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STATE CAPITOL

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March 15, 2022

Testimony Before the Labor Committee in Strong Support of SB-423
AN ACT IMPROVING INDOOR AIR QUALITY IN PUBLIC SCHOOL CLASSROOMS

Good morning, Co-Chairs Porter & Kushner; Ranking Members Arora & Sampson; and distinguished members of the Labor & Public Employees Committee, I'm Representative Mitch Bolinsky of Newtown & Sandy Hook.

Thank you for the opportunity to speak in support of **SB-423, AN ACT IMPROVING INDOOR AIR QUALITY IN PUBLIC SCHOOL CLASSROOMS**. This is incredibly important legislation and a matter about which I have voiced concern in every one of my ten-years as a legislator in the Connecticut General Assembly. I commend you for raising this proposal and want to call attention to Indoor Air Quality being among the most long-standing and unaddressed matters of public health in our schools, predating the pandemic. Your willingness to move forward on this priority can potentially be one of the most profoundly "good things" to result from the pandemic.

I'd like to call everyone's attention to the fact that much of the background work needed to assure "Healthy Schools" has been researched and published in our state and, the work of protecting the long-term health of school children, teachers and other education professionals can be done without reinventing the wheel. An extensive body of work in Indoor Air Quality (IAQ) and HVAC policy exists. The past problems were in compliance to established standards and practices, as well as the ongoing maintenance necessary to keep children and adults healthy in our public-school buildings.

As a new legislator in 2013, I met Joellen Lawson, while hosting a public forum for National Healthy Schools Day at the Capitol. She was more than a constituent, she was a powerful advocate for healthy school environments. Joellen is a former teacher who was permanently disabled by doing what she loved most, by building-related illness brought on by a contaminated HVAC system. Through years of neglect, MYCOTOXIC-PRODUCING MOLD was pervasive in the building at which she, others and children spent their days. Years of exposure cost Joellen the career she loved and, an elementary school that could not be remediated, took her health. That school was later abandoned, razed and had to be reconstructed from the ground-up. This did not need to happen.

Joellen's testimony is attached to mine because she cannot testify before you today. Also attached is the CT Foundation for Environmentally Safe Schools (www.pollutionfreeschools.org) 2012 School Ventilation Position Statement. She has also asked me to offer her input to help crafting the language and disciplines needed for a successful SB-423 and healthy schools, as well as 20+ years of IAQ / HVAC perspective and experience with CT & US leaders in this pursuit.

Joellen first testified in 2002 before the Education and Environment Committees to remedy this silent danger. For 20-years, she's fought debilitating illnesses to get to this point. Now, it's up to us and to this Committee to recognize this problem has existed for too long. It took a pandemic to bring us back to focusing on indoor air quality and healthy schools...

Before the window of opportunity closes, with the memory of COVID still fresh, for our kids, our teachers and school workers, let's do this. Let's finish the job.

Thank you again for your consideration and I urge the committee's support.

Respectfully,

Representative Mitch Bolinsky
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Testimony of Joellen Lawson to the Labor & Public Employees Committee
Regarding SB 423 / An Act Concerning IAQ in Public School Classrooms

March 15, 2022

Senator Kushner, Representative Porter, Vice Chairs, Ranking Members and members of the Committee on Labor and Public Employees, my name is Joellen Lawson.

I am presenting testimony today as:

(a) A former special education teacher and educational consultant whose 23-year career was cut short because of health problems medical experts attributed to acute and long-term exposure to poor IAQ in an elementary school that had to be evacuated, razed and eventually rebuilt at a cost of over 20 million dollars. These ongoing health challenges still cause chronic pain, reduced stamina, balance and vision problems along with a loss of over 50% of my lung function.

(b) The founder of a nonprofit organization, ConnFESS, the Connecticut Foundation for Environmentally Safe Schools that was dedicated to protecting school occupants from short and long-term health hazards caused by mold, pesticides and other sources of indoor air pollution.

For over 15 years we played a key role in crafting related legislation, revising the School Facilities Survey, promulgating regulations for CT High Performance standards and tracking the implementation of school environmental health laws. ConnFESS was the lead grassroots group to craft and pass the 2003 IAQ for School's law and 2009 Green Cleaning In Schools law

(c) A former board member (2007-2017) of the Healthy Schools Network, a national 501©3 research, information, education and advocacy organization in Albany, NY that coordinated the national Coalition for Healthier Schools.

The purpose of my testimony is not to provide an exhaustive analysis of the proposed legislative language in SB423. Instead, I want to remind legislators and the public that:

(1) Extensive groundwork in IAQ and HVAC policy already exists and should provide a foundation for any new legislation.

(2) Ongoing problems with the enforcement and compliance with existing school environmental health laws should be considered when proposing any new IAQ or HVAC laws.

I was pleased to hear Governor Lamont say "Some people may erroneously think that heating and cooling systems are only about temperature, but modernized ventilation systems provide an important public health function that filtrate the air and reduce airborne contaminants including particles containing viruses." This emphasis on public health is an essential component of the 2012 School Ventilation Position Statement that is still posted on the ConnFESS website: pollutionfreeschools.org. This statement outlines:

(1) A body of research that repeatedly has proven that inadequate air exchange has been adversely affecting the health, productivity and achievement of school children and employees long before it was exacerbated by the pandemic.

(2) How sections 2, 6 and 7 of PA03-220, An Act Concerning Indoor Air Quality deals with HVAC systems and how these statues are tracked by the School Facilities Survey.

(3) Key conclusions of the 2000 CASE (CT Academy of Science and Engineering Report on IAQ in CT schools that had been commissioned by the co-chairs of the Environment Committee. The observations and

recommendations of the CASE Report are still relevant and likely true today. First and foremost, these experts stressed that the most important direct cause of poor air quality is inadequate fresh air ventilation regardless of what other factors may contribute to this condition.

For this reason, for decades ConnFESS and many other health, environmental and education advocacy groups have unsuccessfully lobbied for school bonded funding for the installment, replacement and repair of HVAC systems.

I recently read CEA President Kate Dias' article: "Now is the time to improve air quality in schools." From my perspective the time is long past due. Her description of current school conditions was easy to predict, accurate and appalling. Hopefully, it will move legislators to finally establish minimum and maximum school temperature and humidity levels and make school bonded funding for HVAC systems available.

Another critical observation from the 2000 CASE report is that poorly designed, operated and maintained HVAC systems accounted for the majority of IAQ problems in schools. Providing funding for HVAC systems in only part of the solution.

The most persistent roadblock to getting HVAC systems funding was the sentiment that after receiving huge state grants for school construction too often school districts fail to maintain equipment. Senator Looney was quoted in January 2022 in the Stamford Advocate as saying "Our response is in part that the fault here is in the school systems that do not do regular maintenance on their HVAC systems." Do you plan to include legislative language designed to hold school districts accountable for proper ongoing operations, maintenance and repair after they receive such an expensive capital investment from the state? If so, who will provide oversight? How will recalcitrant school districts be brought into compliance?

In order for IAQ policy to be effective it should:

- (1) Guarantee school children and employees a safe environment free of preventable health hazards.
- (2) Provide school community stakeholders access to accurate and reliable assessments of school facilities.
- (3) Hold school officials and public agencies accountable for what they do or do not do to maintain safe and healthy school buildings.

SB 423 has the potential to advance these three goals. It is more likely to have the desired impact on school occupants when you are informed by lessons learned over the last twenty years re: IAQ and HVAC legislation. What has worked? What didn't and why?

I am willing to offer further input on this bill during this legislative session.

Thanks to the members of this committee for your efforts to improve IAQ in schools. After twenty years of advocacy, I can tell you there is a strong possibility that this legislation could save lives and prevent the daily pain and suffering that comes with long-term building related illnesses caused by a contaminated school.

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CT Foundation for Environmentally Safe Schools

A nonprofit organization dedicated to promoting policies, practices and resources that protect school occupants from environmental health hazards

www.pollutionfreeschools.org

2012 School Ventilation Position Statement

INTRODUCTION

The U.S. EPA has consistently ranked indoor air pollution among the top five environmental risks to public health. Indoor air can be five to 100 times more polluted than outdoor air.

School indoor air quality (IAQ) can be especially problematic because:

1. School buildings are one of the most densely occupied indoor spaces. Four times as many occupants per square foot are found in schools compared to office spaces.
2. Children who are the majority of school occupants are more vulnerable to the harmful effects of indoor pollutants by virtue of their size, behaviors, increased metabolic rates and developing organ systems.
3. Many normal, everyday school activities emit pollutants (e.g. ozone from copying machines and chemicals in art and science supplies).
4. Optimal ventilation systems have rarely been installed in schools due to pressures to reduce design and construction costs as well as a lack of awareness of the key role a ventilation system has in diluting and flushing out the concentration of indoor pollutants.

In 2003, PA 03-220: An Act Concerning Indoor Air Quality in Schools was passed by the Connecticut State Legislature by a nearly unanimous vote. Strong support for this law was generated by the conclusions of the Connecticut Academy of Science and Engineering (CASE) 2000 Report, Indoor Air Quality in Connecticut Schools, as well as three years of compelling testimony by children and adults whose health had been irrevocably harmed by poor indoor air quality (IAQ) in schools.

According to the 2000 CASE report on school IAQ, “The most important direct cause of poor air quality is inadequate fresh air ventilation regardless of what other factors may contribute to this condition.” Other factors contributing to indoor air pollution come from chemical sources (e.g. formaldehyde from new flooring or furniture or volatile organic compounds used in cleansers or paints) as well as biological sources (e.g. bacteria, fungi and molds found in water damaged walls, carpeting and ceilings). **The report also emphasized that poorly designed, operated and maintained HVAC systems (Heating, Ventilation and Air Conditioning Systems) accounted for the majority of indoor air quality problems in Connecticut’s schools.**

The importance of optimal ventilation rates in school settings cannot be overemphasized. Research has proven that inadequate air exchange affects the health, productivity and achievement of school children and employees. A major conclusion of a 2006 study conducted by the National Academy of Science was:

“The reduction of pollutants loads through increased ventilation and effective filtration has been shown to reduce the occurrence of building – associated symptoms (eye, nose and throat irritations; headaches; fatigue; difficulty breathing; itching and dry irritated skin) and to improve the health and comfort of building occupants.”

Elevated carbon dioxide levels indicate inadequate oxygen is being provided to school occupants by a building’s ventilation system. When carbon dioxide levels reach 1,000 parts per million (3 times more than what is normally found in the atmosphere), drowsiness, headache and an inability to concentrate ensue. Studies have shown high levels of carbon dioxide impair the ability to perform tasks involving concentration, calculation and memory. When ventilation problems were corrected in a 1996 European study involving 800 students in eight schools, test performance improved.

According to a recent Centers for Disease Control and Prevention (CDC) survey summarized in the October 2007 Journal of School Health, more than half (57.4%) of U.S. states require school districts or schools to conduct periodic inspections of HVAC systems. However, it is not known how many states have an oversight mechanism to verify compliance with this requirement.

It is critical to ensure that indoor air pollution is not being caused by and/or spread throughout the school building by a contaminated HVAC system. This essential point was expressly articulated in this recently published article when it stated: “Indoor air pollutants can originate within the building’s heating, ventilation and air conditioning (HVAC) equipment through microbiological growth in drip pans, duct work, coils, and humidifiers; improper venting of combustion products; and dust or debris in ductwork.”

PROBLEM

More than eight years after PA03-220 was enacted, new cases of building related illnesses among school children and employees are still being reported in communities across Connecticut. Physicians have linked the onset of asthma and other lung diseases, allergies and sinus infections to environmental conditions in school facilities that have poorly designed, operated and maintained heating, ventilation and air conditioning systems.

Before the recent passage of PA 11-51, state reimbursement for school districts was reserved for code violations, roof replacement, new construction and extensive renovations or additions to existing buildings. The Commissioner of Construction Services has been directed by PA 11-51 to submit a plan for making the purchase and replacement of HVAC systems eligible for school construction grants if they reduce heating and fuel costs for a town or district. The narrow focus of this legislation is on energy efficiency, but could prevent and address some indoor air quality issues if these regulations are carefully and skillfully crafted.

Policy makers need to be aware that one of the most important conclusions of the 2006 report, Greening America’s Schools: Costs and Benefits is that savings from improved health benefits

outweighed conservation savings. When construction plans deliberately design healthy indoor environments into green school plans, the health benefit savings at \$63 per square foot far exceeded the energy and water savings at \$11 per square foot.

To accomplish the necessary balance between energy efficiency and healthy indoor air quality, it is critical that the Commissioner of Construction Services devise a plan that builds upon the 2009 Connecticut Building Standards Guidelines Compliance Manual for High Performance Buildings and the 2003 indoor air quality for schools law.

Sections 2, 6 and 7 of PA03-220: An Act Concerning Indoor Air Quality in Schools address HVAC system issues. Section 2 (CT General Statutes 10-220(d)) requires that facilities constructed, extended, renovated or replaced on or after January 1, 2003 conduct a uniform inspection and evaluation of heating, ventilation and air conditioning systems using a program such as the US EPA's Indoor Air Quality Tools for Schools Program. This inspection must take place prior to January 1, 2008 and every five years thereafter. The results of this inspection must be made available for public inspection at a regularly scheduled local or regional board of education meeting.

Unlike IAQ laws in California and Maine, Connecticut statutes do not require all schools to perform annual HVAC inspections. The 2000 CASE report on school IAQ specifically recommended that HVAC systems in CT schools be inspected annually. In order to adequately protect school children and employees from harmful indoor air pollution exposure, all Connecticut schools need to conduct a basic inspection of HVAC systems annually. This basic inspection does not need to be time consuming or costly and can detect or correct minor problems before school occupants are negatively affected. For example, such a basic inspection would ensure that all air intakes and exhausts are open, operating and unobstructed and that no intake is situated in a way that would bring contaminants into the building from other sources such as exhaust vents, standing water or idling vehicles. More comprehensive inspections that may involve balancing of HVAC air handling and ventilation systems need only occur every five years. Requirements for basic annual inspections in contrast to those conducted every five years need to be defined and tracked for compliance.

Section 6 of PA03-220 (CT General Statutes 10-291) states that the CT Department of Education shall not approve a school building project for new construction, extension, renovation or replacement unless plans include a plan to ensure that building maintenance staff are or will be trained in heating, ventilation and air conditioning systems with specific training relative to indoor air quality. School officials do not present a plan to the CT Department of Education. They are not asked in their application or the School Facilities Survey (ED050) to specify:

- A) What training was provided?
- B) When the training was presented?
- C) Who conducted the training?
- D) How mastery of skills was assessed?

The superintendent, architect and engineer sign an "Indoor Air Quality Certification" form to indicate that they are in compliance with these requirements. No further auditing or oversight is done before school districts receive state funding for new construction, extension, renovation or replacement of a school building.

Section 7 (CT General Statutes 10-231(e)) stipulates that effective July 1, 2003 each local and regional school board shall ensure that its HVAC (Heating, Ventilation and Air Conditioning) systems are maintained and operated at the prevailing maintenance standard at the time of its installation or renovation of such system.

The current prevailing standard was developed by the American Society of Heating, Ventilation and Air Conditioning Engineers (ASHRAE). It requires minimum rates of fresh outdoor air exchanges into buildings based on specific occupancy patterns. Section 7 also insists that:

- A) HVAC systems be operated continuously during the hours in which students and school personnel occupy school facilities.
- B) HVAC maintenance records be kept on file for at least for five years.

The CT SDE's School Facilities Survey (ED050) does not have questions that would track:

- A) How many CT schools meet ASHRAE ventilation standards
- B) Whether or not HVAC systems are operated as specified by PA03-220
- C) Whether or not HVAC maintenance records are kept for five years as is required by PA03-220

SOLUTION

Establish regulations and/or pass legislation that will:

1. Establish minimum standards that school districts who upgrade or repair HVAC systems must meet to be funded by the state of Connecticut that build on existing statutes dealing with indoor air quality and ventilation
2. Require all CT schools to conduct annual HVAC inspections and post the results of these inspections on school and/or school district websites.
3. Revise the SDE School Facilities Survey (ED050) to include more specific questions dealing with existing statutes that require:
 - Operating HVAC systems continuously during the hours in which students and school personnel occupy school facilities
 - Keeping HVAC maintenance records for 5 years
 - Staff training on ventilation system for optimal energy efficiency and superior IAQ