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SCHOOL INDOOR AIR QUALITY

State Policy Strategies for Maintaining Healthy Learning Environments

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School Indoor Air Quality: State Policy Strategies for Maintaining Healthy Learning Environments

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Introduction

People living in the United States spend about 90 percent of their time indoors, and for over 55 million children and 8 million adults, much of that time is spent in K-12 school buildings. The quality of the air inside our nation's 125,000 schoolhouses is important not only to the physical health and well-being of students and staff, but also to the core mission of our schools – educational excellence and academic achievement. Over the past decade, considerable technical information has been developed to help facility managers prevent, identify and remedy indoor air quality problems. Public policy can build on advances in technical and scientific understanding of the indoor environment to institutionalize practices that will ensure healthy and safe school facilities.

Background

The Importance of School Indoor Air Quality. Indoor air quality (IAQ) is affected by many factors – by the ventilation (fresh air) that is provided within a building and by a wide variety of contaminants, including radon gas, mold, dust, lead paint, combustion pollutants, chemicals emitted by products or materials within the building, and pollutants drawn into the building from cars or neighboring industrial facilities. Studies by the Environmental Protection Agency (EPA) suggest that indoor levels of pollutants may be 2-5 times higher than outdoors.[1] A range of health consequences are associated with indoor biological and chemical pollutants and with building conditions such as poor ventilation and dampness.[2] These include upper and lower respiratory disease and symptoms, headaches, skin problems and fatigue, all of which can compromise learning.[3] Individual pollutants such as radon and asbestos have been designated as known carcinogens by the federal government. EPA estimates that there are over 20,000 lung cancer deaths from radon in the U.S. each year.[4] The serious impacts of lead, particularly on young children, have been widely documented.[5]

Addressing indoor air quality in *schools* is especially important, given that the vast majority of school occupants are children. Children are particularly susceptible to health problems from indoor pollutants because their organs are developing and they breathe more air relative to their body size than adults.[6]

The past several years have witnessed the growth of a new approach to school design and construction that recognizes the impact of school facilities on the learning process. Many states and school districts have adopted "green" or "high performance" building techniques for new school facility projects.[7] Equally important is how we operate and maintain our *existing* school buildings, most of which will be in use for decades to come. Fortunately, there are well-established and cost-effective building operations and maintenance practices that can address IAQ issues and help provide a safe, healthy and comfortable learning environment.

The Cost-Effectiveness of Addressing School Indoor Air Quality. School districts stand to reap considerable financial benefits by taking a proactive, comprehensive approach to managing IAQ and other school environmental issues. In addition to avoiding the potentially enormous repair and replacement costs associated with deferred maintenance, schools can benefit from reduced costs related to illness, absenteeism and lowered productivity.

- A 2005 review of existing research studies found that "overall, evidence suggests that poor IEQ [indoor environmental quality] in schools is common and adversely influences the performance and attendance of students, primarily through health effects from indoor pollutants. Evidence is available to justify . . . immediate actions to assess and improve IEQ in schools."[8]
- According to the Centers for Disease Control and Prevention (CDC), of those reporting at least one asthma attack in 2003, children aged 5 to 17 years missed 12.8 million school days, while employed adults missed 10.1 million work days.[9]
- A 2006 report identified 17 separate studies that have found significant reductions in respiratory and other symptoms resulting from increased outside air, moisture control and pollutant source control.[10]
- A summary of research on IAQ and productivity by Lawrence Berkeley National Laboratory noted that work performance may be improved from a few percentage points to as much as 10% by providing superior indoor environmental quality.[11]

Despite the progress in understanding indoor air quality and in developing effective approaches to IAQ management, minimum requirements and practices for preventing, identifying and fixing IAQ problems have not been formally established and institutionalized in most jurisdictions. Absent minimum facility requirements, chronic pressures on school maintenance and operations budgets often have led to deterioration of buildings and a compromised learning environment.

In a 1995 survey of 10,000 schools, the U.S. General Accounting Office (GAO) found that 60 percent of schools reported at least one major building feature, such as plumbing, in disrepair. About half of the schools reported at least one unsatisfactory environmental condition, and 33 percent reported multiple problems. According to the survey 27 percent reported unsatisfactory ventilation (affecting nearly 12 million students), and almost 22 percent reported unsatisfactory indoor air quality generally (affecting over 8 million students).[12] The substandard conditions documented in the GAO reports are distributed nationwide, and can have a particularly devastating impact on children in disadvantaged communities. A 2006 report identified lawsuits in 31 states challenging the adequacy of public education funding based in part on the dilapidated condition of school facilities in low income districts.[13] The American Society of Civil Engineers, which evaluates and issues an annual report card on the nation's infrastructure, gave schools a grade of "D" in 2009.[14]

The potential costs of inattention to IAQ and other indoor environmental conditions are high – not only the financial costs to school districts,[15] but the impacts on learning and on the health and safety of students and staff. Public policy can and should promote the basic facility management prac-

An Ounce of Prevention….
Schools Benefit from Taking a Proactive Approach to IAQ Management

Over ten years ago, the Environmental Protection Agency developed the *Indoor Air Quality Tools for Schools* program. The voluntary program offers schools a wealth of practical informational resources for establishing and institutionalizing a comprehensive system for addressing IAQ issues. Since the program began, EPA has developed case studies and profiles of the results reported by school districts that have formally implemented the program. Many schools districts have documented reduced operating costs, lower absenteeism rates, fewer health and building-related complaints, and increases in test scores. This information is available on EPA's *Indoor Air Quality Tools for Schools* program website, at www.epa.gov/schools. See also, U.S. EPA, Envisioning Excellence: Lessons from Effective School Indoor Air Quality (IAQ) Programs, *available at*: http://www.epa.gov/iaq/schools/pdfs/excellence/snapshot.pdf.

tices needed to ensure good indoor air quality in schools and to help achieve the goal of safe, healthy and comfortable school environments.

The Role of State Policy. This report highlights the important role that can be played by *state* policy in ensuring that all schools address basic IAQ issues as part of their ongoing operations and maintenance activities. Numerous school districts around the country are already doing so, and some have pioneered new programs and approaches to addressing indoor environmental quality in their facilities. In many communities, school staff, employee unions and parents have advocated effectively for, and worked with school officials to establish, school IAQ programs. Yet carefully designed and implemented policies at the state level can provide flexibility while helping to ensure that minimum IAQ management practices will be implemented *throughout* a state.

Ensuring that *All* Schools Meet the Same Basic IAQ Requirements

Without a statewide school IAQ policy – and an effective state program to implement the policy – the environmental health conditions in schools will vary from one school district to another, creating inequities that may result partly from differences in resources available to the schools. These differences in environmental quality can translate into differences in student and staff productivity, health and well-being.

States have enacted policies relating to school IAQ under different areas of state legislative and regulatory authority, including health and safety, building construction, labor and education. These policies typically focus on a single IAQ issue – *e.g.,* laws requiring the use of green cleaning practices or testing for radon.[16] Such policies are important, but states also have a significant opportunity to help ensure that schools address a wide range of basic IAQ management practices in their ongoing operations and maintenance programs. One route to establishing such a policy is the enactment of new state legislation. Another path is to use existing statutory authority – *e.g.,* health, education or labor laws – to develop regulations on IAQ in schools. To date, only a relatively small number of states have used existing authorities or created new laws to require a broad-based approach to school IAQ management.

Scope and Focus of the Report

This report discusses four different policy strategies which reflect different areas of state authority. All establish school facility requirements that promote a broad-based approach to preventing, identifying and remedying IAQ problems, thereby addressing core issues such as ventilation, moisture control and the control of other pollutant sources. For each strategy, the report presents one or two case studies of state policies.[17] While the case studies included in the report are not the only significant state policies in this area, they provide useful examples for other states to consider in fashioning a policy to fit the state's existing legal and institutional framework.

The report focuses on the need to address *indoor air quality* as a critical component of school health and safety. There are many other important aspects of the school environment that can and should be considered by policymakers. Indeed, some of the policy approaches discussed in this report integrate IAQ with other issues, such as drinking water quality, playground safety, etc. Whether IAQ is addressed separately or as part of a broader school environment policy will depend in part on the state's existing laws, regulations and programs.

In this report, the term "policy" refers mainly to laws and administrative rules and regulations, but the report also includes analysis of significant agency documents that have been developed to implement the laws and regulations. The information in the case studies is drawn from the statutes, regulations and formal guidance documents developed by the state, as well as from interviews with state officials. The case studies highlight the main features of the laws and regulations and describe some of the implementation actions taken by the states. There is no at-

tempt to rate or critique the policies; rather, the goal is to illuminate the opportunities, as well as the limitations, presented by each approach. The final section of the report highlights the key considerations for developing an effective policy, drawing on the experiences of the models presented in the report.

One of the most formidable challenges to establishing policy in this area is ensuring adequate funding to implement the policy. Resources may be needed for local and state agencies that are tasked with conducting inspections, and for state agencies that provide training and technical assistance. A school IAQ policy may also impose costs on schools for carrying out operations and maintenance activities that they had not previously been undertaking or for repairing conditions identified during inspections. When considering these costs it is important to also account for the savings and benefits that accrue from maintaining good indoor air quality.

This report does not discuss the system for funding school facilities – a system with widely acknowledged structural deficiencies. A central premise of the report, however, is this: while it is vital to ensure adequate funding for school maintenance and operations, it is also important for state policymakers to take action now to establish basic requirements for addressing indoor air quality, along with other core components of school health and safety.

NOTES

1. U.S. Environmental Protection Agency (EPA), Indoor Air Quality Backgrounder at 1, available at: http://www.epa.gov/iedweb00/schools/pdfs/kit/backgrounder.pdf.
2. For a comprehensive review of the health effects of indoor pollutants, see California Air Resources Board, Indoor Air Pollution in California, Executive Summary at 1-9 (2005), available at: http://www.arb.ca.gov/research/indoor/ab1173/ab1173.htm.
3. See U.S. Dept. of Education, A Summary of Scientific Findings on Adverse Effects of Indoor Environments on Students' Health, Academic Performance and Attendance, App. 2 (2004), available at: http://www.iehinc.com/PDF/effects%20on%20students.pdf; Inst. of Med. of the Nat'l Acad., Damp Spaces and Health at 10 (2004). Indoor air pollution is a particular concern for those with asthma – over 9 percent of children and 7 percent of adults in the U.S. See Centers for Disease Control and Prevention website, www.cdc.gov/nchs/faststats/asthma.htm.
4. See U.S. EPA website, http://www.epa.gov/radon/risk_assessment.html.
5. See U.S. EPA website, http://www.epa.gov/lead/.
6. See World Health Organization, Principles for Evaluating Health Risks in Children Associated with Exposure to Chemicals (2006), available at: http://www.crin.org/docs/924157237X_eng.pdf. See also EPA Office of Children's Health Protection website, http://yosemite.epa.gov/ochp/ochpWeb.nsf/content/homepage.htm. At the federal level, Executive Order 13045 (1997) recognizes the unique vulnerabilities of children and directs each federal agency to, among other things, "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."
7. The Environmental Law Institute has published reports and prepared policy updates discussing state and school district initiatives for building healthy, high performance schools. See http://eli.org/Program_Areas/indoor_environments.cfm.
8. M.J. Mendell and G.A. Heath, "Do indoor pollutants and thermal conditions in schools influence student performance? A critical review of the literature," 15 Indoor Air 27 (2004).
9. Centers for Disease Control and Prevention, Asthma Prevalence, Health Care Use and Mortality: United States, 2003-05 (Jan. 2007), available at: http://www.cdc.gov/nchs/products/pubs/pubd/hestats/ashtma03-05/asthma03-05.htm.
10. Greg Kats, Greening America's Schools: Costs and Benefits at 10 (citing Carnegie Mellon University Center for Building Performance) (2006), available at: http://www.cap-e.com/ewebeditpro/items/O59F9819.pdf.
11. See Lawrence Berkeley national Laboratory Scientific Findings Resource Bank: http://www.iaqscience.lbl.gov/performance-summary.html.
12. U.S. General Accounting Office, America's Schools Report Differing Conditions at 1, 62 (GAO/HEHS-96-103, June 1996), available at: http://www.gao.gov/archive/1996/he96103.pdf; U.S. General Accounting Office, Condition of America's Schools at 14 (GAO/HEHS-95-61, Feb. 1995), available at: http://www.gao.gov/archive/1995/he95061.pdf.
13. Education Law Center, Safe and Adequate: Using

Litigation to Address Inadequate K-12 Schools at 3, available at: http://www.edlawcenter.org/ELCPublic/Publications/PDF/Safe_and_Adequate.pdf.

14. See ASCE website, http://www.asce.org/reportcard/2009/grades.cfm. The ASCE notes that no comprehensive, authoritative nationwide data on the condition of America's school buildings has been collected in a decade.

15. For example, in its 1995 survey of schools, the GAO report concluded that for every $1 not invested in repairing leaking roofs, the system falls behind $620 due to the eventual need for more extensive repairs. U.S. General Accounting Office, Condition of America's Schools at 14 (GAO/HEHS-95-61, Feb. 1995), available at: http://www.gao.gov/archive/1995/he95061.pdf.

16. The Environmental Law Institute publishes a database of state IAQ laws, including laws addressing IAQ in schools. See http://eli.org/Program_Areas/indoor_environments.cfm.

17. One of these policies, an Ohio law, was repealed in July 2009 but is included in Chapter Two as an example that other states should consider when crafting a policy for addressing IAQ in school health and safety inspections.

Addressing School IAQ Through State Health Laws: Minimum School Facility and Inspection Requirements

One fairly straightforward state policy approach to addressing school IAQ is through state health laws and their implementing regulations. State health codes commonly address the sanitary condition of public and private facilities and may include inspection programs to verify compliance. Such laws can provide a foundation for establishing minimum IAQ criteria for school facilities and for ensuring compliance with those standards.

Overview of State Laws

A number of states already have health laws that require school inspections to ensure compliance with state health, sanitation and/or safety criteria. Some of these laws direct local health agencies to conduct the inspections. Others charge the state health agency with conducting inspections (which responsibility may, in some cases, be delegated to local health agencies). The laws vary in terms of the frequency of the inspections, as well as their scope and content, though most have *not* established broad requirements relating to indoor air quality. Thus, while many states currently have authority through their health laws for establishing and overseeing minimum IAQ criteria for school facilities, few have put in place a detailed framework for doing so. The chart below summarizes the basic elements of several state laws that currently require school inspections.

Selected State Health Policies Establishing Requirements for School Health/Sanitary Inspections

State	Citation	Inspecting Authority	Frequency
Ohio	Ohio Rev. Code §§3707.26	Local Health Agency	Semi-annually
Washington	Rev. Code Wa. 43-20-050 Wa. Admin Code 246-366	Local Health Agency	Not Specified ("Periodic")
Vermont	Vermont 18 Vt. Statutes 608	Local Health Agency	Annual
Utah	Utah Code 26A-1-114(3) Utah Admin Code R392-200	Local Health Agency	Every 6 months
Pennsylvania	24 Pa. Stat. 14-1420 28 Pa. Code 17.51	Local Health Agency	Not Specified ("Throughout the year")
Nevada	Nev. Rev. Stat. 444.335 Nev. Admin. Code 444.56826	State Health Agency or Local Health Agency	Twice per year
North Carolina	N.C. Statutes 130A-236 15A NC Admin Code 18A.2402	State Environment Agency	Annual
South Carolina	S.C. Statutes 44-1-140 S.C. Admin Code 61-42	State Health Agency	Not Specified
Kentucky	Ky. Rev. Stat. 211.180 902 Ky Admin. Regs. 45:150	State Health Agency	Every 6 months
Indiana	Indiana Code 16-41-37.5-2	State Health Agency	Upon complaint

Two states revised their existing school health and safety laws and regulations in 2009 to address IAQ issues more comprehensively. The **Washington** State Board of Health completed a multi-year process of revising the existing state regulation that called for periodic school inspections by local health departments. This process included establishment of a multi-stakeholder School Rule Development Committee and technical workgroups on IAQ and other key issues, development of multiple draft rules, consideration of extensive public comments, and convening of numerous public meetings. The new regulation adopted by the Board in August 2009 requires annual inspections by local health departments and establishes a more detailed set of criteria that must be reviewed during the inspections. The criteria address indoor air quality along with several other major issues, including drinking water, playground safety, site assessment and construction requirements. The measures relating to IAQ in existing facilities cover issues such as moisture control, mold prevention and remediation, minimum ventilation, best practices for maintaining and operating HVAC systems, and animals in classrooms.

Although Washington's new regulation has been adopted by the Board of Health, the state legislature enacted budget legislation for 2009-2011 that prohibits implementation of new rules unless the legislature appropriates funding for the implementation.[1] Thus, unless the legislature takes other action, the new rules cannot be implemented while the budget legislation is in effect. In the meantime, the Board's existing school health and safety rule, which calls for periodic school inspections by local health departments, remains in effect. Numerous documents relating to the rule revision process are available on the websites of the Board and of the state Department of Health.[2]

The state of **Indiana** has taken a somewhat different approach. In 2009 Indiana enacted legislation expanding its existing complaint-based, school IAQ inspection program. Under the law, the state health department must conduct an inspection following an IAQ *complaint,* issue a report that identifies steps the school should take to address any IAQ issue, and request a response from the school within 60 days. The law's implementation will be affected significantly by the rules that the agency must develop to govern the inspection and notification program and to establish best practices for IAQ in schools. The state must consult with an air quality panel established under the law in developing the best practices manual. Such laws have certain elements in common with the public occupational safety and health programs discussed in Chapter Three of the report.

For the past few years, the state of **Ohio** has had one of the most comprehensive school health and safety policies incorporating IAQ issues. A state law enacted in 2005 required annual school inspections carried out by local health departments and called for state regulations to implement the law. The new rules established a fairly detailed set of school facility criteria, including numerous IAQ-related requirements. The law, however, was *repealed* in July 2009.[3] The state legislature included a one-line repeal of the school health and safety law as part of a 3,000-page budget bill that affected many programs and addressed a variety of contentious state policy issues. The budget legislation also re-instated the earlier statutory requirement that local health departments inspect schools twice per year.[4]

According to state officials, the Ohio Department of Health currently is determining its future approach to the school environmental health program. Officials note that the agency will maintain its school environmental health website and will continue to recommend use of its 2008 inspection manual as guidance for conducting school inspections. Local health jurisdictions are considering adoption of local rules for inspection, which may result in inconsistent policy across the state. Nevertheless, the following case study discusses the 2005 law and its implementation. It is included because Ohio's former policy remains an example that other states should consider when integrating IAQ issues into the school health and safety inspection process. It is important to keep in mind when reading the case study that the referenced law is no longer in ef-

fect, and the status of other policy documents cited here is uncertain.

Case Study: Ohio

Statute: Ohio Revised Code §§3701.931-.935 ("Jarod's Law") (repealed per 2009 Ohio H. B. 1)

Regulation: Ohio Administrative Code Chapter 3701-54

Summary: The Ohio legislature enacted Jarod's Law in December 2005 in response to the tragic death of a child who was struck by a mobile folding cafeteria table in his elementary school. The new law aimed to strengthen Ohio's existing school health and safety inspection program, calling on the state's health agency to establish new minimum standards and procedures for inspections. The Department of Health adopted rules to implement Jarod's Law in 2007, and the agency later developed a guidance manual and templates to assist local agencies in carrying out the new requirements.

Key Components of the Policy

Local Health Agency Inspections. In Ohio, local health districts are separate political subdivisions that are managed by Health Commissioners and an appointed Board of Health. The local Boards of Health historically have been charged with conducting sanitary inspections of schools. Jarod's Law gave local boards of health continued responsibility for conducting school inspections under the new inspection framework.[5] The local board could request that a school representative participate in the inspection as well.[6]

Annual Inspections. Jarod's Law required that schools be inspected at least once each year. The rules call for inspections to take place once every school year, with a maximum of 15 months between inspections.[7] Prior to the enactment of Jarod's Law, state law required semi-annual school health and safety inspections. (As noted earlier, the recent repeal of Jarod's Law reinstated the semi-annual inspection requirement.) According to officials, a survey done prior to enactment of Jarod's Law found that local health boards in the state typically were conducting between one and two school inspections per year, while only a handful of localities had no school inspection program. According to officials, the change from semi-annual to annual inspections instituted by Jarod's Law reflected the fact that the new inspection was more comprehensive in scope.

IAQ Criteria. Although Jarod's Law had a strong focus on safety, the legislation integrated safety and health within a single school inspection program. The law did not list the general or specific items to be included in the inspection, but rather directed the state Department of Health to adopt rules establishing minimum facility standards and procedures for carrying out the inspections.[8]

The law required the department to consult with four state associations (health commissioners, environmental health, education and school boards) in adopting the rules.[9] Prior to the adoption of Jarod's Law, the department had already been working with local officials and non-governmental stakeholders through multiple advisory committees in an effort to revise the agency's existing school health and safety guidance document (described below). According to officials, this process was vital in providing a broad level of input to the department on the key health and safety elements proposed for inclusion in the new rules. In developing the guidance and the rules, the state and other parties considered existing guidance documents from other states, as well as EPA's *IAQ Tools for Schools* program materials.

The rule, which took effect in September 2007, covers not only IAQ, but a wide range of health and safety issues.[10] The rules have different sections governing (1) school grounds and building exteriors; (2) indoor environments; (3) specialty classrooms; and (4) administrative and non-classroom areas. Within each section are numerous specific requirements that a school facility must meet and that must

be checked during the annual inspection. For example, the rule requires that "gutters, downspouts, scuppers and storm drains shall be properly connected and shall show no signs of obstruction."[11] Another requirement states that "there shall be no excessive accumulation of chalk or marker dust and markers shall be low or no volatile organic compound emitting."[12]

Incorporating IAQ Elements into a School Health and Safety Inspection Program

The Ohio Department of Health rule implementing Jarod's Law addresses many issues that directly affect school indoor air quality, including specific requirements in the areas of:

- Roofs and gutters
- Water intrusion
- Water damage/moisture control
- HVAC systems (adequacy; continuous operation; noise; mold/debris; minimum filter rating)
- Pest infestation control
- Animals in classrooms (restrictions, management)
- Chemicals (use restrictions; storage; inventory)
- Carpeting (use and maintenance)
- Other pollutant source controls (outside air intake location; walk-off mats; local exhaust; engine idling; application of paints, sealants, etc.)
- Temperature/humidity (optional assessment; acceptable levels)

The rule also requires that schools adopt their own administrative rules or protocols for a variety of health and safety issues, including radon testing, asbestos management, chemical hygiene, and integrated pest management. The Department of Health created sample policies that school districts can use.

Inspection Forms/Templates. According to the law, inspections must utilize forms, templates or checklists developed or approved by the Department of Health.[13] The Department has not developed a separate "checklist" that inspectors must use during inspections.

Reporting. Jarod's Law required each local board of health to send a report of the annual inspection to a variety of parties: the principal or equivalent; the head of facility operations and maintenance; the superintendent and board of education (or equivalent); and the auditor of state. The law did not require reports to be sent to the Department of Health, nor did it explicitly authorize the agency to request copies of the report. The report of the local board of health was to include recommendations for abating any conditions that are "hazardous to occupants," as determined by the local board.[14]

The Department of Health developed a sample school inspection report, illustrating how local health boards should write up school conditions. The sample report includes some of the most frequently observed violations, providing information on the applicable standard, the nature and location of the problem, and a deadline for corrective action.[15]

Corrective Action/Penalties. According to the rule, within 60 days of receiving the inspection report, a school must submit a "written plan for abatement of conditions identified" in the report.[16] The plan, which is considered a public record, must include a schedule for completing the abatement. The local board of health is charged with determining compliance with the plan and with submitting a supplemental inspection report to all parties once the plan is completed.

The Department of Health has developed a sample school abatement plan. The sample plan includes many typical violations and describes the nature of the violation, the remedy, and the date of completion.[17]

A separate Ohio law authorizes local boards of health to "remove or correct all conditions detrimental to health or well-being found upon school property by serving an order . . . . for the abatement

of such nuisance or conditions within a reasonable but fixed time."[18] Violation of an order is prohibited under state law and is considered a misdemeanor.[19] Thus, local health boards could issue orders to school boards for IAQ-related conditions and could take action to enforce those orders.

Implementation of the Policy

Development of Guidance. The Ohio Department of Health began the process of revising its school inspection manual in 2002, years before passage of Jarod's Law. At that time, the department began collecting information from local health departments regarding their school inspection practices and their need for additional guidance from the state. According to the agency, many local health boards were in favor of replacing the existing general health and safety provisions with more specific requirements. The final Inspection Manual, published in 2008, aims specifically to assist in implementing the new school inspection rules.[20] (As noted earlier, the Department of Health plans to continue recommending use of the manual to guide local inspections, notwithstanding the repeal of Jarod's Law.)

Including Stakeholders in the Development of IAQ Guidance

Including diverse stakeholders in the development of state policy brings not only added expertise, but also a range of interests and views. Throughout the multi-year process of revising its school IAQ guidance manual, the Ohio Department of Health incorporated outside input in a variety of ways. Notably, the revision process included two separate advisory committees comprised of representatives from state and local government, as well as numerous non-governmental organizations.

To facilitate consistent inspections throughout the state, the Inspection Manual covers each requirement in the rule, providing background on the issue, guidance on how to address the requirement, and references for further information. The manual also provides sample policies for schools to adopt in areas mandated under the law – *e.g.,* vehicle idling, radon, and IPM. The items in the manual "constitute what ODH believes to be both important to the proper operation and maintenance of these environments and easily inspected by public health inspectors and schools…."[21] The Inspection Manual recommends that local health boards contact schools in advance to schedule the inspection, and that a school staff member accompany the inspector to ensure access to all areas of the facility. The state recommends inspecting 25 percent of the general classrooms, along with all specialty classrooms.

In addition to publishing the Inspection Manual, the Department of Health adapted the EPA's Healthy School Environments Assessment Tool (HealthySEAT), a computer-based, customizable assessment tool to help school districts evaluate and manage all of their environmental, safety and health issues. Local health departments and school districts can download the Ohio-specific HealthySEAT from the state's website. The assessment tool includes a checklist that incorporates all of the state requirements under Jarod's Law and its rules.

Resources for State and Local Implementation. Jarod's Law did not appropriate new funding for the Department of Health, nor did the legislation include a provision for the state to fund local health boards to implement the law. Local health boards typically rely on their general funds to carry out school inspections.

According to officials, the greatest cost to local health boards in implementing the law is the time spent conducting the inspections and any necessary follow-up. Prior to adopting its rules, the Department of Health queried the local boards of health to determine how much time they had been spending on inspections. The department estimated that the total time being spent on inspections previously (typically more than one inspection per year) would be similar to the amount of time required for the comprehensive annual inspection under the new law.

Although the Department of Health does not provide targeted funding for local school inspections, the department has provided local boards of health with a temperature and relative humidity meter, a CO_2 detector and a playground safety inspection kit. In addition to providing equipment, the Department of Health has offered technical assistance to local health boards and school districts on interpreting and applying the rules. The department has conducted 15 training courses around the state to familiarize local health and school officials with the requirements of the law.

Technical and Financial Assistance to School Districts. As noted above, the state has provided training to school officials. According to state officials, one concern on the part of school districts has been potential cost of making repairs to address problems identified during school inspections.

Observations

Health agencies can play a central role in helping to ensure safe and sanitary school conditions. Many states have existing state/local health infrastructure for conducting or overseeing school health and safety inspections, and several states already have laws that require such inspections. In Ohio, an existing state law requiring school inspections was revised to create a stronger framework for addressing health and safety issues as part of the school inspection process. Although the new policy was recently repealed, Jarod's Law and its rule illustrate some of the basic elements to consider in establishing this type of policy approach.

IAQ Requirements. Jarod's Law did not specify the criteria to be used in school inspections (and thus did not explicitly address IAQ issues), but the law directed the Department of Health to adopt rules that establish minimum criteria. This is significant; prior to Jarod's Law, the department did not have rules governing school inspections, but rather relied on a guidance document that left considerable room for local interpretation. The new rule provided a high degree of clarity in terms of the minimum requirements for school facilities. The state's Inspection Manual offers additional guidance.

The rule was developed through a multi-stakeholder consultation process that the department had initiated even prior to the law's passage. The process involved consideration of a wide range of information on Ohio school conditions and on the impact of IAQ problems. The result was a set of minimum requirements that cover many of the key IAQ issues affecting health and productivity.

Oversight. The central feature of Jarod's Law was the requirement for annual inspections by local health agencies to ensure compliance with the minimum standards established in the Department of Health rule. The law further required that school districts submit plans for correcting deficiencies and that the local health agencies determine compliance with those plans, though the law did not provide specific penalties for non-compliance. While a separate state law gives local health boards authority to take action to enforce a board order, it remains to be seen whether and in what circumstances local boards will pursue such formal enforcement action.

Thus, Jarod's Law is notable for addressing IAQ broadly, as part of a set of minimum health and safety criteria, and for providing a uniform statewide framework for regular school inspections to oversee compliance with these criteria. The effectiveness of this type of policy approach depends in large measure on the work of local health departments – both in conducting inspections and in monitoring any necessary follow-up actions by school districts. Absent state funding for local inspections, allocation of resources at the local level is likely to be a significant factor in how such a law is implemented statewide.

Capacity Building. Ohio's experience reinforces the importance of state efforts to support local agencies and schools in implementing state policy. Although Jarod's Law envisioned a limited role for the state, the Department of Health used general funds to conduct training throughout the state, provide

measurement equipment to inspectors, and prepare a variety of guidance documents and model policies for local officials to use in meeting the law's requirements.

NOTES

1. Wa. Eng. Sub. House Bill 1244 (Sec. 222).
2. See http://www.sboh.wa.gov/Rules/SchoolEH/index.htm (State Board of Health) and http://www.doh.wa.gov/ehp/ts/School/s-rdc/default.htm (Department of Health).
3. 2009 Ohio House Bill 1.
4. See Ohio Revised Statutes Annotated §3707.26.
5. Ohio Rev. Stat. Ann. §3701.931.
6. Ohio Administrative Code §§3701-54-04, 05.
7. Ohio Admin. Code §3701-54-04.
8. Ohio Rev. Stat. Ann. §3701.935.
9. Ohio Rev. Stat. Ann. §3701.935.
10. See http://www.odh.ohio.gov/rules/final/f3701-54.aspx.
11. Ohio Admin. Code §3701-54-06(a)(1)(i).
12. Ohio Admin. Code §3701-54-07(A)(6).
13. Ohio Rev. Stat. Ann. §3701.931.
14. Ohio Rev. Stat. Ann. §3701.932.
15. See http://www.odh.ohio.gov/odhPrograms/eh/schooleh/sehmain.aspx.
16. Ohio Admin. Code §3701-54-05(B).
17. See http://www.odh.ohio.gov/odhPrograms/eh/schooleh/sehmain.aspx.
18. Ohio Rev. Stat. Ann. §3707.03.
19. Ohio Rev. Stat. Ann. §§3707.48, 3707.99.
20. See Ohio School Environmental Health and Safety Inspection Manual, available at: http://www.odh.ohio.gov/odhPrograms/eh/schooleh/tmpage.aspx.
21. Ohio Inspection Manual at 5.

Addressing School IAQ Through State Labor Laws: Minimum Occupational Safety and Health Standards

Another avenue for developing school IAQ policy is through state labor laws that establish minimum standards for public workplaces, with a focus on protecting the occupational health and safety of employees. At the federal level, the Occupational Safety and Health Act ("OSHA") sets minimum standards for privately-owned workplaces throughout the country. States are encouraged to develop their own occupational safety and health programs. If a state program meets basic federal requirements, the state is eligible for federal funding, and the state program supplants federal enforcement. In order to gain federal approval, the state program must cover public workplaces, which includes public schools.[1]

Overview of State Laws

In addition to states that carry out public occupational safety and health policies independent of the federal scheme, there are 26 states that have federally-approved state OSHA programs covering public workplaces.[2] Typically implemented by the state labor agency, these programs share certain elements that are prerequisites for federal approval.[3] The programs must develop and enforce health and safety standards that are at least as effective as the federal standards, though they may adopt more stringent standards and may adopt standards in areas not covered by the federal law. The state programs must establish a state right to inspect workplaces that is at least as effective as the federal law, which provides broad inspection authority and requires inspections in response to worker complaints. State-approved OSHA programs must also provide "qualified personnel" and must devote "adequate funds" for administering and enforcing the workplace standards.[4]

State OSHA programs have adopted substantive standards that are largely identical to the federal standards, though some programs have modified certain federal standards or created new standards for areas not covered by the federal law.[5] The federal law includes a "general duty" clause that requires employers to provide a place of employment that is "free from recognized hazards that are causing or are likely to cause death or serious physical harm" and to comply with the law's health and safety standards.[6] The federal standards address certain specific chemical pollutants, but were established primarily for the industrial context and for healthy workers. Neither the federal OSHA standards nor most state standards address directly indoor air quality issues for settings such as schools. One exception is the state of **California,** which has adopted regulations that address two important IAQ issues – water intrusion and HVAC (heating, ventilation and air conditioning) systems. The California regulations call on employers to operate HVAC systems continuously and to inspect them annually. They also require employers to correct building conditions involving uncontrolled accumulations of water, in order to prevent mold growth.[7]

The state of **New Jersey** has taken the most expansive approach to addressing IAQ in schools through the lens of workplace health and safety, as discussed in the following case study.

Case Study: New Jersey

Statute: New Jersey Statutes Ann. §§ 34:6A-25, *et seq.* (Public Employees Occupational Safety and Health Act)

Regulation: New Jersey Administrative Code §§12:100-13.1 *et seq.* (Indoor Air Quality Standard)

Summary: New Jersey's Public Employees Occupational Safety and Health (PEOSH) Act establishes the framework for regulating safety and health in public workplaces throughout the state. Under the PEOSH Act, the state has adopted a regulation focused specifically on indoor air quality and has created informational resources to assist in implementing the requirements. The New Jersey law and regulations are unusual in that they are implemented jointly by the state labor and health agencies.

New Jersey's Public Employees Occupational Safety and Health Act directs the state Commissioner of Labor and Workforce Development to adopt all applicable federal standards as part of the PEOSH regulations. The law also authorizes the Commissioner to develop state standards where no federal standards are applicable or where standards more stringent than federal standards are deemed advisable.[8] The standards must be developed in consultation with the state Departments of Health and Senior Services and with the advice of the Public Employees' Occupational Safety and Health Advisory Board established by the law.[9]

New Jersey developed an IAQ regulation under the PEOSH Act in 1992 and again in 1997. The regulation was issued following a high volume of complaints and requests for assistance relating to IAQ problems, as well as petitions for an IAQ Standard from public employee unions within the state. In 2007, the regulation was revised in response to a proposal submitted to the PEOSH Advisory Board from the New Jersey Work Environment Council, a membership alliance of labor, environmental and community organizations that has played an active role in addressing IAQ issues in workplaces throughout the state. The Advisory Board set up an IAQ sub-committee composed of a variety of experts and interested parties (including those who submitted the proposal), which made specific recommendations on revising the regulation to strengthen and expand the IAQ criteria.[10] The regulation is known as the Indoor Air Quality Standard.[11]

A significant feature of the IAQ Standard is that it is implemented jointly by the state's health and labor agencies. The PEOSH Act explicitly gives the Commissioner of Health and Senior Services responsibility for conducting inspections and related activities in the areas of occupational health and environmental control, medical and first aid, toxic and hazardous substances, respiratory protective equipment, and sanitation.[12]

Key Components of the Policy

IAQ Requirements. The current PEOSH Indoor Air Quality Standard establishes specific requirements in areas including ventilation and HVAC maintenance, moisture control, and renovations in occupied building.

The regulation also establishes requirements designed to ensure that these IAQ criteria are implemented on an ongoing basis. In addition to following a preventive maintenance schedule for the HVAC system, public employers must:

- Designate an employee who is responsible for compliance with the IAQ requirements;
- Develop and maintain a written compliance plan for meeting the IAQ requirements;
- Investigate employee IAQ complaints; and
- Update records to reflect all maintenance performed, keep records on file for three years, and make the records available to employees upon request.[13]

The IAQ Standard is thus unusual in addressing some of the core elements of a comprehensive IAQ Program.

Incorporating IAQ Elements into a State Occupational Safety and Health Rule

New Jersey's PEOSH IAQ rule addresses the following key IAQ issues:

- HVAC – specifies certain preventive maintenance items, which must be addressed according to a regular schedule (developed and implemented by the employer) and when CO_2 levels are high or temperatures are outside specified parameters.
- Moisture control – requires remediation of damp or wet materials, repairs following water intrusion, and removal of microbial contamination.
- IAQ during renovations – requires contaminant control, review of toxicity of building materials and products, and notification of employees.

State Inspections. As mentioned above, the state health agency (Department of Health and Senior Services, or DHSS) is responsible for carrying out inspections relating to indoor air quality and other health issues.

The law authorizes the state to carry out an inspection without advance notice, as deemed necessary.[14] The state is *required* to conduct an inspection following receipt of a complaint from an employee. According to the statute, public employees may request in writing that the DHHS Commissioner conduct an inspection if they believe there is a violation of a PEOSH health standard or that an imminent danger exists. Employees may request that their identity not be revealed to the employer. Following receipt of a complaint, the state must conduct an inspection at the "earliest time possible."[15] Health officials note that the speed with which an inspection is carried out varies, depending in part on the number of complaints the agency has received and how many of those complaints involve imminent hazards that receive priority in scheduling an inspection.

A representative of the employer, the employee requesting the inspection, and an employee representative must be given the opportunity to accompany the inspector during an inspection for the purpose of aiding the inspection.[16] The state's inspection need not be limited to the items in a complaint, and the inspector may investigate any matters covered by the regulation.[17] Thus, if the program receives a complaint about mold and moisture in a school, the inspector may require documentation of compliance with the other parts of the regulation, such as the requirement for a written plan and a designated IAQ contact. Health officials note that the PEOSH program inspects those parts of the school facility that are stated in the complaint and requested by the parties participating in the inspection. According to officials, inspectors conduct a visual inspection and take measurements for CO, CO_2, temperature and relative humidity.

The federal Department of Labor (Occupational Safety and Health Administration) has adopted a Field Operations Manual, which includes general rules and standard operating procedures for conducting inspections, and states are expected to document comparable internal administrative procedures and processes.[18] The PEOSH program is developing its Field Operations Manual, which will take the place of the current Field Inspection Resources Manual.[19] According to officials, the program follows federal OSHA protocols on documenting violations with evidence that can be used in an enforcement action if necessary.

Inspection Forms. Following the 2007 revision to the IAQ Standard, the health department's PEOSH program revised the checklist to be used during inspections. The checklist includes "yes/no" questions relating to each requirement of the IAQ Standard, along with a citation to the relevant regulatory provision. The checklist thus provides a clear mechanism for reviewing compliance with the minimum requirements. The checklist itself does not, however, require documentation of which parts of the building were inspected, nor does it require narrative descriptions of problems or recommendations for cor-

rections. According to officials, inspectors prepare a formal written report following the inspection.

Penalties. Under the PEOSH Act the health department does not issue orders to comply, but rather certifies to the state labor agency – the Department of Labor and Workforce Development – that a violation has occurred. The labor agency must then issue to an employer a written order to comply if the agency determines that there has been a violation of the statute or of a standard or regulation issued under the statute.[20]

As part of the order to comply, the employer is required to submit within a specified time a statement noting whether or not correction has been accomplished for each citation item, a description of the corrective action measures, and the date the correction was made. If the employer fails to make a good faith effort to comply with the order within the time allowed, the Commissioner of Labor and Workforce Development is required to impose a civil administrative penalty of up to $7,000 per day for each violation. Willful or repeated violations are subject to penalties up to $70,000 for each violation. The Commissioner is authorized to collect the penalty through a civil action and is also given discretion to settle penalty claims (in consultation with the health department for health violations).[21] The PEOSH Act also authorizes the state Attorney General to bring an action for injunction in cases involving conditions that could "reasonably be expected to cause death or serious physical harm."[22]

Reporting. Under the PEOSH Act, the inspecting agency is required to maintain records of the results of all investigations and to make those records available to the public upon request. According to health officials, following a school inspection the program sends a letter and an industrial hygiene report to several parties, including the school, the superintendent, the complainant, union representatives and the state Department of Education. The report describes what was found, includes a statement of any citations, and makes recommendations of optional best practices on matters that may not be required under the regulation. If the state issues an order to comply to the employer, that order must be posted prominently at the place where the violation occurred.[23]

The IAQ Standard requires employers to maintain on file a written IAQ compliance plan, a written preventive maintenance program, and 36 months of preventive maintenance logs. These records must be available during an inspection and must be made available to employees within 10 days following receipt of an employee request.[24]

Implementation of the Policy

Resources for State Implementation. The health department's PEOSH program has seven inspector positions for conducting inspections regarding all PEOSH health standards for over 11,000 places of public employment in the state, including state, municipal and school district facilities. Additional PEOSH program staff members provide technical assistance and education on complying with the regulatory requirements. Program officials note that inspectors have a background in industrial hygiene.

Development of Guidance. The health department has prepared several documents to assist employers in complying with the law. In addition to the inspection checklist, the agency developed a sample maintenance log and a sample (non-mandatory) employee complaint form. The agency also has developed a guide for complying with the IAQ Standard, which includes a model written IAQ program. The model program restates the minimum elements that employers must implement in order to be in compliance with the regulations, and it also incorporates the preventive maintenance schedule.[25]

Financial and Technical Assistance to School Districts. The PEOSH Act requires the Commissioner of Labor, in consultation with the health department, to provide for the publication and dissemination of informational, educational and training materials to promote the goals of the Act,

as well as to establish and revise occupational safety and health education programs for employers and employees.[26]

Health officials note that there was a considerable amount of outreach and education that followed the revision of the IAQ Standard in 2007. The revised Standard included the requirement that employers assure that their designated IAQ contact is familiar with the requirements of the regulation, and the PEOSH program has provided workshops for these designated persons. Pursuant to the PEOSH Act and as required under federal law, the program also provides, on request, technical consultations to school districts to assist in complying with the regulation.

Institutionalizing Training for School Officials

The New Jersey PEOSH program developed a workshop for school district officials that explains the state IAQ Standard and provides practical information on addressing IAQ problems. According to officials, the training is now included as a component in the state Department of Education's continuing education program, which is required for school facilities managers.

State Oversight and Monitoring. State inspections are the core mechanism for oversight of school district compliance with the IAQ Standard. According to state health officials, although the PEOSH program is authorized to conduct inspections on its own initiative, the program does not conduct programmed inspections under the IAQ Standard; rather, the program currently conducts IAQ-related inspections *only* in response to a complaint. According to PEOSH officials, in a recent one-year period the program conducted 59 school IAQ inspections.

Officials note that the program regularly cites employers for violations. It is the agency's policy for the state to issue an order to comply even if the violation is corrected during the inspection, so that there will be a record of the problem. The program typically does not issue penalties with the first order to comply and seeks to cooperate with school districts that are actively working to correct a problem. In some cases, though, the agency has levied penalties against school districts.

Observations

The majority of states have occupational safety and health laws that offer a potential avenue for addressing IAQ in public schools. These laws provide a well-established regulatory framework designed to ensure that public employers throughout the state meet minimum health and safety requirements. New Jersey's PEOSH Indoor Air Quality Standard illustrates some of the opportunities, as well as the challenges, of addressing school IAQ through this statutory scheme. New Jersey's experience is directly relevant to states with federally-approved OSHA programs, but is also useful for states with other occupational health and safety policies and programs. New Jersey's program also suggests important considerations for state policies that authorize the state health department to conduct IAQ inspections upon complaint.

IAQ Requirements. Federal law explicitly authorizes states with OSHA programs to enact standards that exceed the federal minimum requirements and to create standards in areas not covered by federal law. New Jersey's PEOSH Act reiterates this authority, and the state created a new regulation establishing minimum IAQ requirements that must be met by all public employers, including schools. The requirements do not cover all possible IAQ-related issues, but they address core areas of concern – HVAC operations and maintenance, prevention and remediation of moisture problems, and control of contaminants during renovation.

New Jersey's regulation is significant not only because it establishes these specific requirements, but also because it includes provisions to help ensure that school districts institutionalize the practices mandated in the regulation. One of the key requirements is that every employer must have a "designated person" who is responsible for ensuring

compliance. This requirement, which is reviewed during state inspections, creates a clear point of contact and accountability for both the state and employees on IAQ matters. A second important requirement is for employers to have a written plan stating how they will comply with the various criteria established in the IAQ Standard. Although this plan is mainly an affirmation of the items mandated in the regulation, it creates another mechanism for accountability at the school district level. Health officials believe that these two requirements have prompted employers to resolve a greater number of problems on their own and have led to a decrease in the number and severity of IAQ complaints to the state in recent years.

Oversight. State OSHA laws provide a clear mechanism for state oversight, establishing enforcement procedures and penalties for ensuring compliance. State inspections – in response to employee complaints and on the state's own initiative – are the key vehicle for exercising this enforcement role. Thus, as with many regulatory programs, a credible and effective OSHA inspection program is vital to the effective implementation of the law.

New Jersey's statutory framework helps create the groundwork for such a program by designating the health department as responsible for primary implementation of the IAQ and other health-related requirements. Nevertheless, the health department's PEOSH program has a limited number of inspectors responsible for all health-related PEOSH requirements, and the program inspects for compliance with the IAQ Standard only in response to a complaint. In such circumstances, inspections are both a powerful and limiting feature of an OSHA program. If the state receives a complaint, the program must conduct an inspection and must issue a formal order to comply if a violation is found. However, if there is no employee complaint – whether due to lack of awareness, interest or willingness to pursue – then the state program would not investigate even if there is an IAQ problem and a violation of the state requirements. For this reason, New Jersey's requirements for a designated IAQ contact, an IAQ plan, and an employee complaint process are important components of the state program.

New Jersey's experience underscores the importance of ensuring sufficient state staffing for inspections to oversee compliance with IAQ requirements. Consistent with federal regulations, adequate personnel and funding resources must be made available to ensure that inspections will be conducted promptly in response to employee complaints. Ideally, resources would be available for programmed inspections as well, in the event of recurring or particularly prevalent IAQ problems. The type of authority provided in New Jersey's law for addressing matters that are not specifically listed in a complaint can help ensure that problems are addressed comprehensively and that programs make most effective use of limited inspection resources.

Capacity Building. In the OSHA context, as in other areas of state policy, education and training are vital to effective implementation of IAQ-related requirements. New Jersey's PEOSH Act contains a broad provision requiring the state to provide educational and training materials and programs to further the goals of the law. The state's IAQ Standard also requires that an employer's "designated person" be familiar with the regulation, and the PEOSH program offers training to support this requirement. Unions and non-governmental organizations have played a very significant role in raising awareness of the IAQ Standard and in providing training and information to employees in New Jersey.

Although the role of non-governmental programs can be vital to strengthening the implementation of state requirements, the law itself should establish education as a central component of the OSHA program. In this regard, it is important to note that federally-approved state OSHA programs are required to provide information to employers and employees. For example, the federal law requires "programs for the education and training of employers and employees in the recognition, avoidance, and prevention of unsafe or unhealthful working conditions."[27] The federally mandated and funded employer

consultation program assists employers in complying with the law and addressing IAQ problems on their own. The federal regulations also establish the Hazard Communication Standard, which requires that information be provided to employees about hazardous chemicals in the workplace (for example, chemicals used by school maintenance workers).[28] Employers must post in their workplaces information about employee rights under the OSHA law.[29]

These informational requirements provide the basis for states to educate employers and employees about IAQ-related issues. Employee education is particularly important, even in states such as New Jersey, where labor organizations have played a central role in promoting the development and implementation of the PEOSH IAQ requirements. Because OSHA programs rely heavily on complaints to trigger state oversight, the existence of well-informed – and possibly well-organized – employees is vital to an effective program. This includes educating employees and employee unions about how to prevent and recognize IAQ problems, about the IAQ requirements established under the law, and about the complaint mechanisms available to employees.

NOTES

1. 29 United States Code (U.S.C.) §667.
2. See U.S. Dept. of Labor OSHA website, http://www.osha.gov/dcsp/osp/faq.html#oshaprogram.
3. 29 U.S.C. §667.
4. 29 U.S.C. §667(c).
5. See U.S. Dept. of Labor OSHA website, http://www.osha.gov/dcsp/osp/faq.html#oshaprogram.
6. 29 U.S.C. §654.
7. See Cal. Code of Regulations, title 8, §§5142, 5143, 3362.
8. New Jersey Statutes Annotated §§34:6A-30(a), (c).
9. N.J. Stat. Ann. §§34:6A-30(c), 34:6A-28.
10. See NJDHSS PEOSH Program, Public Employer's Guide and Model Written Program for the IAQ Standard, available at: http://www.state.nj.us/health/eoh/peoshweb/peoshiaq.htm.
11. New Jersey Administrative Code §§12:100-13.1 et seq.
12. N.J. Stat. Ann. §34:6A-35.
13. N.J. Admin. Code §12:100-13.3.
14. N.J. Stat. Ann. §34:6A-35.
15. N.J. Stat. Ann. §34:6A-38.
16. N.J. Stat. Ann. §34:6A-36.
17. N.J. Stat. Ann. §34:6A-35.
18. U.S. Department of Labor, Occupational Safety and Health Administration, Field Operations Manual (rev. March 2009), available at: http://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-148.pdf.
19. See http://lwd.dol.state.nj.us/lsse/employer/Public_Employees_OSH.html.
20. N.J. Stat. Ann. §34:6A-41.
21. N.J. Stat. Ann. §34:6A-41.
22. N.J. Stat. Ann. §34:6A-44.
23. N.J. Stat. Ann. §34:6A-35.
24. N.J. Admin. Code §12:100-13.6.
25. See PEOSH program website, http://www.state.nj.us/health/eoh/peoshweb/peoshiaq.htm.
26. N.J. Stat. Ann. §34:6A-31.
27. 29 U.S.C. 670.
28. See 29 Code of Federal Regulations (C.F.R.) §1910.1200.
29. 29 C.F.R. §1903.2(a)(1).

Addressing School IAQ Through State Education Laws: Minimum School Facility and Inspection Requirements

The preceding chapters discussed state policies that establish frameworks for school facility inspection programs carried out by health or labor agencies. Another approach is for the state *education* code to require that schools be inspected regularly to ensure compliance with minimum health and safety criteria. Such laws generally call on school districts themselves to carry out inspections. Thus, the effectiveness of such policies may depend not only on how IAQ issues are incorporated into the inspection process, but also on how the state provides for oversight of school inspections and for the availability of facility information produced by the inspections.

Overview of State Laws

Several states already have laws, regulations and written policies that require school districts to carry out or arrange for their own facility health and safety inspections. These laws typically require annual inspections to be conducted by either the school district itself or by third parties hired by the district. A variation on this model is to require that regional (or county) offices of education, which provide service and oversight functions for school districts, conduct the inspections. The laws vary in scope and detail, including the substantive criteria to be inspected,

Selected State Education Policies Requiring School Districts to Conduct or Arrange for Annual Health or Sanitary Inspections

State	Citation	Notes
New York	N.Y. Educ. Law 409-d, e 8 N.Y. Code R & Reg. 155.3-166.7	5-year building surveys and annual visual inspections
California	Cal. Educ. Code 17002, 31216	Insp. frequency not specified, annual report req'd; County educ. offices also inspect certain schools annually
Idaho	Id. Code 33-1613 Id. Admin. Code 07.06.01	State educ. agency also authorized to inspect schools
Florida	Fl. Stat. 1013.12, 235.06 Fl. Admin. Code Rule 6A-2.0010	State educ. agency also authorized to inspect schools
Hawaii	Hi. Rev. Stat. 302A-1502	Insp. frequency not specified; annual as implemented
Wisconsin	Wi. Stat. 121.02 Wi. Admin. Code PI 8.01(2)(i)	State educ. agency also authorized to inspect schools
Illinois	105 Il. Comp. Stat. 5/3-14.21 23 Il. Admin. Code Pt. 180	Inspections conducted by regional offices of education
Rhode Island	R.I. Stat. 16-2-20 R.I. Admin. Code 01 025 013	

but most of the policies have not established broad requirements relating to indoor air quality. The chart below lists a number of these state laws. A different approach taken by several state education laws is to require the *state* education agency to inspect schools, though these policies generally do not establish an ongoing oversight program, as they typically call on the state to inspect only periodically or once every few years, rather than requiring annual inspection of all schools. Some state education laws authorize (but do not require) state education agencies to inspect schools.

The state of **California** recently enacted legislation designed to improve its school facilities, with a focus on school district self-assessments. The legislation, part of the settlement of the *Williams*[1] class action lawsuit, amended the state education code to require that all school districts receiving funding under the state's School Facilities Program or Deferred Maintenance Fund certify that they have a facilities inspection system in place to ensure that all of their schools are in "good repair."[2] Although the state had previously required schools to be maintained in good repair, the new law defined the basic elements of the good repair standard and directed the state to develop a school facility inspection and evaluation instrument for determining whether a school meets the standard. The Facilities Inspection Tool (FIT) developed by the state includes a few core IAQ factors (ventilation, mold/moisture, pest infestation) among many conditions to be evaluated. It also establishes a formula for calculating an overall facilities rating of excellent, good, fair or poor. The law does not specifically require school districts to conduct annual inspections and does not require submission or public reporting of the FIT itself. However, all schools in California must post an annual School Accountability Report Card which includes information about maintenance needed to meet the good repair standard, and the state's model report card incorporates abbreviated information from the FIT. Additionally, schools in the lowest-performing districts (according to the state's Academic Performance Index) are subject to annual inspection by county superintendents to determine whether the school provided accurate information on its report card related to facilities maintenance.[3]

The state of **New York** has one of the oldest and broadest education laws focusing on school district self-inspections. New York's law, in place for over ten years, requires that schools be inspected each year, specifies the inspection criteria, and provides for public reporting of the inspection results.

Case Study: New York

Statute*:* New York Education Law §§ 409-d, 409-e

Regulation: N.Y. Compilation of Codes, Rules and Regulations, title 8, §§155.3 – 155.6

Summary: In 1997, the New York legislature amended the state education code to create a comprehensive public school building safety program. As directed in the new law, the state education agency subsequently promulgated implementing regulations that established a Uniform Code of Public School Building Inspections, Safety Rating and Monitoring. A central element of the program is a requirement for school districts to inspect all of their buildings every year. Schools must report the inspection results to the state on common forms that include information about a number of core IAQ issues. The law also provides for ongoing facility monitoring by requiring of every school district a comprehensive maintenance plan that addresses indoor air quality, a school health and safety committee, a complaint response procedure, and an annual school report card.

Key Components of the Policy

Annual Inspections. New York's law requires annual inspections of all public schools.[4] The law authorizes and the regulations mandate a five-year building condition survey, as well as annual visual inspections in years not covered by a survey.[5] The annual visual inspection is a visual re-inspection of

the components addressed in the five-year building condition survey. The law also explicitly authorizes the state commissioner of education to require more frequent inspections "as deemed necessary to maintain the safety of school buildings and the welfare of their occupants."[6]

Team Inspections Conducted by School Districts. The education law does not specify which party is to conduct the annual school inspection, but rather requires the inspection to be carried out "in a manner and by persons meeting the qualifications" established in the regulations developed by the Education Department.[7] The regulations provide for school-district initiated inspections that must be completed before November 15th of each year. For the annual visual inspections, the regulations require an inspection team comprising: a state-certified code enforcement official, the district director of facilities (or designee), and a member of the district's health and safety committee. The five-year building surveys, by contrast, must be conducted by a team that includes at least one licensed architect or engineer.[8]

IAQ Criteria. The Education Law itself refers generally to major building systems, but does not otherwise specify the items to be covered in the required inspections.[9] The regulations, in turn, set forth general items that must be included in the five-year building surveys and re-inspected during the annual visual inspections for changes that may have occurred. Several of the building systems listed in the regulation are potentially relevant to IAQ issues:

- Building site
- Roofing
- Exterior building elements
- Building structural elements
- Building interiors, including finishes, doors and hardware
- Plumbing
- Heating and cooling
- Ventilation
- Environmental features (including appearance, cleanliness, acoustics, lighting, thermal comfort, humidity, ventilation and space adequacy)[10]

The regulations do not provide further detail within these general categories. However, the state has developed inspection forms which add more specific requirements regarding the facility conditions that must be verified through inspections.

The education law and regulations also establish separate and important requirements for construction activities in occupied buildings, designed to protect the health and safety of building occupants. The detailed provisions address: advance notification to parents, staff and the community of renovation activities and how health will be protected; involvement of the school health and safety committee; separation of the impacts from construction from occupied spaces; control of contaminants; testing and abatement of asbestos, lead and radon; and inclusion of health and safety measures in bid specifications and contract documents.[11]

Inspection Forms/Templates. According to the state law, the results of annual inspections must be recorded on forms developed by the Education Department.[12] The state has developed an Annual Visual Inspection (AVI) instrument for this purpose. The AVI form is very similar to the five-year building condition survey developed by the department, and the indoor environmental sections are identical.[13]

For the most part, the 22-page Annual Visual Inspection form contains a series of questions concerning the overall condition of a wide range of building components and systems. Under the indoor air quality section, the form includes several questions – mainly in "yes/no" style – that add detail to the general regulatory requirements. While some items on the AVI form must be completed only if the school district is noting additional problems or changes from the preceding year's inspection results, all of the IAQ-related questions must be answered

each year. Some space is provided for comments, though the form does not require inspectors to include details regarding any identified problems.

Incorporating IAQ Elements into Common School Inspection Forms

New York has developed a common inspection form that not only promotes consistency in annual inspections, but also provides additional detail regarding IAQ issues to be reviewed during the inspections. For example, the form includes questions about:

- Visible mold or water damage;
- Active leaks in roof or plumbing systems;
- Moisture condensation;
- Pollutant sources near fresh air intakes;
- Condition of filters and adequacy of outdoor air; and
- Active pest infestation.

Reporting. The Education Law requires that inspection results be reported to the state within 60 days of the inspection.[14] The regulations direct school districts to submit the Annual Visual Inspection Instrument in January of each year. The report must be completed using the paper form, and the data must be submitted electronically to the state via the state's website. The same general requirements apply to five-year building condition surveys, which must be signed by the licensed architect or engineer who conducted the survey.[15] School boards (or boards of cooperative educational services) must review and approve the annual inspection reports and building condition surveys, and the reports must be "made available to the public."[16] The Education Department posts all of the electronic forms in one file on its website.[17]

The education regulations also require that school districts also provide an annual report card for each of their occupied facilities.[18] The report card does not have to be submitted to the state, but must be presented by the school district at a public meeting.[19] The report card tracks the progress of building repairs identified in the building condition surveys and requires the district to estimate the costs to restore and keep the building systems in good repair, as well as the projected annual operations and maintenance budget. The Education Department has developed the format for the report card, which includes "yes/no" questions on the status of several environmental issues, such as: the school's asbestos (AHERA) plan; any required radon and lead testing; and many of the IAQ measures included in the AVI form.[20] The report card also includes a *safety rating* that rates the building overall as "excellent," "good," "satisfactory," or "unsatisfactory," as defined in the regulations. For a building to be categorized overall as excellent, good, or satisfactory, all systems related to health or safety must be rated as good or better. The safety rating is to be determined by the local school board after consultation with the school district's health and safety committee.[21]

Corrective Action/Penalties. The Education Law does not address corrective action for problems or deficiencies identified during annual visual inspections or building condition surveys. According to the Education Department regulations, if an annual inspection reveals that the building may have a deficiency that would result in an overall unsatisfactory or unhealthful safety rating, the district must retain a licensed engineer or architect to re-inspect the school and develop a corrective action plan.[22] The regulations also state generally that school boards must "take actions to immediately remedy serious conditions affecting health and safety in school buildings, and shall report such actions to the commissioner."[23]

Neither the law nor regulations expressly provide penalties for the failure to submit required inspection forms or for the failure to take corrective action to address specific facility deficiencies. If a building receives an overall unsafe/unhealthful safety rating, the certificate of occupancy is to be revoked by the Education Department.[24]

The education law contains a few provisions that address school district violations of other state laws

governing school facilities. For example, the education law authorizes the Education Department to notify school districts in writing of "the existence of a hazardous condition found in any school building within the school district that is in violation of applicable *building, health*, or *safety* codes or regulations that may threaten the health and/or safety of students or staff."[25] The school district must acknowledge and respond to the notice within five business days. According to education officials, there have been instances where school buildings have been closed by the Department as a result of follow-up inspections by the Department. The majority of these closings have been temporary in nature while violations were corrected.

The education law also requires schools to have an annual fire safety inspection for compliance with the State Uniform Fire Prevention and Building Code. School districts must correct violations and may only be issued a certificate of occupancy if the inspection indicates the building is suitable for occupancy and free of violations. Schools may not be occupied or otherwise used unless they have a valid certificate of occupancy issued by the Commissioner of Education.[26]

Comprehensive Maintenance Plan. As noted above, in addition to requiring inspections, the education law requires the state to develop a monitoring system for overseeing the safety of school facilities on an ongoing basis. As part of this monitoring system school districts are required to have in place a comprehensive maintenance plan.[27] The regulations state that this plan must include "*maintenance procedures and guidelines which will contribute to acceptable indoor air quality*."[28] Other than mandating that the plan include provisions for "a least toxic approach to integrated pest management," the regulations do not state the minimum criteria for a comprehensive maintenance plan.[29] The plan must be available for public inspection.

The Education Department has created a model maintenance plan that school districts may use. The Plan is framed as a series of "yes/no" questions concerning whether the school is carrying out certain maintenance practices. Several items relate to IAQ, including questions about: ensuring that the HVAC systems is operated and maintained properly; inspecting for leaks, mold, and pest infestation; measuring for CO, CO_2, relative humidity and radon; managing chemicals; and addressing IAQ complaints. The Plan also asks whether the school is using the EPA's *IAQ Tools for Schools* kit.[30]

Health and Safety Committees. As part of the monitoring plan, local boards of education must appoint a health and safety committee composed of district officials, staff, bargaining units and parents.[31] School districts must also involve these health and safety committees in monitoring safety during school construction projects.[32] As noted above, the annual visual inspection team must include a representative from the committee.

Complaint Procedures. School districts are required to adopt procedures for investigating and disposing of health and safety complaints that include providing written responses to written complaints and making the complaint records available to the public.[33] A copy of the response must be forwarded to the district's health and safety committee.

Implementation of the Policy

Resources for State Implementation. The Education Department has only one staff person – who has other responsibilities as well – overseeing the school inspection and related requirements described above. There are over 700 school districts in the state, representing thousands of individual school facilities.

State Oversight and Monitoring. The state's role in overseeing compliance with the law's reporting requirements is limited, due in part to resource constraints and in part to the absence of explicit oversight mechanisms in the statute, such as penalties for failure to comply. The state collects the Annual Visual Inspection reports and the building condition survey reports and posts them online.

According to education officials, if a school district fails to file a report, the state contacts the district. To accomplish this follow-up, the Education Department works with its 37 regional Boards of Cooperative Educational Services (BOCES – created and partially-funded by the state to provide shared programs and services to school districts), which communicate with the school districts.

With respect to oversight of corrective action to address building deficiencies, the Education Department plays a limited role as well. Neither the law nor the regulations create a clear framework for state review of the *results* of mandated school inspections. The law does not direct the state to use the inspection or survey forms when making decisions on funding capital projects. According to officials, though, the Education Department does seek to identify significant maintenance problems noted in the building conditions survey or annual visual inspection report when approving any new school building plans. When a district applies for approval to build or renovate a facility, the department can review the district's inspection and evaluation forms to determine whether there are serious deficiencies. Officials indicate that the department may request plans for correction of such deficiencies before approving new projects.

Financial and Technical Assistance. Pursuant to the state law, state aid is available to school districts for conducting the five-year building condition surveys.[34] According to officials, the Education Department periodically conducts workshops and trainings on various environmental topics relating to school facilities, but that additional resources for providing outreach and education to school districts would be very useful in enhancing implementation of the law.

Observations

A number of states already have education laws in place requiring school districts to inspect their facilities on an annual basis. New York's law, regulations and guidance establish several specific requirements that are important for ensuring meaningful implementation of such a school inspection and monitoring system. New York's experience highlights a number of key issues to consider in the development and implementation of this type of policy approach. Many of these considerations are also relevant to state policies establishing regular school inspections by state education agencies.

IAQ Requirements. The central component of any law requiring school IAQ inspections is articulation of the building conditions that must be evaluated during the inspection. New York's law and regulation do not provide detail in this regard, but do list the basic building systems to be inspected. The law also directs the Education Department to develop inspection forms that school districts must use. In creating the inspection forms, the agency used the broad authority provided in the law to include quite a few important IAQ items as part of the minimum criteria that must be inspected by school districts.

Like the approach taken in New Jersey, New York's policy supplements specific IAQ-related facility criteria with certain general requirements designed to ensure that school districts monitor IAQ conditions on an ongoing basis. The New York law requires that districts use a comprehensive maintenance plan, appoint a health and safety committee, and implement a complaint process. These are important measures for institutionalizing IAQ programs at the school-district level and providing another layer of accountability for school conditions. States can help achieve effective and consistent implementation by specifying the minimum content of these measures or providing a model for school districts to adopt.

Oversight. A policy that focuses on school district self-inspections should enable state agencies and local communities to determine *whether* the inspection requirements are being met and *how* facility information generated by school districts is being used. New York's requirement for reporting annual facility inspection information to the state

is a potentially powerful tool for addressing school health and safety issues. However, the law does not mandate, and the Education Department has not created, an ongoing state program to oversee the quality of the information collected or to determine whether the information is actually used to address deficiencies. Education officials note that the agency seeks to ensure that a particular facility's deficiencies are addressed if the school district applies for state approval of a construction project at the facility.

New York's experience underscores the importance of dedicated resources so that the state agency can play a significant role in defining and overseeing school district responsibilities. Such oversight could include the ability of the state education agency to conduct a school facility inspection if a school district fails to do so or if there is evidence of serious health and safety problems. In many states, education agencies already have authority to conduct such inspections. As noted earlier, the state of California requires that county offices of education inspect annually the schools that rank lowest in academic performance, in order to assess facility conditions and check the accuracy of facility information generated by the school's inspection system.

Community access to school facility information can help local communities play a supportive role in promoting healthy school facility conditions. While general school facility report cards and ratings may be useful in a broad sense, access to the actual inspection reports is important for educating the community on specific school IAQ conditions. In New York, every inspection report is posted on the Education Department's website, creating a state-wide record of self-reported school facility conditions. These reports could also be made available at the school itself or on the individual school websites. Another important local oversight component of New York's law is the requirement that school districts establish procedures for investigating and disposing of health and safety complaints. California law establishes a uniform complaint process that includes considerable detail on how schools must respond to complaints about facilities and other issues. For example, California schools must remedy a valid complaint within 30 working days and report the action taken within 45 days. School districts are required to summarize the nature and resolution of all complaints on a quarterly basis and to report this information at quarterly public meetings.[35]

Capacity Building. New York's program also highlights the need to devote state resources to providing information and training to assist school districts in understanding the state law and in carrying out an effective, ongoing approach to meeting the law's requirements. In some states, cooperative educational services offices may be able to provide training courses and/or offer technical assistance as needed to its member districts. Materials explaining clearly the law's requirements and how best to implement them can help increase understanding of the law among district officials and local community members alike.

NOTES

1. This lawsuit was filed on behalf of public school students against the state of California, alleging that state education agencies failed to provide the students wit equal access to instructional materials, safe and decent school facilities, and qualified teachers. See http://www.cde.ca.gov/eo/ce/wc/wmslawsuit.asp.
2. See Cal. Education Code §§17002, 31216.
3. For more information about California's Facility Inspection Tool, see the Office of Public School Construction website, http://www.opsc.dgs.ca.gov/Programs/SAB-Programs/GRS.htm.
4. N.Y. Education Law §§409-d, 409-e(1).
5. N.Y. Educ. Law §409-e(2); N.Y. Compilation of Codes, Rules and Regulations (NYCRR), title 8, §155.4(b).
6. N.Y. Educ. Law §409-e(2).
7. N.Y. Educ. Law §409-e(2).
8. 8 NYCRR §155.4.

9. N.Y. Educ. Law §409-d(1). Fire safety and AHERA (asbestos) are addressed by separate inspections.
10. 8 NYCRR §155.4.
11. N.Y. Educ. Law §409-e; 8 NYCRR §155.5.
12. N.Y. Educ. Law §409(e)(2)(iii).
13. See http://www.emsc.nysed.gov/facplan/BldgCondSurv.htm.
14. N.Y. Educ. Law §409(e)(2)(iii).
15. 8 NYCRR §§155.4(b)(1), (2).
16. 8 NYCRR §§155.4(d), (b)(2)(vii), (b)(1)(iii).
17. See N.Y. State Education Dept. website, http://www.emsc.nysed.gov/facplan/BldgCondSurv.htm.
18. See N.Y. State Education Dept. website, http://www.emsc.nysed.gov/facplan/Report_card/school_facility_report_card.html.
19. 8 NYCRR §155.6.
20. N.Y. State Education Dept., School Facility Report Card form, available at: http://www.emsc.nysed.gov/facplan/Report_card/School_Facility_Report_Card_042204.doc.
21. 8 NYCRR §155.4(c).
22. 8 NYCRR §155.4(b)(2).
23. 8 NYCRR §155.4(d)(9).
24. 8 NYCRR §155.4(c).
25. N.Y. Educ. Law §409-d(3)(emphasis added).
26. 8 NYCRR §155.8(e).
27. N.Y. Educ. Law §409-e(4).
28. 8 NYCRR §155.4(d)(2) (emphasis added).
29. *Id*.
30. See N.Y. State Education Dept. website, http://www.emsc.nysed.gov/facplan/forms/Comprehensive_Maintenance_Plan_052005.xls.
31. 8 NYCRR §155.4(d)(1).
32. 8 NYCRR §155.5.
33. 8 NYCRR §155.4(d)(7).
34. N.Y. Educ. Law §3641(4); 8 NYCRR §155.4(b)(1)(iii).
35. Cal. Health & Safety Code §35186.

Addressing School IAQ Through State Education Laws: Requirements for a School IAQ Management Program

Another state policy approach for spurring local action is to require school districts to develop and implement their own Indoor Air Quality Management Program. This is similar to, yet broader than, a requirement for schools to conduct facility inspections. The phrasing of this requirement may vary – schools may be required to adopt an IAQ Program or an IAQ Plan – but the basic goal is to institutionalize at the school district level a comprehensive approach to managing a broad range of indoor air issues. The effectiveness of this type of policy depends in large part on the scope of the IAQ Management Program that is required by the state, as well as the extent to which the policy provides for outside monitoring of how school districts implement the requirement on an ongoing basis.

Overview of State Laws

Two states – **Minnesota** and **Connecticut** – have enacted legislation requiring school districts to establish a broad-based IAQ Management Program. Minnesota has had a law in place for over ten years that requires school districts to have an IAQ Management Plan in order to receive state approval for using capital health and safety revenue. Connecticut's more recent law requires all existing schools to develop and implement an IAQ Program. The two case studies presented in this chapter describe these policies and discuss the considerable differences in how they have been implemented.

Minnesota's law falls within the portion of the state education code addressing requirements for using capital health and safety revenue, while Connecticut's law is contained in the part of the education code describing the general duties of local boards of education. Other aspects of a state's education code could provide a basis for requiring school districts to implement an IAQ program. For example, many states have laws that require school districts generally to develop maintenance plans, and these laws could be used to focus greater attention on IAQ issues. The laws and/or their implementing regulations and guidance could require school districts to address a wide range of specific IAQ issues in their maintenance programs. As discussed in the preceding chapter, **New York** has adopted a regulation requiring schools to adopt maintenance procedures and guidelines which will contribute to acceptable indoor air quality. In **Maine**, state law requires that school districts use a state-created maintenance template and software. The Maine Departments of Education and Administrative and Financial Services have developed a model maintenance plan that references state laws and general best practices for a broad spectrum of school maintenance and operations items, including several IAQ issues.[1]

State laws that require school districts to develop maintenance plans could also promote the type of comprehensive approach to IAQ management discussed in the following case studies, by requiring school districts to implement an IAQ Management Program.

Case Study: Minnesota

Statute: Minnesota Statutes §123B.57 (1997)

Summary: Minnesota law requires that local school districts adopt an IAQ Management Plan and provides for financial consequences if a district fails to comply. The state statute is brief, and the state has not adopted implementing regulations. State agencies have, however, developed detailed substantive criteria for meeting the law's requirements. The state also has offered extensive technical assistance and training to school districts and has monitored district compliance with the law.

Key Components of the Policy

Adoption of an IAQ Management Plan. According to state law, in order for a school district to receive approval from the state for health and safety expenditures, the district must satisfy a variety of facilities-related requirements, including the adoption of a health and safety program. The health and safety program must include an IAQ Management Plan that incorporates a plan "to monitor and improve indoor air quality."[2] In most cases, this approval means that the local school district is permitted to levy local property taxes, without a special community referendum, in order to pay for health and safety projects and activities. State approval of the health and safety expenditure application is necessary before the school district can use the funds.

IAQ Requirements. Other than requiring a plan "to monitor and improve indoor air quality," the law is silent as to the form and content of the IAQ Management Plan. However, the Department of Health has worked with the Department of Education to develop a model IAQ Management Plan to be used by school districts.

The model plan is based largely on the guidance established by the EPA in its *Indoor Air Quality Tools for Schools* program. Minnesota's model plan differs from the EPA model in that Minnesota requires schools to conduct *annual* walk-through inspections and evaluations of building systems and also requires schools to have a formal complaint procedure. The model IAQ Management Plan Development Package provided by the Departments of Health and Education includes a variety of policies and procedures for school districts to edit and adapt to create a district-specific plan. It also includes a variety of checklists, forms, schedules and background documents to assist the district in developing and using its plan.

While school districts are not required to follow the precise format of the model plan, they are required to incorporate several basic elements in order to be considered in compliance with the state requirement.

Reporting. The only reporting requirement in the state law is the requirement that school districts include a health and safety program (with IAQ Management Plan) in their application for approval of state health and safety expenditures.

Penalties. Under the law, the penalty for failing to adopt an IAQ Management Plan is potential ineligibility for using health and safety revenue. The Department of Education reinforces the legal requirement to adopt a plan by including the requirement in the department's annual health and safety letter that is sent to school districts applying for approval of capital projects. The requirement for an IAQ Management Plan is included alongside several other life/safety requirements. According to officials, the state has not used its authority to deny a school district's application for project approval based on failure to submit a plan.

Implementation of the Policy

Despite the fact that Minnesota's law conditions the use of health and safety revenue on the adoption of an IAQ Management Plan, state officials note that the rate of compliance was low in the initial period following the law's enactment. Compliance has increased significantly in recent years, as a re-

Minnesota's Minimum Criteria for a School IAQ Management Plan

Minnesota's model school IAQ Management Plan incorporates the following minimum components:

1. A designated IAQ coordinator certified through a state-sponsored training program;
2. Completion of annual walk-through inspections for every instructional and administrative building;
3. Annual evaluation of classrooms using the *IAQ Tools for Schools* teacher's checklist or equivalent;
4. Annual evaluation of the ventilation system(s) using the *IAQ Tools for Schools* ventilation checklist or equivalent;
5. Annual evaluation of maintenance practices using the *IAQ Tools for Schools* maintenance checklist or equivalent;
6. A policy for responding to parental concerns; and
7. A district-specific written IAQ Management Plan including:
   a. Communication plan or policy;
   b. Complaint plan or policy;
   c. Plan or policy to address IAQ issues observed during the walk-through or the building systems evaluations;
   d. Implementation schedule that prioritizes and allocates expenditures to remediate known IAQ issues such as deferred maintenance items (e.g., roof leaks);
   e. Operations and maintenance plan to maintain building components and mechanical systems;
   f. One or more district policies that affect air quality (animals, cleaning, renovation projects, pest management, chemical use, etc.); and
   g. A description of the annual review of the IAQ Management Plan.

Source: Minnesota Dep't of Health, 2007 Summary of Minnesota Public School Districts' Indoor Air Quality Management Plans (January 2008).

sult of an extensive implementation program carried out by the Department of Health in conjunction with the Department of Education. According to officials, the state has seen a decrease in the number of calls relating to IAQ in schools, as well as a decrease in the number of school closings related to IAQ problems. A Department of Health study of six schools found that implementation of an IAQ program based on the state requirements resulted in lower classroom allergen concentrations, increased fresh air ventilation, improved staff perception of air quality, and fewer problems observed during health department walk-through inspections.[3]

Inter-agency Coordination. The Department of Health, which already had an active IAQ program in place, obtained a grant in 2000 from the U.S. EPA to promote the adoption of school IAQ Management Plans, based on EPA's *IAQ Tools for Schools* model. Officials from both the Department of Health and the Department of Education met to discuss how health officials could work with their education counterparts to promote the goals of the law, which had not been fully implemented to that point. The Department of Health then took the lead on an extensive program of technical assistance, which included developing guidance, providing consultations, conducting several classroom-style trainings per year, and monitoring school district progress.

Development of Guidance: Model IAQ Management Plan. As described above, the core of the state's implementation program was its development of a model IAQ Management Plan that incorporated a variety of mandatory elements. The Department of Education convened a stakeholder committee at the outset in order to get input on the content of the model plan. According to officials, school districts were very interested in having a model plan that did

not rely on IAQ testing as the approach to fulfilling the law's mandate for "monitoring and improving indoor air quality." Ultimately, the Department of Health developed a plan that used the EPA *IAQ Tools for Schools* program as a model of best practices, with certain additional elements to address specific priorities of legislators and other stakeholders.

Oversight/Monitoring. Another significant component of the state's implementation program has been the monitoring of compliance by school districts. Beginning in 2001, the Department of Health has used periodic written surveys to determine whether each school district has an IAQ Management Plan that meets the state requirements.

The most recent survey, conducted in 2007, had a response rate of 79 percent of public school districts in the state (271 out of 341). Of those who responded, 210 districts (representing 1041 of the 1353 school buildings in the state) reported having a plan that met all of the state requirements. The remaining 61 responding districts typically reported missing only one or two elements of the plan.[4]

In spring 2008, the Department of Health conducted a study of 19 randomly selected school districts to evaluate the accuracy of self-reported data and to learn how districts were interpreting the IAQ Management Plan requirements. The study involved interviews with district staff and review of district documentation. The department found that while many districts reported having a plan that was fully compliant, only two of the 19 districts visited could *document* completion of all 13 required plan components. Among the components most frequently lacking documentation were the requirements for having a plan to address identified problems and having an implementation schedule for addressing problems. Nevertheless, the department noted that most plan components were documented, and that the absence of documentation did not necessarily mean that the activity had not been completed.[5]

According to agency officials, the Department of Health no longer has funding to cover the costs of its monitoring work, and the surveys have been suspended. For this reason, the agency also has stopped posting the survey results on its website.

Technical Assistance. In addition to monitoring compliance, an important part of the state's implementation plan is providing training and technical support to school districts to help them develop and maintain their IAQ Management Plans. Following development of the model IAQ Management Plan, the Department of Health conducted numerous training sessions for school districts. In addition to general sessions, the department conducted many individual training sessions for those districts requiring greater assistance in adopting a plan.

A key component of the state program is the requirement that each school district have a state-certified IAQ coordinator. Certification is provided following participation in a state-run training session. The Department of Health offers these training sessions each year. Although the department no longer has grant funding for this work, officials note that the certification program has become a priority and that the agency is continuing to offer the training sessions.

In addition to these targeted activities, the Department of Health has undertaken numerous education and outreach activities through its ongoing IAQ program and uses those events to reinforce the requirements for an IAQ Management Plan. The department also responds to requests from school districts for on-site consultation and technical advice to address IAQ problems. The regional Educational Cooperative Service Units, quasi-governmental entities that have limited authority to approve small health and safety project funding, also serve as a resource to districts. They conduct on-site consultations and review the districts' health and safety programs to ensure compliance with the IAQ Man-

agement Plan requirements and other state regulations (*e.g.*, asbestos, fire safety, OSHA, etc).

Case Study: Connecticut

Statute*:* Connecticut General Statutes §10-220

Summary: The Connecticut Education Code governs the duties of boards of education and requires local boards to provide for proper maintenance of their facilities as part of the general duty to provide an "appropriate learning environment" for students. Beginning in 2003, the Education Code established certain specific duties of the boards of education with respect to indoor air quality in school facilities. The code does not specifically direct the state Department of Education, which is charged with implementing the law, to adopt regulations to implement the new law, and no such regulations have been promulgated.

Key Components of the Policy

Adoption of an IAQ Management Plan. The Connecticut law requires that each local or regional board of education "adopt and implement an indoor air quality program…."[6]

IAQ Requirements. The law is silent with respect to the contents of the IAQ Program, except to require that the program provide for "ongoing maintenance and facility reviews necessary for the maintenance and improvement of the indoor air quality of its facilities…."[7]

In contrast to the approach taken in Minnesota, the Connecticut Department of Education has not established a model IAQ Program or a set of minimum requirements for school districts to follow in adopting their own program. The department has, though, issued joint letters with the Department of Public Health to school officials, affirming the law's requirement and recommending that districts use the EPA *IAQ Tools for Schools* program. The Department of Education has stated, for example, that it believes *IAQ Tools for Schools* is the "best program to meet the requirements of the law and improve IAQ."[8]

Other provisions in the Connecticut Education Code establish several specific IAQ-related requirements for existing school facilities, independent of the requirement for an IAQ program. For example, the code provides that if a board of education establishes an indoor air quality committee, that committee must include at least one administrator, one maintenance staff member, one teacher, one school health staff member and one parent.[9] The state code also requires school districts to operate HVAC systems continuously during school hours and to keep records of HVAC maintenance.[10] A new law establishes that by July 2011, school districts must implement a green cleaning program.[11]

Inspections. The law requires an IAQ Program that includes facility reviews necessary for the maintenance and improvement of IAQ in the school. Other than this general provision, the education code does not contain a specific school facility inspection requirement that covers all existing school facilities.

A separate provision of the law does require school district self-inspections, but only for those facilities that have been constructed, renovated, extended or replaced on or after January 1, 2003. Those inspections must, according to the law, cover a broad range of specific IAQ-related issues.[12] Because the requirement does not apply to all existing school facilities and because it mandates inspections only once every five years, it is outside the scope of this report, and its implementation is not discussed here.

Reporting. The Connecticut law explicitly requires each school district to report information to the state Department of Education regarding its IAQ Program. The law mandates that the local board of education report every two years on both (1) the condition of its facilities and (2) actions taken to implement its IAQ Program and its long-

term school building program. The Department of Education has modified an existing School Facilities Survey Form to incorporate the IAQ information required to be reported under the law.[13]

The form requires school boards to rate all major rooms within a building, as well as the major building systems, as "excellent," "good," "fair," "poor" or "missing." On the subject of indoor air quality, the board must give an overall IAQ rating and also rate several items within the sub-categories of "ventilation," "source reduction," and "moisture issues" – *e.g.*, obstruction of air vents, radon remediation needed, leaks. School boards must indicate whether these items have been identified as a problem and whether the problems have been (or are scheduled to be) repaired, but the form does not require, or provide room for, a description of the problems or the remedial plans. The form also asks "yes/no" questions about whether certain actions have been taken to implement the long-term IAQ program (staff IAQ training; designated IAQ coordinator position, IAQ complaint procedure), but it does not require a description of the district's IAQ Program or other information on how it is being implemented.

The reporting form has undergone multiple revisions since it was first developed. Sources of potential confusion on the form have been the use of different (opposite) scoring systems for different questions and the lack of a clear description of and distinction among the law's various requirements.

The law requires the state Department of Education to use the information submitted by schools to prepare a biennial report that is submitted to the state General Assembly. The department has issued reports to the state legislature which compile the information submitted by each school to show the number (and overall percentage) of schools reporting a particular condition. The forms submitted by schools, as well as the department's biennial reports to the legislature, are available on the department's website.[14] The state's new green cleaning law, which requires that the forms submitted by school districts include information about the district's green cleaning program, directs school boards to post the forms on their websites and to make them publicly available.[15]

Oversight/Enforcement. The Connecticut law requires that school boards not only adopt an IAQ Program, but also *implement* the program by providing ongoing facility maintenance and reviews. The law's biennial reporting requirement provides the only statutory framework for state oversight of school district implementation. The law does not establish penalties for failure to submit a report or for failure to implement an IAQ Program.

Implementation of the Policy

Resources for State Implementation. The Department of Education implements the law through its Facilities Bureau, which is responsible primarily for processing applications for school building projects and for approving architectural plans. According to education officials, the office did not receive additional resources to implement the school IAQ law and does not have separate staff to oversee compliance.

The Department of Public Health has carried out a program which, while not linked formally to the state law, has supported implementation of the law at the local level. This program, which has been funded through grants from the EPA and the Agency for Toxic Substances and Disease Registry (ATSDR), was created prior to the enactment of the school IAQ law. In 1999 the Department of Public Health, EPA's New England office, and the Connecticut Council for Occupational Safety and Health began discussing how best to promote the EPA *IAQ Tools for Schools* program. Since then, the Department of Public Health has spearheaded an extensive training program to assist school districts in adopting *IAQ Tools for Schools* as their district-wide IAQ Program.

Inter-agency Coordination. The Departments of Public Health and Education have issued joint letters to school district officials periodically since

the law was enacted. As noted above, the letters describe the training and other assistance available through the Department of Public Health and also endorse *IAQ Tools for Schools* as the preferred approach to satisfying the law's requirement.

Another vehicle for interagency collaboration has been the Connecticut School Indoor Environment Resource Team (CSIERT), a state-wide consortium of about two dozen governmental and non-governmental stakeholders. The CSIERT was created prior to the adoption of Connecticut's school IAQ law and continues to be coordinated through the Department of Public Health.[16] Most of the technical assistance provided to school districts on IAQ issues (described below) has been carried out through the Department of Public Health and the CSIERT. According to health officials, a key to the success of the school IAQ outreach and training program over many years has been the participation of numerous organizations with different interests and areas of expertise, who contribute their services through the CSIERT.

Technical Assistance. The Department of Public Health and the CSIERT work with interested school districts to help districts put in place the *IAQ Tools for Schools* program. After an initial presentation on the program to school district executive staff, the school district receives two training courses developed by the Department of Public Health and the CSIERT: a three-hour session, which shows how to get a program started, and a two-hour training on how to conduct a school walk-through and prioritize IAQ issues. The CSIERT also offers a refresher course and separate courses for custodians and maintenance staff, but it does not maintain formal contact with participating school districts on an ongoing basis.

Although the training initiative was started before the law took effect, health officials noted an increase in school district training participation following the law's passage. Since 2000, the Department of Public Health has trained over 5,100 school staff, parents and others. More than 145 of the state's 159 school systems, accounting for three-quarters of Connecticut's 1,000 schools, have participated in the training.[17] Because the training program does not include any ongoing monitoring or tracking of school districts, the health department does not collect data on how many of the schools continue to implement the *Tools for Schools* program on an ongoing basis.

Oversight/Monitoring. The law provides for state monitoring of compliance through the requirement that school districts submit biennial reports to the Department of Education. Education officials indicate that they have had a high rate of compliance with the requirement to submit a report. The department acknowledges the limitations of self reported data, noting in its recent report to the legislature that "as with any survey that calls for judgment on the part of the respondents, there is a subjective element that, in turn, calls for some caution on the part of the reader" in interpreting the information.[18] The Department of Education has not established any additional processes or programs for verifying the accuracy of self-reported information or for following-up with school districts that report significant IAQ-related problems. One state-wide organization, the Connecticut Foundation for Environmentally Safe Schools (ConnFESS), which participates in the CSIERT, has used the school reporting forms to track closely and analyze the progress of the law's implementation.[19]

Observations

By requiring all school districts to adopt an IAQ Management Program, state policies can help ensure that children and school staff throughout the state will benefit from a proactive approach to addressing key health and safety issues. The experiences of Minnesota and Connecticut in implementing their laws are instructive when considering some of the key elements to include in such a policy.

IAQ Requirements. The laws enacted by Minnesota and Connecticut establish straightforward mandates for school districts to adopt an IAQ Man-

agement Program, yet they stop short of providing specific minimum criteria for meeting the requirements or directing the state departments of education to develop such criteria. The Minnesota Departments of Education and Health have made effective use of the legislative mandate by working together to establish a comprehensive set of criteria for the required IAQ Management Plan based on EPA's *IAQ Tools for Schools* program. In Connecticut, the Department of Education has interpreted its authority under the law more narrowly. Though the agency has encouraged the use of *Tools for Schools* and the Department of Health has done extensive training on the program, the state has not adopted a model program or mandated that schools incorporate any minimum criteria.

Laws in this area can promote the effectiveness and consistency of local IAQ Management Programs by directing the state health and education agencies to develop a model plan that incorporates elements specified in the law or that is consistent with an existing third-party model such as EPA's *IAQ Tools for Schools*. School districts could be required to either adopt the state-developed model or develop their own IAQ Management Program consistent with the state model. Building on the *IAQ Tools for Schools* program and the Minnesota model, core elements of a comprehensive program for monitoring, preventing and fixing indoor air quality issues would include:

- Designating an IAQ coordinator who is responsible for overseeing the program and who is trained for the position;
- Implementing a written IAQ Plan that provides for annual assessment of IAQ conditions, as well as plans for resolving any IAQ problems identified; and
- Establishing a process for addressing IAQ complaints.

The focus of this type of policy is not only the adoption, but also the *implementation*, of an IAQ Management Program. Connecticut's law explicitly requires that school districts implement their plans. Such a requirement is important in providing a foundation for states to oversee how school districts are applying the law.

Oversight. States have an important role to play in ensuring that school districts adopt and implement the IAQ Plan. The experiences of Minnesota and Connecticut underscore the value of involving both the education and health departments in the implementation of the law, as health agencies often have technical expertise and existing programs on IAQ issues.

Connecticut's law includes a formal reporting requirement, mandating that school boards report to the state on both the actions taken to implement the IAQ Program and on their school facility conditions. However, the biennial reporting time framework, along with the relatively narrow scope of the reporting form, makes this a less useful tool to ensure that school districts are establishing and implementing a comprehensive IAQ Program. In Minnesota, the Department of Health developed a program to survey school districts on their IAQ Programs, and the public posting of survey information has helped to shine the light on whether districts are complying with the legislative mandate. Nevertheless, the law itself did not include any specific mechanisms for monitoring school district compliance, and the department may not be able to continue this program due to resources constraints.

Annual reporting is a central oversight mechanism for policies requiring a local IAQ Management Program. Annual reporting to the state can include a reporting form affirming that the school district is implementing all of the required elements of its IAQ Program, as well as a summary of IAQ problems that were identified and the actions taken to address those problems. State officials in both Minnesota and Connecticut have acknowledged the limitations of self-reported information, and a more robust state policy would include resources for the state to more detailed reviews of school district programs. Such reviews can help ensure a stronger state oversight presence, as well as identify implementation problems or concerns on the part of school districts. Neverthe-

less, because this policy approach emphasizes local action rather than a state regulatory scheme, it is particularly important for the state law or regulation to require that information be reported to the school community – *e.g.*, via websites or public meetings.

Capacity Building. Although both the Minnesota and Connecticut laws fall under the jurisdiction of the education agency, the implementation of the laws has been aided considerably by the resources and expertise brought to bear by the state health agencies. Both agencies provided extensive training to school districts for developing and implementing an IAQ Management Program, funded at least in part by the U.S. Environmental Protection Agency.

In Connecticut, the training program carried out by the Department of Public Health and other governmental and non-governmental entities was not linked formally to implementation of the law, but the law prompted greater participation in the training program, and the training in turn made it easier for willing districts to put in place an effective program to satisfy the law's requirement. In Minnesota, extensive training and technical assistance have been geared specifically to helping school districts adopt the required IAQ Management Plan. In addition, school districts must have an IAQ coordinator certified through a state-sponsored training program, and the health department offers ongoing training for these IAQ coordinators.

NOTES

1. Maine Revised Statutes Annotated, title 20-A, §§15918, 4001. The state templates are available at http://www.maine.gov/education/const/fmt.htm#CAM.
2. Minnesota Statutes §123B.57.
3. See Minn. Department of Health website, http://www.health.state.mn.us/divs/eh/indoorair/schools/plan/mseampreport.pdf.
4. See Minn. Dept. of Health, 2007 Summary of Minnesota Public School Districts' Indoor Air Quality Management Plans (January 2008).
5. See Minn. Dept. of Health, Review of Minnesota Public School Districts' Indoor Air Quality Management Plans (August 2008).
6. Connecticut General Statutes §10-220(a).
7. Conn. Gen. Stat. §10-220(a).
8. Joint Letter from the Connecticut State Commissioners of Public Health and Education to the Superintendents of Schools (undated, on file at Environmental Law Institute).
9. Conn. Gen. Stat. §10-231f.
10. See Conn. Gen. Stat. §10-231e.
11. Conn. Public Act No. 09-81.
12. Conn. Gen. Stat. §10-220(d).
13. See Conn. Dept. of Education website, http://www.sde.ct.gov/sde/lib/sde/PDF/dgm/formsinst/ed050/ed-050frm.pdf.
14. See Conn. Dept. of Education website, http://www.csde.state.ct.us/public/dgm/ed050/pickyear.aspx.
15. Conn. Public Act No. 09-81.
16. See http://www.csiert.tfsiaq.com/index.html.
17. See CSIERT website, http://www.csiert.tfsiaq.com/Accomplishment-csiert.html.
18. See Connecticut Dept. of Education, Condition of Connecticut Schools, Executive Summary (2008), available at: http://www.csde.state.ct.us/public/dgm/ed050/pickyear.aspx ("Section F").
19. See ConnFESS website, www.pollutionfreeschools.org/connfess/reports/.

Discussion:
Key Considerations for an Effective State Policy

Policy Vision: Healthy and Safe School Facilities that Promote Learning

As fundamental institutions in our society and centers of community, public schools should be places that actively advance learning, inspire achievement and promote the well-being of children and staff alike. In recent years, government policies in the United States have begun to recognize the important role played by the school buildings themselves in achieving this vision. There has been a surge in federal, state and local policy initiatives to change the way schools are designed and constructed, to create buildings that promote health and comfort and advance the learning process.

This vision applies equally to how we operate and maintain the *existing* school buildings that are occupied by 20 percent of the population every day. Years of inadequate facility funding and deferred maintenance have created conditions in many schools that impact health and subvert the educational mission. Fortunately, the knowledge and tools exist to avoid these problems and to create environments that help children thrive and adults work more effectively. Policies and programs directed toward advancing best practices for indoor air quality management in schools can help ensure healthy and safe school facilities.

Cost is perceived as one of the most significant obstacles to adopting and implementing state policy in this area. Because of limited operations and maintenance budgets, many school districts have not implemented a formal or comprehensive approach to preventing, identifying and fixing indoor environmental problems. The financial constraints on school districts are particularly acute in 2009, as the effects of the economic recession are felt at every level of government. Few programs are spared difficult budget decisions, and states are reluctant to establish new requirements without providing targeted funding.

Nevertheless, the failure to take a comprehensive approach to IAQ management underestimates the true costs of poor indoor environmental quality – not only the subtle and overt health-related costs to children and staff, but also the costs to school districts resulting from lowered academic performance, decreased productivity and attendance, and the failure of facility systems and components requiring major capital repairs. Conversely, a proactive approach to addressing the indoor environment in schools can help prevent conditions from becoming dangerous and more expensive to fix and is thus both cost-effective and vital to the mission of schools. Indeed, the best time to establish a school IAQ policy is before a lawsuit, injury or school closure brings the issues to the fore. The costs involved in taking such a preventive approach should be quantified and addressed at all levels of government. Yet, regardless of the source of the funding, it is vital that all school districts meet minimum requirements for facility conditions and practices designed to ensure the health and safety of students and staff.

This report has described a number of state policies that establish such basic requirements. As these examples suggest, there is no one-size-fits-all policy model for addressing school IAQ, as states vary widely in terms of their size, location, demographics, institutional structures and existing policy frameworks. The case studies presented here are not

the only policy approaches for promoting healthy school environments – and they are not perfect models – but they provide examples on which to build. Drawing on these examples, the remainder of the chapter discusses key elements to consider in formulating a policy designed to put in place a broad-based approach to addressing school IAQ through ongoing facility operations and maintenance activities.

Strategic Policy Approach: Areas of State Authority and Expertise

States traditionally have addressed various aspects of school environmental quality through different agencies and programs. The case studies discussed in the report highlight approaches taken in three primary areas of state authority and expertise – public health, labor and education. Each area of authority presents opportunities as well as constraints for achieving the policy vision of healthy and safe school environments.

Public Health Authorities. Public health agencies typically have expertise in a wide range of environmental health issues. Many state health codes address general health, safety and sanitary conditions in schools or other public facilities. A considerable number of state health laws already require state and/or local health agencies to inspect schools to ensure compliance with state standards. Important considerations for enacting or strengthening state policy in this area are the relationship between state and local health authorities and the mechanisms available to local health departments to fund delegated oversight of school health and safety requirements (*e.g.*, through fees-for-service, general county/city funds, etc.).

Labor/Workplace Authorities. Occupational safety and health in public workplaces is another area commonly addressed by state policy. Many states already have federally-approved OSHA laws and can strengthen those laws by adopting a regulation establishing IAQ requirements. Such requirements can help protect students as well as staff, although the OSHA legal framework is focused on *worker* health and safety, and its procedural protections do not extend to students. OSHA laws provide the most formal framework for state regulation of IAQ in schools and require adequate state agency resources for implementation.

Education Authorities. There is considerable variation in the role of state education agencies in overseeing the adequacy of school facilities. In many states, school facility funding and oversight programs focus on long-term facilities planning and capital projects. In some states, education laws address minimum facility conditions, and these laws can provide a foundation for establishing basic IAQ management requirements. In implementing such policies, it may be particularly important for education agencies to leverage the expertise and resources of other governmental entities, such as the state public health department and local cooperative educational service offices.

State policies that affect school environmental quality have been established in areas other than health, labor and education – *e.g.,* agriculture, general services, building code, etc. Because of the multi-faceted nature of IAQ problems, states may have legislative authority and regulations in multiple areas. Understanding a state's existing policies, programs and institutional capacity relevant to environmental health and safety in schools is important in order to (1) determine the most effective arena for new legislation; (2) identify existing laws that authorize state agencies to develop regulations in this area; and (3) help ensure coordination between new program areas and existing programs, so that all appropriate agency resources and areas of expertise are brought to bear.

The case studies discussed in this report do not represent the only state policy strategies for addressing IAQ issues and achieving the broad vision of healthy and safe school environments. Regardless of the specific approach taken, the following general elements should be addressed in developing an effective school IAQ policy:

- *IAQ Requirements*: What are school districts required to do to protect indoor air quality?
- *Oversight*: What mechanisms and programs are in place to help ensure that schools meet the minimum requirements set out in the policy?
- *Capacity Building:* What resources are provided by the state to assist school districts in complying with the policy?

Elements of an Effective IAQ Policy: IAQ Requirements

One straightforward policy approach to addressing IAQ in schools is the establishment of minimum requirements for school facility conditions that protect the health and safety of adults and children alike. A law may include IAQ among a broad array of important health and safety issues to be addressed by school districts. This report addresses only indoor air quality, though some of the following considerations for establishing IAQ-related requirements apply to other issues as well.

Stakeholder Input. The experiences of the states profiled in this report make clear the fundamental importance of establishing a process for receiving input from other state and local agencies, as well as from a broad array of non-governmental interests, when developing minimum IAQ requirements. Non-governmental parties may include not only unions and community advocacy organizations, but also school staff and parents, who often lack organized representation. The inclusion of a wide range of interests will not only bring added expertise to the process, but will also help identify areas of general agreement and issues that generate concern among stakeholders. Working through these issues will make it more likely that the requirements adopted by the state will garner broad support.

One approach for ensuring input is for state legislation to establish a formal advisory committee, with specified representation, to assist in developing the IAQ requirements. If new school IAQ regulations or guidance are being developed to implement an existing law, the lead agency can explore options for convening an advisory body on its own initiative, and the rule-making process can allow ample opportunity for public comment. States might also consider the establishment of a permanent interagency school facilities committee to promote ongoing communication and coordination among relevant state agencies.

Best Practices as Guidance for Establishing IAQ Requirements. There is no single policy formulation for establishing minimum IAQ requirements for school facilities, and this report does not aim to develop a set of model IAQ criteria. The policies described in the report reflect different approaches, but share the goal of ensuring that school officials routinely review the key sources of IAQ problems and take proper preventive maintenance and/or corrective actions. These policies draw heavily on existing guidance documents that discuss best practices for addressing IAQ in existing school facilities. Federal and state materials that can provide useful background when developing IAQ criteria include:

- EPA's *Indoor Air Quality Tools for Schools* program materials[1]
- EPA's Healthy SEAT (School Environments Assessment Tool) program[2]
- Ohio School Environmental Health and Safety Inspection Manual and Rule[3]
- Washington State Health and Safety Guide for K-12 Schools[4]
- Minnesota Model IAQ Management Plan Development Package[5]
- Massachusetts Healthy Schools Council Checklist[6]
- Los Angeles Unified School District Safe School Inspection Guidebook[7]

Clear IAQ Criteria. Above all, state policies should be *clear* in terms of what is required of school districts. In many states, existing laws contain general requirements for ensuring that schools are "safe" or "sanitary," and they may direct schools to provide "adequate ventilation." While such general criteria are important, state laws, regulations and guidance

should also provide greater specificity in terms of the requirements that school districts and school facilities are expected to meet through their ongoing operations and maintenance programs. Well crafted state laws can provide flexibility while ensuring attention to basic IAQ issues.

Depending on the policy strategy, IAQ requirements will be established and explained through a combination of statute and regulations. Written documents such as inspection checklists, reporting forms, and guidance manuals are also important for clarifying the requirements in the law and regulations and promoting consistent application. A state law could, for example, (1) include the basic IAQ elements to be addressed by school districts and (2) direct the state agency to develop regulations and/or formal written guidance documents to set forth and explain the specific criteria. Core IAQ issues that could be referenced in state legislation and developed in more detail through regulations and guidance documents include:

- Ventilation – providing continuous ventilation during occupancy and local exhaust for pollutant sources, implementing preventive maintenance practices;
- Moisture and mold – controlling moisture, preventing and remediating mold contamination;
- Chemicals and hazardous materials – providing for proper purchasing, use, storage and disposal of materials and supplies that pose a threat to health and safety;
- Pest infestation – controlling sources and addressing infestation using integrated pest management techniques; and
- Radon – testing for radon and remediating if necessary.

Such core criteria can provide a basis for state agencies to establish specific facility requirements and practices and to modify those requirements as new research identifies science-based best practices. Designated agencies can work with stakeholder committees and consult third-party guidance documents to frame specific requirements within the core areas outlined in state legislation. These requirements are typically stated as performance standards (*e.g.,* no evidence of mold) or as specific actions (*e.g.,* dry or remove water damaged materials within a specified time). Less commonly, the requirements may be framed as numerical standards (*e.g.*, achieve a radon level below 4 pCi/L). For policies incorporating annual school inspections, the IAQ requirements should be framed clearly as items that can be verified through the inspection process, either through visual inspection or review of school records.

One advantage of a broad-based state policy is to bring together in one place the health and safety requirements expected of school districts. To the extent that IAQ-related measures are already addressed in other existing state laws (*e.g.,* radon testing, green cleaning, integrated pest management, school bus idling), those requirements should be referenced in any new law and regulations.

Core Components of a District-wide IAQ Management Program. One policy strategy discussed in this report is to require school districts to implement an IAQ Management Program in order to establish a broad-based, coordinated approach to IAQ issues. Such a state law could (1) indicate the minimum components of the program and (2) direct state agencies to develop regulations or guidance that incorporate these components into a model program for school districts to use or adapt. For example, the statute could require the state-developed model to be consistent with a well-established, third-party program such as EPA's *IAQ Tools for Schools* program. Alternatively, the statute could list the core elements required of the model IAQ Management Program. Building on *IAQ Tools for Schools*, as well as the model program developed by the Minnesota Departments of Health and Education, these core elements of an IAQ Management Program could include:

- Annual school district inspections and evaluations of each building;
- Designation and training of a person to oversee IAQ management in the district;

- A written IAQ Management Plan, updated annually and approved by the school board, specifying the elements of the district's IAQ Program and indicating how the district will address IAQ problems noted during inspections; and
- A process for responding to IAQ complaints.

An IAQ Management Program can help school districts comply with and go beyond minimum health and safety criteria, provide for local accountability, and minimize the number of IAQ problems that require intervention by outside agencies.

Phase-in Periods. A phase-in period may be needed to allow school districts to learn about the new requirements and to put in place a framework for meeting those requirements. The decision whether to provide a phase-in period, and the length of the phase-in, will depend in part on the scope of the new policy and the change in requirements from existing laws and regulations.

Elements of an Effective IAQ Policy: Oversight Mechanisms

Another fundamental component of an effective state policy is oversight – the mechanisms established to ensure that the policy's requirements are met. The case studies presented in the report highlight several important oversight mechanisms to consider when developing a school IAQ policy – inspections, corrective action, penalties and reporting.

Inspections. Inspections can play a central role in ensuring and documenting that school operations and maintenance programs address minimum health and safety criteria. Following are some of the issues to address when developing school inspection requirements.

The Inspecting Agency. The determination as to who should conduct school inspections will turn on the existing institutional structures and programs within the state. Establishing a policy that provides for state agencies (or their local counterparts) to conduct school health and safety inspections has the benefit of direct third-party oversight. Policies that establish self-inspections by school districts can include additional oversight mechanisms, such as requiring an inspection team, requiring reporting of results (see below), and providing for periodic outside inspections by the state or other third party. In some cases, a provision for training of inspectors will be important in order to promote effectiveness and consistency of inspections across the state.

Frequency of Inspections. Policies should establish a regular interval for conducting school inspections. Many state laws call for inspections to be conducted at least once per year. Less frequent inspections would weaken oversight of requirements related to ongoing facility operations and maintenance. The state law or regulation could specify the dates by which inspections must be completed and results reported each year.

Some states have established policies requiring the state to conduct inspections upon complaint. State OSHA laws require inspections upon employee complaint, and a few state laws require health or education agencies to inspect schools upon IAQ complaint. This approach provides an important avenue for state oversight, but one that relies wholly on whether a specified party takes the initiative to file a complaint and thus does not guarantee regular facility reviews.

Common Inspection Forms. The way in which an inspection form is crafted can have a significant effect on how the state policy is implemented. To promote effectiveness and consistency, state policies can require the use of state-developed forms to record information during inspections. A comprehensive inspection form would, for example:

- Include the IAQ criteria established under the state law and regulation – and in some cases the form will articulate those criteria in greater detail;
- State the criteria clearly and avoid conflicting rating systems – *e.g.*, frame the criteria as yes/no questions so that answering "yes" always in-

dicates compliance and answering "no" always indicates non-compliance; and
- Provide room for explanation of conditions that do not meet state requirements or that require more subjective evaluation.

Reporting. The reporting of facility information is a fundamental element of a school IAQ law. State policies can help ensure compliance by requiring that all key parties with an oversight role receive the school facility information developed under the law. For example, in cases where local agencies and school districts are required to inspect school facilities or to prepare IAQ plans, the resulting information would be reported to the *state agency* charged with implementing the law, as well as to other relevant education and health agencies. Regardless of who is conducting the inspection, appropriate *school officials* should also be designated recipients of the inspection report.

It is also vital that the *school community* has access to inspection reports, IAQ plans, report cards and other facility documents required under the law. Parents, staff, unions, local advocacy groups, and other members of the school community are important partners in ensuring that IAQ and other health and safety problems are prevented and addressed. Communication between community members and school officials can help keep problems from escalating, and information is a central tool for enabling community members to play an active role. To be most effective, state policies can both establish the right to access documents and specify affirmative steps for state, local and school officials to take in making information available. These measures, which can be accomplished via websites, public meetings, and mailings, could include: posting inspection reports; presenting the results of annual inspections; explaining the type of facility information that is available to the community; and maintaining copies of reports, plans and records for a specified period of time.

Corrective Action. Ultimately, the goal of a school IAQ law is not merely to prepare and report information, but to use the information to address facility conditions. Thus, another key component of an oversight framework is to require that school districts correct deficiencies. State policies that create minimum health and safety criteria can establish procedural requirements for addressing deficiencies. For example, where state or local inspections are required, the policy can call for inspection reports to specify the time framework for schools to correct deficiencies. Alternatively, the policy could require that school districts submit plans and a timetable for correcting deficiencies noted in the inspection report. State polices can direct the inspecting agency to follow up to ensure that corrective action has been taken, and can authorize state agencies to review cases that present serious health or safety concerns. Information relating to corrective action plans should also made available to the public.

Penalties. The policies profiled in this report generally do not emphasize the use of penalties (*e.g.*, administrative fines) to address noncompliance. This approach reflects deference to the autonomy of local health jurisdictions and school districts, as well as recognition of the core mission of school districts to advance the education and well-being of students. Nevertheless, the absence of any penalty authority may restrict the state in enforcing its requirements.

Some of the IAQ policies discussed here include financial penalties that can reinforce the goal that facilities stay in compliance with minimum health and safety criteria. For example, where school districts are required to implement IAQ Management Programs and report facility information, state law could make capital funding contingent on compliance with these requirements. In cases where state or local governments are charged with inspections, state policies could make monetary fines available where school districts have not followed through with corrective action. Alternatively, state laws could authorize local agencies to have repairs made in appropriate situations and to charge school districts for the amount of the repairs. As evidenced by the cases studies included in this report, financial penalties will be issued sparingly, as state officials

strive to work cooperatively with school districts to address facility problems rather than apply financially punitive measures that could lead to further deterioration of school facilities. Even in the case of state OSHA laws, where enforcement is well-delineated, the issuance of penalties is likely to be reserved for the most serious or flagrant cases of noncompliance.

Elements of an Effective IAQ Policy: Capacity-Building Measures

A school IAQ policy will establish requirements that are new for many school districts. While some schools may already be implementing *IAQ Tools for Schools* or other best practices for IAQ management, many will be called on to change significantly their existing practices. For this reason, a vital component of any school IAQ law is the provision of assistance by state agencies to school districts and local communities in meeting the law's requirements. It is important to consider how state agencies are to be funded to provide these capacity-building programs. It is also important for state agencies to leverage scarce resources through partnerships with other agencies, organizations and individuals.

Outreach. At the most basic level, state agencies need to conduct outreach to educate school officials on the key provisions of the law. In addition, outreach to other members of the school community can help increase general understanding of basic school health and safety issues, including indoor air quality. Where state policies focus on inspections following complaints (*e.g.,* OSHA and other state laws), outreach to parents, staff, and other community members and advocates is important in order for the law to achieve its purpose.

Training. Although the policies included in this report vary in scope and focus, most state officials involved in implementing the policies recognize that training of school officials is critical for effective implementation of the law and for institutionalizing best practices. Training is important for school facility inspectors, for school officials creating a district IAQ Management Program, and for designated IAQ coordinators. Ideally, state health, education and other agencies would work together to offer regular, regional workshops to provide training for key district staff. In some cases, one-on-one training for a given school district may be appropriate. Some of the states profiled in this report have developed effective training programs using federal grants. State agencies also can leverage resources by working with regional education offices, cooperative education services, or non-governmental partners.

Technical and Financial Assistance. State policies rely ultimately on school district action to identify and address facility deficiencies, and state agencies can be an important technical resource to schools. Many state health departments already have programs that offer on-site visits, provide general consultations, or lend IAQ measurement equipment.

Funding is typically the most pressing issue affecting school district capacity to correct IAQ problems. A number of states have programs that provide funding for capital projects, which may cover repair or replacement of HVAC systems, roofs, or other IAQ-related items. In these states, facility inspection reports and other required facility information can be coordinated with existing school facility funding programs. State laws can also consider establishing IAQ projects as a funding priority, or requiring that school districts seeking funding for capital projects demonstrate that they are addressing IAQ-related deficiencies identified in previous facility reports.

An even more difficult question to be considered in the development of school IAQ policies is how to address the funding needed for school districts to carry out the basic operations and maintenance activities that are at the core of the policies discussed in this report. Chronic shortfalls in facility spending affect not only capital projects but also custodial and maintenance staffing. State policies establishing minimum IAQ requirements in school operations and maintenance are important for ensuring

that funding pressures will not compromise health and safety in school facilities. At the same time, comprehensive and innovative funding initiatives are needed to support IAQ policies in advancing the broad vision of protecting the nation's considerable financial investment in school buildings, while also promoting health, safety, and educational achievement.

NOTES

1. See EPA IAQ Tools for Schools program website, www.epa.gov/iaq/schools/actionkit.html.
2. See EPA Healthy SEAT program website, http://www.epa.gov/schools/healthyseat/index.html.
3. See Ohio Dept. of Health, School Environmental Health and Safety Program website http://www.odh.ohio.gov/odhPrograms/eh/schooleh/sehmain.aspx. As discussed in Chapter Two, the manual and rule were adopted to implement Jarod's Law, which was enacted in 2005 but repealed in July 2009.
4. Washington State Department of Health and Office of Superintendent of Public Instruction, Health and Safety Guide for K-12 Schools in Washington (2003), available at: http://www.k12.wa.us/SchFacilities/Publications/pubdocs/CompleteSafety&HealthManual2002-2003.pdf. See also, Washington State Department of Health, School Indoor Air Quality Best Management Practices Manual (rev. Nov. 2003), available at: www.doh.wa.gov/ehp/ts/IAQ/pubs-iaq.htm.
5. See Minnesota Department of Health website, http://www.health.state.mn.us/divs/eh/indoorair/schools/plan/index.html.
6. Massachusetts Healthy Schools Council, Checklist Concerning Environmental Health & Safety in Schools (2003), available at: http://mass.gov/Eeohhs2/docs/dph/environmental/iaq/schools_checklist.pdf.
7. See Los Angeles Unified School District, Office of Environmental Health and Safety website, http://www.lausd-oehs.org/fieldoperations_inspections.asp.

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