available and hands are not visibly soiled, CDC guidance adds that alcohol-based, waterless disposable hand wipes or gel sanitizers may be used in place of hand washing on most occasions. Not all sanitizers are effective, however. A 60 percent minimum alcohol concentration is necessary to kill most harmful bacteria and viruses.
3. Hand washing signs will be posted at all rest rooms and/or hand sinks.
4. Soap, warm water and towels or an air dryer will be located at all hand washing areas.
5. The school will provide education in hand washing and hand hygiene at least once every school year.

Plans for monitoring the hand hygiene protocol are:

-
-

Superintendent/Principal

Effective Date

Resources

Centers for Disease Control,

<http://www.cdc.gov/Features/HandHygiene/>

Cleaning Building Services, New York Inc.,

<http://www.cleaningservicenewyorkcity.com/handwashing.html>

Ohio Dept. of Health, Influenza, Flu Fighter Tools,

<http://www.odh.ohio.gov/features/odhfeatures/seasflu/flufightertools.aspx>

Healthy Schools, Healthy People, School Network for Absenteeism Prevention, It's a SNAP,

<http://www.itsasnap.org/>

Model Policy for 100% Tobacco Free Schools

RATIONALE

The Board of Education has a duty to protect and promote the health and well-being of all students and staff. The Board is acutely aware of the serious health risks association with the use of tobacco products: both to the users and non-users, and that most tobacco use begins by the age of eighteen. The Board recognizes that district personnel and school visitors serve as role models to students and, therefore, adopts this 100% Comprehensive Tobacco-Free School Policy to endorse a healthy lifestyle and prevent tobacco use.

DEFINITION

For the purpose of this policy, “tobacco product” is defined to include any product that contains tobacco, is derived from tobacco or contains nicotine (or lobelia), that is intended for human consumption, or is likely to be consumed, whether smoked, heated, chewed, absorbed, dissolved, or ingested by any other means. The term “tobacco products” includes e-cigarettes and other electronic smoking devices, but does not include any cessation product approved by the United States Food and Drug Administration for use as a medical treatment to reduce and eliminate nicotine or tobacco dependence.

TOBACCO USE PROHIBITED

No student, staff member, volunteer, or school visitor is permitted to use tobacco products at any time, including non-school hours, in or on *[School District]* property, including:

- In any building, facility, or vehicle owned, leased, rented, or chartered by the school district; and
- On school grounds, athletic grounds or parking lots; and
- At any school-sponsored or school-related event, whether such event occurs on-campus or off-campus.

TOBACCO POSSESSION PROHIBITED

Students are not permitted to possess any tobacco products, papers used to roll cigarettes, or lighters on any school property at any time.

TOBACCO PROMOTION PROHIBITED

Tobacco advertising is prohibited on school grounds, in all school-sponsored publications and at all school-sponsored events. Promotional items that promote the use of tobacco products, including clothing, bags, lighters and other personal articles, are not permitted on school grounds, in school vehicles or at school-

sponsored events. The school district will not accept any form of contribution including, but not limited to, financial support, gifts (such as curriculum, book covers, speakers, etc.) or in-kind support from the tobacco industry for the sponsorship or promotion of any event or activity affiliated in any manner with the school district or located on school district grounds.

NOTICE

Appropriate signs indicating that tobacco use is not permitted will be posted throughout the district at entrances and other appropriate locations on all academic buildings, administrative spaces, parking lots and athletic fields. Students will be provided notice to this policy through student handbooks and district personnel will be provided notice of this policy through personnel handbooks. District vehicles will display the international “No Smoking” insignia. Announcements will be made during home athletic events both before the event and during intermission, as well as at all school functions where deemed appropriate. School programs will include a written reminder of the tobacco free policy. The tobacco free policy will be provided to the parents and guardians of all students at the beginning of each academic year.

EDUCATIONAL REINFORCEMENT

Tobacco-use prevention education shall be closely coordinated with other components of the school health program. Staff responsible for teaching tobacco-use prevention education shall have adequate pre-service training and participate in ongoing professional development activities to effectively deliver the education program. Preparation and professional development activities shall provide basic knowledge about the effects of tobacco use and effects of peer pressure on tobacco use combined with effective instructional techniques and strategies and program-specific activities.

OPPORTUNITIES FOR CESSATION

The administration will consult with the county health department and other appropriate health organizations to provide students and employees with information and access to support systems, programs and services to encourage them to abstain from the use of tobacco products.

ENFORCEMENT

Disciplinary measures taken against students and staff for violations of this policy need to comply with requirements of Ohio law, related district policies, and labor contractual agreements.

Disciplinary actions may be taken against school visitors found in violation of this policy and may include a verbal notification of the policy for the first offense, and removal from the school property or school activity if off-campus for all subsequent offenses.

EXEMPTION

Possession of tobacco products is allowed solely for educational programs aimed at reducing the use of tobacco products. Such possession requires advance approval from the school principal or other designated school administrator.

LEGAL REFERENCES

Pro-Child Act of 1994, 20 U.S.C. § 6081 Et. Seq. (1994)

Ohio REV. CODE ANN. §§ 3313.20, 3313.447, 3313.751, 3791.031, 3794.01

Ventilation

BACKGROUND

The heating, ventilation and air-conditioning (HVAC) system consists of all heating, cooling and ventilating equipment serving a school. This includes boilers, furnaces, chillers, cooling towers, AHUs, exhaust fans, ductwork and filters.

Not all HVAC systems are designed or configured to perform all possible HVAC system functions. For example, some buildings should rely on natural ventilation, achieved through open windows and doors. Others lack mechanical cooling equipment and few offer humidification capability. It is also important to note that system design is only one element affecting overall HVAC system effectiveness. The installation, operation and maintenance of HVAC systems rank equally with system design in determining how well these systems fulfill their original design intent.

Most AHUs distribute a mixture of outdoor air and re-circulated indoor air to the conditioned spaces. Some HVAC designs may include units that introduce 100 percent outdoor air while others simply recirculate the indoor air within the building. Uncontrolled quantities of outdoor air enter buildings by leakage through windows, doors and gaps in the building exterior. Thermal comfort and ventilation needs are met by supplying “conditioned” air, which is a mixture of outdoor and recirculated air that has been filtered, heated or cooled and sometimes humidified or dehumidified.

HVAC SYSTEM FUNCTIONS

- A properly designed and functioning HVAC system performs the following functions:
- TEMPERATURE CONTROL to ensure thermal comfort
- RELATIVE HUMIDITY CONTROL also to provide thermal comfort and minimize mold
- FILTRATION to remove particulate material, odors and other contaminants
- VENTILATION to supply adequate outdoor air to occupied indoor spaces
- EXHAUST to remove airborne contaminants directly from the indoor environment
- DISTRIBUTION to deliver adequate amounts of conditioned air to meet ventilation and thermal comfort needs

COMMON CONFIGURATIONS

The two most common HVAC system configurations found in schools are central air handling systems and unit ventilators. Both systems can be outfitted to heat, cool, dehumidify, ventilate, filter and distribute the air within the spaces they control. However, central AHU's are designed to service multiple rooms, while unit ventilators are generally designed for individual rooms.

CENTRAL AIR HANDLING SYSTEMS

Central air handling systems supply and return air from multiple spaces back to a common, “central” AHU (Figure 1). Air from each individual room is drawn into the return air duct system and then mixed with air from all of the remaining rooms serviced by the AHU. This return air is then mixed with a fraction of outside air prior to entering the AHU, ensuring a continuous supply of outside air to the conditioned rooms while the fan is running. Once inside the AHU, the air is heated/cooled, humidified/dehumidified and filtered based on the design of the unit. Once conditioned, the air is then supplied back to the occupied spaces.

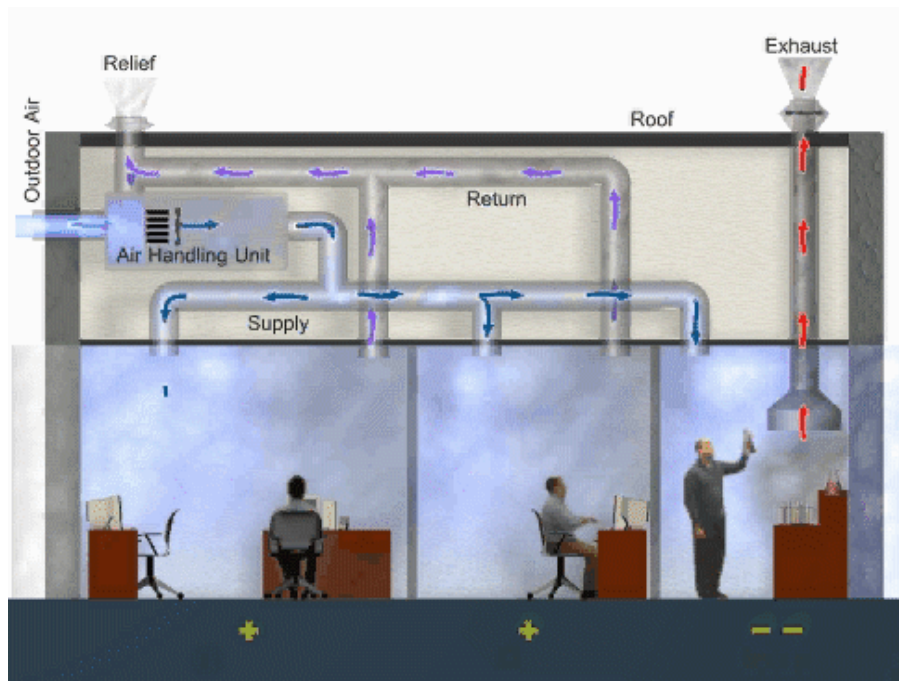


Figure 1: Central air handling system servicing three separate rooms

Central air handling systems installed in schools are configured according to one of the following two operational modes: Constant Volume (CV) or Variable Air Volume (VAV). The distinguishing characteristic of these systems is whether thermal conditions are satisfied by varying the temperature of the air or by varying the volume of air supplied to the controlled zone, as described below. CV systems are generally less energy efficient than VAV systems, but controls for outdoor air delivery are generally simpler to manage.

CONSTANT VOLUME SYSTEMS

In CV systems, variations in the thermal requirements of the controlled spaces are satisfied by varying the temperature of a CV of air continuously delivered to those spaces. The volume of air delivered can be set to satisfy applicable ventilation standards.

To ensure uniform thermal conditions in rooms served by a CV system, the rooms controlled by these systems should have similar thermal and ventilation requirements. This is because CV systems are equipped with a single thermostat, the placement of which is critical to the operational effectiveness of the system. The temperature of the air supplied to every room on the system is determined by the temperature at the thermostat. In essence, the room or hallway housing the thermostat always “wins” because the system will take its operating signals based on thermal conditions at that location only.

Consider the example depicted in Figure 2 where two offices are serviced by a single AHU. The office housing the thermostat also contains two large, south-facing windows, while the other office has no windows. During sunny summer days, extra cooling will be applied to BOTH offices based primarily on the solar heat gain in the office housing the thermostat. Unfortunately, with no windows in the other office and no corresponding solar heat gain, the excess cool air supplied to that space will produce temperatures well below the acceptable range for occupant thermal comfort.

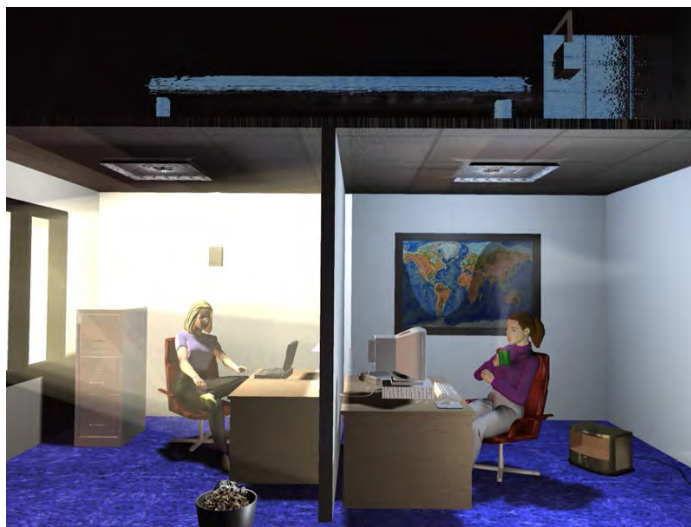


Figure 2: Central air handling system serving two rooms illustrating dissimilar heating/cooling requirements due to solar heat gain through windows.

Similarly, consider the case of a sporadically occupied conference room and three regularly occupied offices, all controlled by the same CV system with the thermostat located in the conference room. Whenever the conference room is occupied, the AHU will supply extra cool air to that space based on

the signal sent from the thermostat indicating additional cooling is required to overcome the heat gain caused by the additional occupants. Unfortunately, this extra cool air will also be supplied to each of the remaining three offices, much to the dismay of their occupants, who will likely be frozen out in the process. On cold winter days, the opposite effect will take place. With the conference room occupied, the air temperature will be maintained via body heat emanating from the occupants themselves, relieving the AHU of its usual job of providing warm air to the entire zone. Unfortunately, occupants of the remaining offices will again be frozen out, this time because their offices will not receive the necessary warm air to overcome the usual winter heat loss through the perimeter walls, windows, etc.

VARIABLE AIR VOLUME SYSTEMS

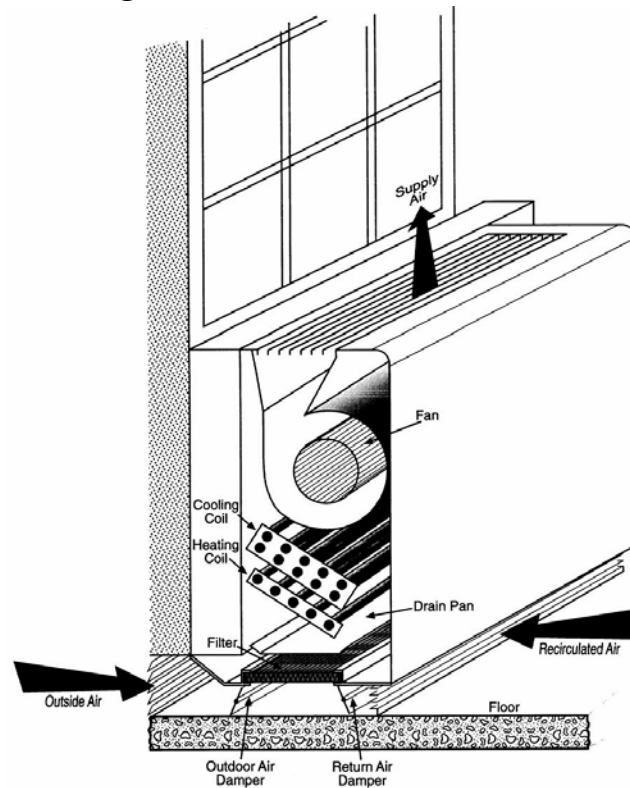
In VAV ventilation systems, variations in the thermal requirements of a space are satisfied by varying the volume of air that is delivered to the space at a constant temperature. VAV systems reduce HVAC energy cost by 10-20 percent over CV systems but complicate the delivery of outdoor air. If the fraction of outdoor air is constant, the total volume of outdoor air will be reduced as the supply air volume is reduced. An inadequate outdoor air fraction, combined with an inadequate VAV box minimum setting, may result in inadequate outdoor air flow to occupied spaces. This would occur during part-load conditions. VAV systems also complicate pressure relationships in the building and make testing, adjusting and balancing more difficult.

UNIT VENTILATORS

Another common system for conditioning air in schools involves the use of self-contained AHUs known as unit ventilators or univents. These systems are commonly located in classrooms along an exterior wall, often beneath one or more windows (Figure 3). In newer systems, univents may be installed in the plenum space above the acoustical tile (or “dropped”) ceiling. The primary benefit of using unit ventilators lies in the high degree of control they provide over centralized, CV systems. Because they control thermal conditions in only one primary space, they may be freely adjusted without affecting thermal conditions in other adjoining rooms. The disadvantages of these systems are that they are often not particularly effective at dehumidification, are more difficult to maintain and noisier than central AHUs.

INDOOR AIR QUALITY (IAQ)

Figure 3: Wall-mounted unit ventilator



BACKGROUND

In recent years, the U.S. EPA and the National Science Advisory Board have rated indoor air pollution as one of the top five environmental threats to human health. Studies from these agencies have shown that indoor pollutant levels can be two to 100 times higher than outdoor pollution levels. This is of particular concern because people spend up to 90 percent of their time indoors. Twenty percent of the U.S. population, nearly 55 million people, spend their days in our elementary and secondary schools. A GAO report to congress in June 1994 said of the 3,600 school buildings in Ohio, 83 percent had at least one unsatisfactory environmental factor. About half of the buildings (48 percent) reported problems with heating, ventilation or air conditioning. HVAC problems, according to the National Institute of Occupational Safety and Health (NIOSH), are responsible for more than 50 percent of environmental health problems related to IAQ.

Failure to respond promptly and effectively to IAQ problems can have the following health, cost and educational process consequences:

- Increasing long- and short-term health problems such as cough, eye irritation, headache,

asthma episodes and allergic reactions, and in rarer cases, life threatening conditions such as severe asthma episodes, Legionnaire's disease or CO poisoning.

- Promoting the spread of airborne infectious diseases.
- Aggravating asthma and other respiratory illnesses. Nearly one school-aged child in 13 has asthma, the leading cause of school absenteeism due to chronic disease. There is substantial evidence that indoor environmental exposure to allergens such as dust mites, other pests and molds play a role in triggering asthma symptoms. These allergens are found in the school indoor environment.
- Producing an unfavorable learning environment for children.
- Reducing productivity of teachers and staff due to discomfort, sickness, or absenteeism.
- Accelerating the deterioration and thus reducing the efficiency of the school's physical plant and equipment.
- Increasing the risk that school rooms or buildings will have to be closed and occupants temporarily relocated.
- Straining relationships among the school administration and parents and staff.
- Generating negative publicity that could damage a school's or administration's image and effectiveness.
- Creating potential liability problems.

Indoor air problems can be subtle and do not always produce easily recognized impacts on health, well-being or the physical plant. In some cases, only one or a few individuals may be strongly affected by what appears on the surface to be psychosomatic in nature because the majority of the school population does not appear to have any symptoms.

Children may be especially susceptible to air pollution. The same concentration of pollutants can result in higher body burden in children than adults because children breathe a greater volume of air relative to their body weight. For this and the reasons noted above, air quality in schools is of particular concern. Proper maintenance of indoor air is more than a quality issue; it encompasses safety and stewardship of our investment in the students, staff and facilities.

Good IAQ management can prevent many problems and includes the control of sources of airborne pollutants, the introduction and distribution of adequate outdoor air and the maintenance of acceptable temperature and relative humidity. Temperature and humidity cannot be overlooked because thermal comfort concerns underlie many complaints about poor air quality. Furthermore, temperature and humidity are among the many factors that affect indoor contaminant levels.

For further information on IAQ in schools, please see the U.S. EPA's Tools for Schools Action Kit

at <http://www.epa.gov/iaq>. The goal of this kit is to provide clear and easily applied guidance that will help prevent IAQ problems and resolve such problems promptly if they do arise. It recommends practical actions that can be carried out by the school staff without the need for training and is flexible enough to conform to the specific needs of your school. It is free to any school. The ODH supports the use of Tools for Schools as part of a comprehensive indoor environmental management program.

ODORS

Indoor air pollutants, which are the cause of many odors, can originate within the building or be drawn in from outdoors. If pollutant sources are not controlled, IAQ problems can arise, even if the HVAC system is properly designed, operated, and maintained. Air contaminants consist of particles, dust, fibers, bio-aerosols, and gases or vapors. It may be helpful to think of air pollutant sources as fitting into one of the categories in the table below, Typical Sources of Indoor Air Pollutants. The examples given for each category are not intended to be a complete list.

In addition to the number of potential pollutants, another complicating factor is that indoor air pollutant concentration levels can vary by time and location within the school building, or even a single classroom. Pollutants can be emitted from point sources such as from science storerooms, or from area sources such as newly painted surfaces. Also, pollutants can vary with time, such as only when floor stripping is done, or continuously such as mold growing in the HVAC system.

Indoor air often contains a variety of contaminants at concentrations that are well below any standards or guidelines for occupational exposure. Given our present knowledge, it is often difficult to relate complaints of specific health effects to exposures to specific pollutant concentrations, especially because the significant exposures may be to low levels of pollutant mixtures.

Removal of the source is always the first choice for mitigation. If removal is not feasible, the pollutant source may be controlled through substitution of a less objectionable substance (i.e., red spirit thermometers vs. mercury thermometers). If the source is activity or use of a product, perhaps it could be timed to occur during unoccupied periods (i.e., cleaning chemicals used in evenings only so that VOCs can off gas before occupants return). Local exhaust at the point of the pollutant is another option (i.e., exhaust fan operational in all restrooms). Building ventilation and exhaust can be helpful in diluting and helping to exhaust indoor contaminants, but should not be the primary method of remediation. However, if building ventilation is not working appropriately, lack of ventilation will most certainly make any indoor environmental problem worse.

Typical Sources of Indoor Air Pollutants			
Outside Sources	Building Equipment	Component/ Furnishings	Other Indoor Sources
Polluted Outdoor Air Pollen, dust, fungal spores; industrial emissions; and vehicle emissions Nearby Sources Loading docks; odors from Dumpsters; and Unsanitary debris or building exhausts near outdoor air intakes Underground Sources Radon; pesticides; and leakage from underground storage tanks	HVAC Equipment Microbiological growth in drip pans, ductwork, coils and humidifiers; improper venting of combustion products; and dust or debris in ductwork Non-HVAC Equipment Emissions from office equipment (volatile organic compounds and ozone); emissions from shops, labs, cleaning processes; Air fresheners; Ozone-generating air purifiers	Components Microbiological growth on soiled or water-damaged materials; dry traps that allow the passage of sewer gas; materials containing volatile organic compounds, inorganic compounds, or amaged asbestos; and materials that produce particles (dust) Furnishings Emissions from new furnishings and floorings; and microbiological growth on or in soiled or aterdamaged furnishings	Science laboratories; vocational arts areas; copy/print areas; food prep areas; cleaning materials; emissions from trash; pesticides; odors and volatile organic compounds from paint, chalk, adhesives; occupants with communicable diseases; dryerase markers and similar pens; insects and other pests; and personal care products. Air fresheners.