



## AIR QUALITY AND TEMPERATURE IN PUBLIC SCHOOLS

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### TOOLS FOR SCHOOLS

The [Tools for Schools](#) program, designed by the federal Environmental Protection Agency (EPA), aims to help schools improve their indoor environmental air quality. Connecticut's Department of Public Health promotes this program, along with a consortium of agencies known as the [Connecticut School Indoor Environment Resource Team](#) (CSIERT). School district participation is voluntary. CSIERT indicates that more than 950 Connecticut schools have implemented the program.

For schools constructed or renovated on or after January 1, 2003, the responsible board of education must conduct an indoor air quality evaluation every five years using a program such as Tools for Schools ([CGS § 10-220\(d\)](#)).

### ISSUE

This report addresses the following topics related to air quality and temperature in public schools:

1. laws and regulations in Connecticut and other states that address classroom temperature,
2. statistics on the number of air-conditioned public schools in Connecticut,
3. Connecticut's state funding and bidding processes for installing air conditioning upgrades in public schools, and
4. the impact of indoor air quality on children with respiratory conditions.

### SUMMARY

OLR did not find any state with laws establishing mandatory minimum and maximum classroom temperatures; however, a few states established acceptable temperature ranges in agency regulations (Indiana and Washington). In warmer climates, one state recently passed an initiative to increase the number of air conditioners and other cooling devices in classrooms (Hawaii), and another requires air conditioning in all classrooms statewide as an accreditation condition (Mississippi).



Neither the State Department of Education (SDE) nor the Department of Public Health tracks the number of Connecticut public schools that have air conditioning, so OLR was unable to get any official numbers.

The EPA has published guidance linking poor indoor air quality to respiratory conditions, including asthma, in children. The agency has identified five environmental triggers for allergic or asthmatic reactions, along with suggested prevention and remediation techniques.

Certain air conditioning installation projects that are part of larger construction projects may be eligible for a state grant. State statutes and regulations outline the school construction bidding process, and a school district must also conform to an applicable municipal charter and Commission on Human Rights and Opportunities (CHRO) requirements when putting a project out to bid.

## **LAWS AND REGULATIONS ON CLASSROOM TEMPERATURE**

### ***Connecticut***

Connecticut law does not establish a required temperature range for school classrooms. Instead, it requires boards of education with schools that have air conditioning systems to operate them continuously (along with heating and ventilation systems) during hours when the buildings are occupied, with some exceptions ([CGS § 10-231e](#)).

While Connecticut does not have a law specifically addressing classroom temperatures, it has a public health law that requires occupied offices or places of business to have a temperature of at least 65 degrees ([CGS § 19a-109](#)). The Department of Public Health has interpreted this law to include public schools but acknowledges that it is not explicit.

### ***Other State Statutes***

***Hawaii.*** Hawaii passed a sustainable schools initiative into law in 2016, which seeks energy efficiency measures in public school facilities and also requires the department to implement classroom cooling measures statewide. This law instructs the department to expedite classroom cooling to a “temperature acceptable for student learning,” but it does not specify an acceptable temperature range (Haw. Rev. Stat. § 302A-1510 (West 2016)). The state also approved \$100 million for ceiling fans, solar powered vents, and air conditioning to be installed in the hottest classrooms.

**Mississippi.** Although Mississippi law does not establish a required temperature range for classrooms, it does require all school districts to air condition their classrooms as an accreditation condition (Miss. Code Ann. § 37-17-6 (2016)).

### ***Other State Regulations***

**Indiana.** A state regulation establishes acceptable temperature ranges for heating facilities and, where provided, air conditioning systems in public schools. Indiana requires heating systems to maintain the following temperatures:

1. at least 68 degrees Fahrenheit in all classrooms, offices, locker rooms, and cafeterias when occupied by students;
2. at least 65 degrees Fahrenheit in activity rooms and shops; and
3. at least 60 degrees Fahrenheit in interior toilet rooms.

The regulation requires schools with air conditioners to maintain a temperature that does not exceed 78 degrees Fahrenheit and 65% relative humidity when occupied by students (410 Ind. Admin. Code 33-4-4 (2016)).

**Washington.** Under state regulation, rooms that students or staff use must be kept “reasonably free of . . . excessive heat” (Wash. Admin. Code § 246-366-080 (2016)). Heating and air conditioning systems must have automatic room temperature controls (Wash. Admin. Code § 246-366-100).

Also, public schools must be heated during school hours to at least 65 degrees Fahrenheit, but gymnasiums must be at least 60 degrees Fahrenheit (Wash. Admin. Code § 246-366-090). The regulations do not establish any temperature ranges for air conditioning systems or any ceiling for excessive warmth.

## **FUNDING AND INSTALLING CLASSROOM AIR CONDITIONING**

### ***State Grant Eligibility***

Certain air conditioning installation projects that are part of larger construction projects may be eligible for a state grant. According to the Department of Administrative Services’ (DAS) Office of School Construction Grants, a school district may be eligible for a state school construction grant for an air conditioning system only if the project meets two criteria: the system is (1) part of an engineered HVAC system and (2) a component in a project designated as “New,” “Renovation,” “Extension,” “Alteration,” or “Extension/Alteration” as defined in statute. Stand-alone air conditioning projects are not eligible for state school construction grants.

## ***Bidding Process***

State statutes and regulations outline the school construction bidding process, but a school district must also refer to municipal charters where applicable and CHRO requirements when putting a project out to bid. By law, the selected contractor must demonstrate to CHRO a good-faith effort to hire minority subcontractors ([CGS § 4b-95\(b\)](#)).

All contracts for school construction projects are subject to competitive bidding, with some exceptions. Public bidding is not required for (1) projects for which the district decides to use a DAS contract; (2) change orders; (3) contracts or orders that cost less than \$10,000; and (4) emergency contracts or orders, as determined by DAS. In these instances, negotiation may be used to select a contractor or vendor, as long as there are no local fiscal regulations, ordinances, or charter provisions that conflict with this practice.

Additionally, architectural and construction management services do not have to go out to bid. Instead, these orders and contracts must be awarded from a pool of no more than four of the most responsible, qualified proposers after a public selection process ([CGS § 10-287\(b\)](#)).

State school construction grant applicants must file with the DAS commissioner notice of the date the first construction contract was executed for the project ([Conn. Agencies Regs., § 10-287c-19\(a\)](#)). Applicants must also file final project plans with both the DAS and SDE commissioners, including (1) a copy of final plans and bid specifications for the project or project phase, which specify the project site; (2) a professional cost estimate for the project or phase and any site acquisition; and (3) certification that these documents have been approved by the district and the building committee. The commissioners must review the plans and specifications for compliance with state laws, regulations, and codes.

No phase of a project may go out to bid unless the DAS commissioner notifies the district in writing that (1) she approves the final plans and bid specifications, (2) the plans and specifications comply with educational specifications for the project, and (3) she approves the project site ([Conn. Agencies Regs., § 10-287c-21\(a\)-\(c\)](#)).

## **CLASSROOM AIR QUALITY AND RESPIRATORY CONDITIONS**

The EPA's August 2010 report, "[Managing Asthma in the School Environment: Indoor Air Quality Tools for Schools](#)," encourages schools to maintain good indoor air quality practices in order to reduce the presence of environmental asthma triggers. The EPA identifies the following five triggers and recommends practices for controlling or reducing each of them.

### ***Animal Allergens***

The EPA explains that warm-blooded animals that reside in the classroom as pets or science projects can trigger asthma or allergic reactions. Proteins found in the dander, urine, or saliva of these animals can cause asthmatic episodes in certain people. The EPA recommends keeping schools free of such animals in order to control exposure to these allergens.

### ***Cockroach and Pest Allergens***

Proteins in the waste and saliva of pests can trigger allergic reactions and asthma. The EPA recommends using these integrated pest management methods to reduce exposure in schools: (1) look for signs of pests; (2) avoid leaving food, water, or garbage exposed; (3) remove pest pathways and shelters; and (4) use pest control procedures (e.g., poison baits, traps, pesticide sprays) as needed and as allowed by state law. However, EPA cautions against relying on widespread use of pesticides to control pests.

### ***Mold and Control Moisture***

According to the EPA, mold growth in school buildings can induce allergic reactions, asthma exacerbations, and other respiratory complaints. Mold can grow on almost any substance if moisture is present. The agency recommends that schools take the following actions to prevent this: (1) reduce indoor humidity to eliminate moisture sources; (2) use insulation properly to prevent moisture condensation; (3) inspect the building for signs of mold, moisture, leaks, or spills; and (4) respond promptly to signs of moisture or mold when leaks or spills occur.

### ***Indoor Air Pollutants***

The EPA stresses the importance of controlling the following sources of air pollution:

1. Secondhand smoke: may trigger an asthma episode or cause asthma in children; recommends school districts pass and enforce tobacco-free policies and educate students, staff, and the community on the effects of secondhand smoke and its relation to asthma.
2. School bus exhaust: recommends passing no-idling policies near the school to reduce indoor air pollution from school bus exhaust.
3. Cleaning products: fumes can exacerbate asthma symptoms; recommends choosing the least toxic cleaning methods and products.

4. Chemical management: recommends using the EPA's School Chemical Cleanout Campaign to assure that the school is free from hazards associated with mismanaged chemicals.

### ***Dust Mites***

The EPA warns that dust mites may cause an allergic reaction, trigger an asthma episode in certain people, or cause new cases of asthma in susceptible children. It recommends keeping classrooms clutter-free, dusting regularly, and frequently washing items that attract dust.

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