



Schools as Cleaner Air and Cooling Centers

Tips for Principals and School Administrators

Communities are facing the impacts of climate change, including severe health consequences from heat waves and wildfires. EPA launched a pilot project in 2021 called Schools as Community Cleaner Air and Cooling Centers to address the combined hazards of extreme heat and wildfire smoke with a focus on spaces that serve children. The goals of this project are to support practical strategies for safeguarding children in schools during heat and smoke events.

Principals and school administrators can be champions for upgrades to filtration and cooling systems that can keep kids and staff safe during the school day. Important first steps include engaging partners, especially public health agencies, to understand the risks from extreme heat and wildfire smoke and the role that schools can play in keeping community members safe. School leaders can work with facilities managers to evaluate HVAC capacity, needs, and gaps for school buildings. Outside of building infrastructure, it is important to support training for staff and faculty, develop heat and smoke plans, and provide parent and caregiver education and support. This fact sheet can help you take the first steps towards upgrading school facilities for extreme heat and wildfire smoke mitigation.

HEALTHY LEARNING ENVIRONMENTS BENEFIT SCHOOL SYSTEMS

Schools are central to the well-being of some of the most vulnerable members of our community. In addition to schools confronting challenges posed by the COVID-19 pandemic, the number of extreme heat and wildfire smoke events is on the rise. Keeping children safe and in school during dangerous heat and smoke days—in addition to improving facilities to meet post-pandemic air quality standards—is a strong investment for a school system.

Healthy learning environments equal higher test scores and lower absenteeism. Asthma is a leading cause of school absenteeism and poor outdoor and indoor air quality are the leading causes. Students with uncontrolled asthma score lower on standardized tests than other students.¹ Higher temperatures in the classroom can not only be hazardous to children's health, but can also adversely impact student performance on academic work.² Even modest improvements in room temperatures have been shown to positively affect a student's ability to perform tasks successfully, especially those that require concentration.

Schools and their partners can make investments that alleviate these barriers to learning, help keep schools open as a critical resource during heat and smoke events, while also improving the performance and outcomes for students.

WHO IS THE MOST AT RISK?

At the start of the pilot projects, EPA worked with counties and school districts to conduct risk assessments to identify which neighborhoods and schools were most in need of air quality and cooling improvements. This process involved mapping and screening using categories of data that identify and evaluate the geographic areas that are more at risk to heat and smoke and groups of people that are most vulnerable. Some schools may be located in neighborhoods serving [people who are more vulnerable than others to health impacts of climate change due to social and economic factors](#). Figure 1 provides an example of the categories of data that can be used to prioritize facility upgrades. Schools may need to work with local or county GIS staff, if available, to do this mapping and assessment. And this process will be more relevant for larger school districts with many facilities serving different populations.



Figure 1: Risk Assessment Prioritization Process



WHAT SPACES WILL YOU USE?

Investments can be made for a specific space within your school building that could be used as a designated area during extreme heat and smoke event days. The best spaces include those with the following features:

1. High occupancy densities
2. High cooling capacities
3. Have permanent or temporary standby power capability
4. Won't impact normal school operations or function by their use
5. Example spaces include: Gymnasiums, Auditorium, Performing Arts Centers, Cafeteria

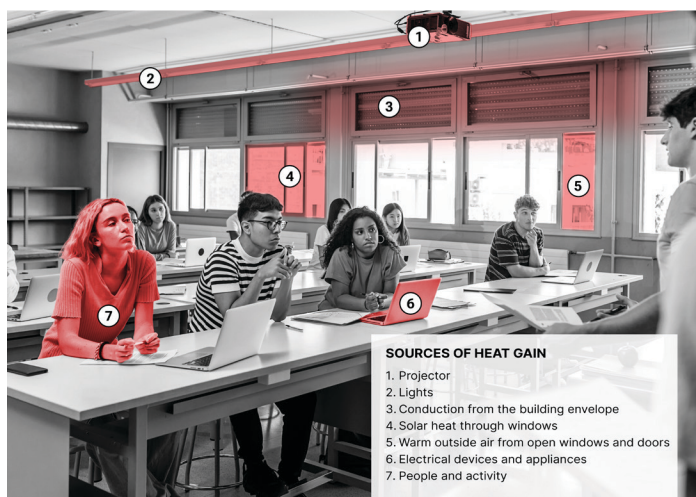


Figure 2: Sources of heat within a typical classroom

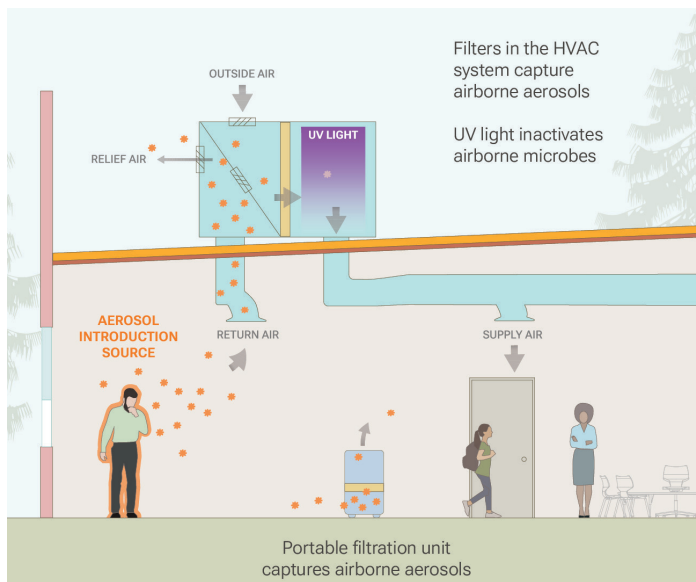


Figure 3: Sources of airborne aerosols and their infiltration

WHO WILL USE THIS CENTER?

School administrators and decision makers will need to discuss if it is appropriate to open to the school as a cleaner air or cooling centers to members of the public outside of school hours. For instance, the facility could be open to families of students or specified at-risk members of the nearby neighborhood. Rural schools may already be used for broader community events and have plans in place to make facilities open to the public. Based on these conversations and policies, different groups should be included in the decision-making team for the school. The chart below outlines typical community partners to engage:

WHO SHOULD BE ON YOUR TEAM?	
School Use Only	Open to the Public
<ul style="list-style-type: none"> - School District Leadership - Local School Leadership - School Facilities Managers - Teachers - Public Health Agencies 	<ul style="list-style-type: none"> - Public Health Agencies - School District Leadership - Local School Leadership - School Facilities Managers - Environmental/Natural Resources Programs - Emergency Management Agencies - Community-based Organizations - Faith-based Organizations

Figure 4: Critical school and community stakeholders

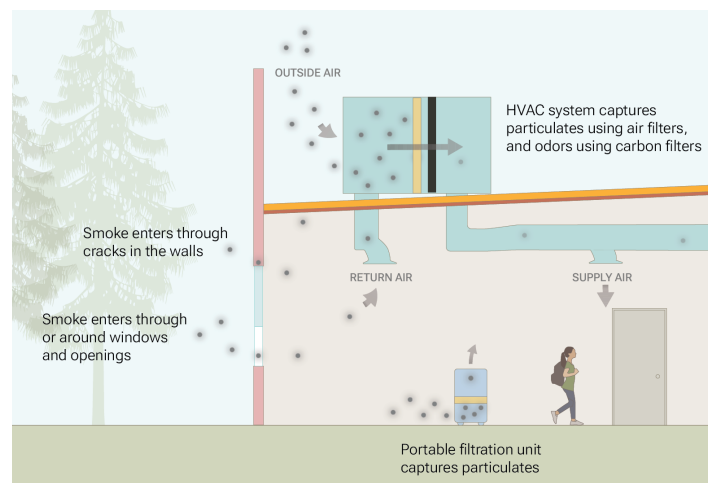


Figure 5: Sources of smoke infiltration during a smoke event

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ENDNOTES

1. Environmental Protection Agency. "Asthma Management: A Priority for Schools." EPA.gov. Environmental Protection Agency, July 6, 2022. <https://www.epa.gov/iaq-schools/managing-asthma-school-environment>.
2. Goodman, Joshua, Michael Hurwitz, Jisung Park, and Jonathan Smith. "Heat and Learning." National Bureau of Economic Research NBER, May 2018. <https://www.nber.org/papers/w24639>.

