

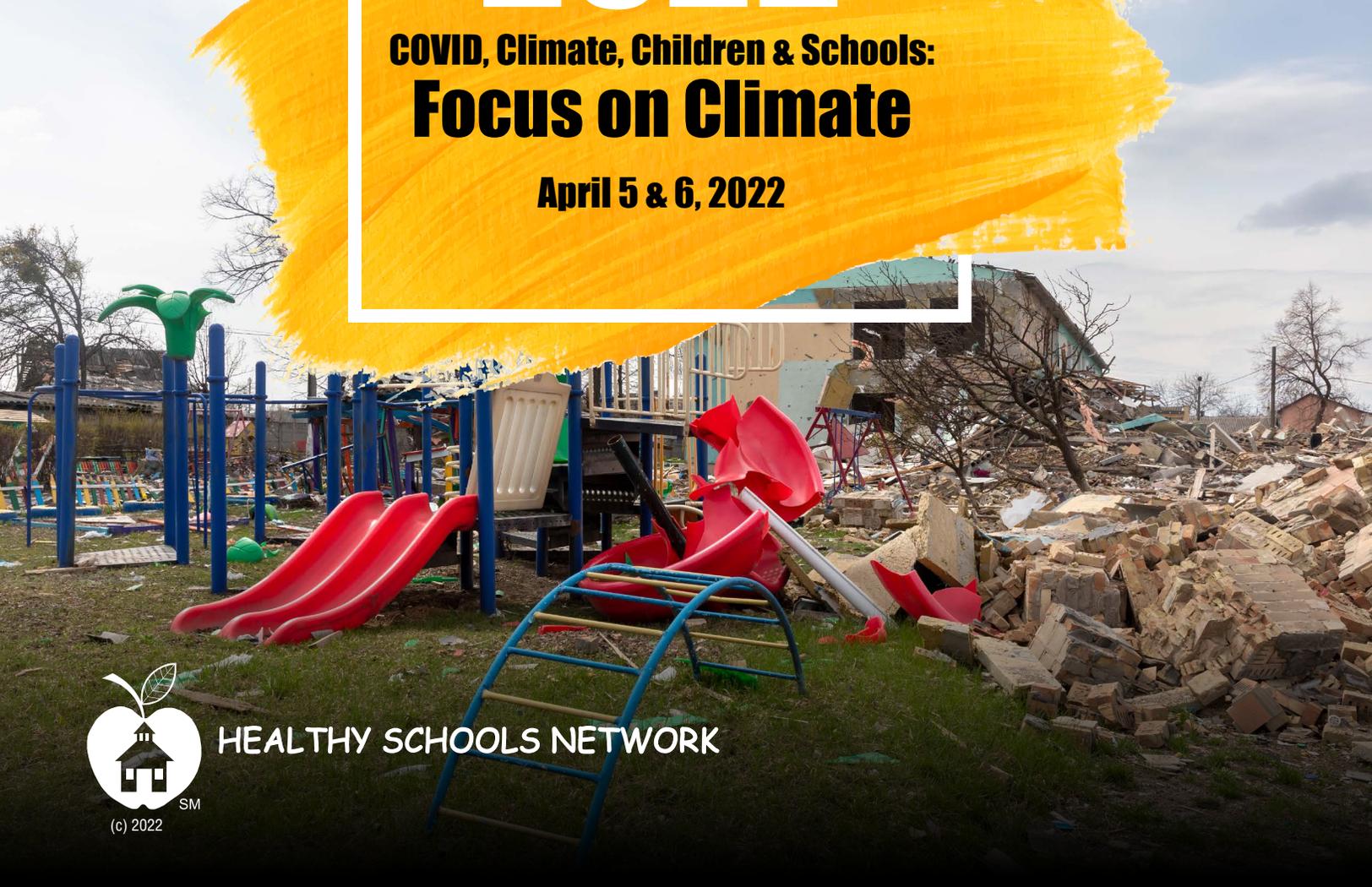


National Healthy Schools Summit

2022

**COVID, Climate, Children & Schools:
Focus on Climate**

April 5 & 6, 2022



HEALTHY SCHOOLS NETWORK

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ACKNOWLEDGMENTS

We are deeply grateful to everyone who helped make the summit a reality.

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Summit Contributors



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SPEAKERS

We also extend our deep thanks to the moderators and presenters who generously shared their experiences, their expertise, and their ideas. Short biographies of all speakers are found in the Appendix to this report.

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EXECUTIVE SUMMARY

“Let’s be clear: climate solutions are education solutions. Let’s be clear: climate solutions are racial justice solutions. Let’s be clear: climate justice is education justice.”

— **Princess R. Moss**, Vice President, National Education Association

“Climate justice is racial justice. It is economic justice. It is environmental justice.”

— **Fedrick C. Ingram**, Secretary-Treasurer, American Federation of Teachers

Healthy Schools Network hosted our second national virtual summit **COVID, Climate, Children & Schools: Focus on Climate** in April 2022. Over two afternoons, the summit elevated key issues of environment, health, and education justice that have come into sharper focus during the COVID and climate crises.

How to keep schools providing uninterrupted, in-person education becomes an ever-more critical question before, during, and after all disasters. How can we make K-12 schools more resilient to storms, dangerously hot temperatures, and infectious diseases? How can schools join with their communities to help reduce their own impact on the global climate? How can we ensure that racial and economic disparities no longer cause communities of color and economically marginalized communities to bear the brunt of such disasters? To address these and other crucial questions, the 2022 summit focus was therefore on the steps schools can take to prepare for and mitigate climate threats.

Students’ learning conditions are educators’ working conditions, but children have particular environmental health and developmental needs. Children breathe more air per pound of body weight than adults, and the impact of illnesses and injuries during their developing years—including missed schooling and pandemic isolation—can have devastating consequences.

SUMMIT PARTICIPANTS, SPONSORS, AND CONTRIBUTORS

Nearly three hundred people joined the summit. This growing base of informed advocates from forty-five states included seventy-three representatives of local schools, seventy-five representatives of public agencies, and eighty-seven representatives of NGOs as well as attendees from several countries in the EU, plus India and Nigeria.

The stellar line-up of keynoters, moderators, and panelists included the vice presidents of the American Federation of Teachers and the National Education Association, the co-chair of ASHRAE’s climate task force (the American Society of Heating, Refrigerating, and Air-Conditioning Engineers is the international standard-setting body on indoor air), and the Academy of Pediatrics’ designee Lisa Patel, MD, discussing climate impacts on children. The national panel of environmental justice activists included several from the Navajo Nation. In all, a diverse array of thirty speakers participated in the summit, more than half of whom were people of color.

Sponsors were the National Education Association and American Federation of Teachers, the Association of School Business Officials, Children’s Environmental Health Network, Sierra Club, New York State Energy Research and Development Authority (NYSERDA), and Collaborative for High Performance Schools (CHPS). ASHRAE also contributed, and we all benefited from The Hewlett Foundation, which supported the summit with a grant.

Summit 2022 built on Summit 2021, which found that

in today's world, we face continuing and evolving health threats from an airborne infective virus and increasing numbers of superstorms associated with a warming climate. It is clear that deep preparation and recovery by K-12 schools and child care facilities that promote rapid, full reopening are essential for children's health, development, and education, and are essential for the well-being of their families and communities. Lessons learned: a national priority on school preparation and recovery efforts should be guided by carefully developed and communicated interagency strategies and supported by equitable funding adequate to the enormous task.

The technical sessions tackled a wide range of interconnected issues and illustrated how complex the COVID and climate issues are for all schools, their communities, and school children themselves. Public education and public health agencies face new roles and challenges. Public environment, energy, labor, and emergency management agencies at the federal and state levels also have important roles to play. Clearly, strongly coordinated interagency programs are critical to operating schools and protecting children through and recovering from disasters.

Many presentations mentioned schools as community centers. Children spend up to one-third of their young lives in schools; their ability to learn and take full advantage of that time is related to and influenced by a school's environmental conditions. For example, schools' complex and often underappreciated facilities are important to families and the broader community, especially in times of crisis—for instance, schools are often tapped to provide shelter against threatening weather, which can interfere with continuing in-person education.

The summit was a call to action—for parents, school personnel, community leaders, and students. To keep schools open during the evolving COVID crisis, and in the face of climate crises, they must be healthful places. Clean air, clean water, clean facilities, and safe and suitable outdoor spaces are among the critical elements for resilient and healthy schools. Summit participants left with a renewed commitment to learn more and to understand options for making schools safer and healthier places for children to learn and grow.

INTRODUCTION

Welcome to our report on **COVID, Climate, Children & Schools: Focus on Climate**, the second annual Healthy Schools Network conference addressing the related impacts of the twin COVID and climate crises on children and on schools. We understand that for children's health, education, and development, and for communities and the economy, schools need to stay open for in-person instruction. But they must also be healthy places for learning, playing, eating, athletics, performance, and other school activities to take place. We know that school closures during the pandemic have come with high costs to children, families, and the economy. The lack of clear direction from federal agencies left local state, city, and school district officials to make the toughest decisions. It cannot be a surprise, then, given the confusing federal and state guidance, plus poor environmental conditions of schools, that so many school officials opted for long-term school closures.

The summit took place online for two afternoons in early April 2022. Its goal was to inform national education policy, drawing from the firsthand experiences of administrators, educators, parents, students, and those interested in healthy children. Like our [earlier summit on COVID and climate, held in January 2021](#), this summit began with a focus on justice for children. This year's opening panel featured several young activists who introduced one of the themes to emerge from the conference: that young people experience depression and despair brought on by COVID and the climate crises. To empower their futures, young people need coping skills and informational tools, space to breathe and relax, encouragement, and support from the adults in their lives. This summit, thus, was about making schools—where children and youth spend up to a third of their lives—healthy and safe.

DAY ONE, APRIL 5, 2022

WELCOMING REMARKS

- **Susan F. Goekler**, PhD, Board President, Healthy Schools Network
- **Claire L. Barnett**, MBA, Founder and Executive Director, Healthy Schools Network



Susan Goekler: Welcome to the 2022 Healthy Schools summit. On behalf of Healthy Schools Network, I want to thank our sponsors, whose financial contributions have made this event possible. And I want to thank all of you for attending. Your presence demonstrates your commitment to the health, well-being, and success of young people and the adults who help guide them.

Keeping our commitment to and focus on our young people is one reason that our first panel today consists of young adults—our future—and the ones who are recipients of the environments we adults have contributed to creating. We also have a young girl who will sing in Navajo of her hopes and dreams. Let their voices stay with you for these two days and beyond.

As you listen and learn during the summit, look for ways you can use the information to better the environments where so many young people and caring adults spend many hours each day. How can you apply this? And where can you make a difference?



Claire Barnett: The focus of the discussions over the next two days will be the extreme challenges children, families, educators, and staff face as schools are impacted by both the COVID and the climate crises. And, like last year, we are focused on justice and equity for children. Watching the unfolding climate crisis, we know that not all schools and communities are impacted equally. Inequities have become even clearer during the pandemic, with schools in the poorest communities facing the most challenging obstacles having both poor facilities and children with existing health issues. When added to the inherent inequality in the nation's schools, the extra burdens and obstacles faced by students and families in poor, frontline, and disadvantaged communities have become ever more intolerable.

In last year's summit, the issue of reopening schools closed by COVID was foremost. We were concerned that the rush to reopen would leave the poorest school communities vulnerable. We knew that schools and classrooms would, for the most part, lack the resources and technology needed to keep children and teachers safe. Today schools are mostly reopened—some have opened and then closed again as a result of resurging COVID cases. The country remains divided over masks and vaccinations. Unfortunately, this divide is often more political than based on health—or education.

In this summit, the plan is to dive deeper into what it takes to *keep schools safely open* today and for the disasters of tomorrow. No one wants more school closures.

While COVID is the immediate concern, responding to the climate crisis also requires our attention. Significant overlaps between pandemic response and the climate crisis exist when it comes to school building maintenance and facility upgrades. Do school decision makers have the training to withstand the unsupported claims of dubious vendors peddling false or quick fixes? Are there models of how schools can become more resilient to climate impacts such as rising temperatures, air pollution, flooding, and wildfires? And how can we as a society respond to the inequities that have been laid bare?

It is intolerable, unjust, and inequitable to disadvantage children still in their developing years.

DAY ONE REMARKS:**FEDRICK C. INGRAM, SECRETARY-TREASURER, AMERICAN FEDERATION OF TEACHERS**

- Introduced by **Pamela Pugh, DrPH**, Vice President, Michigan State Board of Education, Vice President, National Association of State Boards of Education

As educators, health care professionals, public employees, and people in the care professions nationwide, we have a moral obligation to look out for children and families everywhere. We want schools that are safe and healthy for students. We want lead-free drinking water.

We have to keep our school buildings open safely in terms of COVID but also in terms of overall infrastructure. We have to finally overhaul those decrepit HVAC and ventilation systems that can spread contagion and contribute to carbon emissions and the climate crisis. Together we have to adapt our schools, colleges, and communities to the extremes of weather emergencies. And together we have to help both our public and private institutions to decarbonize everywhere.

The climate crisis is not a new concept for the AFT. We want schools that are safe and healthy for students. We want lead-free drinking water. We support President Biden's school initiatives that will help overhaul school HVAC system and decarbonize institutions here and abroad. We have seen the direct impacts of superstorms like Hurricanes Harvey in Houston and Maria in Puerto Rico. I know the story of a Louisiana school bus that lacks air-conditioning with summer temperatures that reach 105 degrees. We know that the distress this causes carries over into the classroom. For me, being from Miami, we are already being impacted by sea level rise. We are all, personally and together, ultimately on a journey to save this great planet.

We want to recognize American Federation of Teachers' President Randi Weingarten, who had planned to welcome us, as she did last year. Instead, Randi was in Poland supporting refugee teachers and students and other victims of the Russian invasion of Ukraine. Our hearts go out to all of those impacted by this and other unjust wars that leave so many children without homes, parents, and schools.

NALA RAIN NELSON, AGE 10,**SONG: "LIFE, I WALK WITH BOW AND ARROW"**

JUSTICE PANEL BY AND FOR CHILDREN AND YOUTH

[CLICK HERE TO VIEW](#)

- **Kayce Solari-Williams**, PhD, MPH (moderator), Board President, American School Health Association, Clinical Associate Professor & Health Internship Coordinator, University of Houston



- **Donele Wilkins**, Founder and CEO, Green Door Initiative, Detroit, MI



Donele Wilkins: Being from Detroit, we know the story of Henry Ford. For efficiency, he put many car manufacturing plants close together. Now we see the impact of concentrating so much toxic material. In Detroit there are so many brownfields that officials eventually gave up getting an individual count of contaminated properties and decided the whole city was a brownfield.

Detroit has some of the worst infant mortality rates in the country. Race is the number-one factor and predictor for environmental exposures. Detroit has one of the highest childhood asthma rates in the nation, costing the state around \$89 million annually. This is a leading cause of school absenteeism and increases the chances of students dropping out of school, fueling the school-to-prison pipeline. We know how lead contamination impacts health, learning, job earnings, and the school-to-prison pipeline. The most serious and long-lasting impacts start with exposures to children five to fourteen years old. We are Detroit, but statistically we are at the bottom of car ownership per resident. The Green Door Initiative is working to improve indoor air and water quality, in schools and buildings. We are looking for buffers to block migrations of air pollutants, including those caused by idling school buses. We need ongoing air and water quality monitoring inside school buildings.

Environmental justice is about defining the world where we live, work, play, and pray. The Green Door Initiative provides access and resources that support young people making career choices in the environmental and green jobs sectors.

- **Erielys Vicente**, MHSC Alumni/College Student, Rutgers University, youth leader and urban gardener, from Camden, New Jersey



Erielys Vicente: Urban gardening teaches a lot, including ways that plants can reduce pollutants in the environment. Urban gardening has climate impacts. Because of lead in the drinking water at our site, students use water in plastic jugs for the gardens. Urban gardens can create cooler spaces during heat waves that otherwise tend to keep people inside. Because my school was near a dump, allergies, asthma, and the smell of trash were a constant reality in the summer, making it hard to breathe.

I have been impacted by climate change. I remember in middle school and elementary school...the intense heat, just beating down on us, especially since the courtyard was mostly asphalt. As soon as I stepped outside, I wanted to go back in.

- **Ayden Clytus**, Intern, Institute for Tribal Environmental Professionals, College Student, Arizona State University



Ayden Clytus: As a summer intern with EPA, I learned how we are now living with climate change and became interested in energy justice—how to distribute energy in a just manner, without excluding communities or basing access to energy on income. My focus is on tribal communities—youth health impacts, impacts on the Arctic, and tribal community displacement. Extreme heat is getting worse in Arizona. It is especially a problem for people who cannot afford to run air conditioners.

The question is no longer whether we can avoid climate change, it's how are we going to continue to adapt and ensure that our communities are protected?

- **Clarene Davis**, College Student, Southwestern Indian Polytechnic Institute



Clarene Davis: I grew up on the reservation in Arizona where I was a home nurse for my uncle, helping with home dialysis. He was poisoned by uranium and arsenic. There was no education about contamination available on the reservation. Learning about my uncle being poisoned is what got me interested in the environment. As part of an internship with Columbia University, I collected samples around Chinle, Arizona, but had to stop sampling due to COVID. I am now working to educate Navajo elders and monitoring indoor and outdoor air quality.

We had droughts during the summer. We had to grow our own vegetables. I helped out my grandmother with growing her own cornfield as well as hauling water, because where I grew up, we had to haul water.

RESPONSE TO JUSTICE PANEL FROM ALEJANDRA NUNEZ, DEPUTY ASSISTANT ADMINISTRATOR FOR MOBILE SOURCES, OFFICE OF AIR AND RADIATION, US EPA



EPA wants to integrate environmental justice into all our actions. The COVID pandemic brought to the forefront the importance of good indoor air quality, but this is not just for today and to survive a pandemic. Good ventilation, filtration, and indoor air quality will result in many other benefits. EPA is seeking input on the development of climate regulations, including regulatory mechanisms for cars and trucks. This is part of the Biden administration's Justice 40 initiative, modeled on New York's Climate Leadership and Community Protection Act, mandating that 35% to 40% of climate investments need to be in frontline, disadvantaged communities (DACs). This includes implementing a clean school bus program: moving to electric and low-polluting school buses. The EPA is working on addressing indoor pollutants with the federal Department of Education. We are helping school districts make proper clean indoor air quality improvements, including investing American Rescue Plan resources.

*Healthy schools are a key focus of EPA's strategic plan. Why?
Because we spend 90% of our lives indoors and many pollutants are concentrated indoors.*

TECHNICAL SESSION: SCHOOL ROLE IN COMMUNITY CLIMATE ADAPTATION AND RESILIENCY FOR BUILDINGS

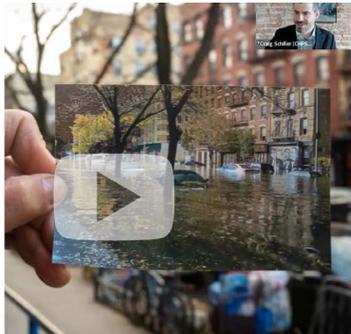
Climate Hazards & Impacts:

Our Changing Climate

- What changes have **already** happened?
- What is likely to happen in the **future**?

What are types of climate hazards?

- Extreme heat / overheating
- Wildfires
- Extreme drought / water shortages
- Extreme wind
- Sea level rise
- Winter storms
- Tornadoes
- Episodic floods
- Hurricanes / storm surges
- Power outages



- **Joseph da Silva**, EdD (moderator), School Construction Coordinator, State of Rhode Island, Past President, National Council on School Facilities
- **Mihir Parikh**, Senior Program Director, Resilience. PMP, LEED GA, Enterprise Community Partners
- **Craig Schiller**, Executive Director, Collaborative for High Performance Schools

Joseph da Silva: This panel will consider a protocol for building better school facilities that are appropriate for learners with a focus on how to frame resiliency and adaptation.

Resiliency and adaptation are different terms, with different goals, but they are part of the same system for combating climate change. *Resilience* in the face of acute shock or chronic stresses involves economics, job loss, and racial issues, as well as chronic heat, all of which have disproportionately impacted disadvantaged communities. Think of resilience as planning for stressed or compromised immune systems.

Craig Schiller: A school architecture and design perspective often considers the building and draws the line at the ground itself. But there is another element: integrating with the community, which is critical when it comes to resiliency.

Mihir Parikh: Today's crisis is not all doom and gloom. A lot of work has been done providing examples and experiences that are within our power to learn from and inform our work. We can start by focusing on existing guides, risk analysis tools, and practices. *Let's focus on what we can do!!!*

The practicality of how to respond to climate and COVID stressors needs to include the community: schools, districts, communities, parents. Schools can become community resilience hubs. We can identify and build on existing and expected hazards and understand how local communities and schools are already addressing risk—for example, with power outages and older infrastructure. We also need to find places for resiliency examples in the curriculum.

Think of it in terms of a school's role in the community and not just as a physical building. For example, schools have the ability to both communicate within the community during emergencies and to work preparedness into the curriculum with students *and* offer examples to parents and the community. Think of schools as community centers that operate all year.

Recognizing that resiliency must cover a range of climate zones and concepts, CHPS has developed guidance for best practices for schools to plan for and to implement resiliency. The recommended starting point for school districts is to conduct a Climate Vulnerability Assessment to understand the local effects of a changing climate. For instance, districts at risk of increasingly extreme heat should prepare for additional shading, green roofs, increased insulation, and a thoughtfully sized HVAC unit, as well as operational needs like backup batteries so a school can continue to operate off the grid.

*Schools have an extraordinary reach in the community.
The community role is as important as the physical building itself.*

TECHNICAL SESSION: CALMING SPACES IN HEALTHY, HIGH PERFORMANCE SCHOOLS

Responsive Design



Biophilic Design



Recovery Zones

- **Leslie Rubin**, MD (moderator), Associate Professor of Pediatrics, Morehouse School of Medicine School of Medicine, Southeast PEHSU at Emory University, Break the Cycle of Health Disparities, Inc.
- **Aaron Jobson**, Principal/President, Quattrocchi Kwok Architects
- **Irene Nigaglioni**, AIA, ALEP, LEED AP BD+C, President, IN2 Architecture

Aaron Jobson: Work is already being done to design calming spaces for learning. The climate crisis and COVID only add to existing stressors like trauma, sensory processing disorders, anxiety, and other emotional disorders. Calming schools benefit those who are dealing with stress, but they also benefit everyone else. As we design better spaces, we learn better, our brains function better.

A UK study on sensory environments and impacts on learning found a significant difference between highest and lowest learners in a well-designed space. A well-designed learning environment has a direct, tangible, quantifiable impact on the learning that happens within it.

Irene Nigaglioni: Most school buildings are harsh and don't feel safe. People—especially students—tend to feel very nervous when they are in institutional spaces. You could argue that a lot of school environments across the world are unsafe, especially when you look at them from the perspective of the students with the most needs. A student enters a building and, to feel comfortable, quickly looks for the exit. Kids come to school with “stress baggage.” Schools should be designed to be calm and soothing, rather than stressful. Research has shown that the quality of a school's environment contributes to 25% of learning success. Schools need to be secure, inclusive, and racially just. In the worst case, schools can become part of the pipeline to prison.

Introducing responsive design is simple, it just needs true focus and attention. In existing buildings, it can be introduced in small increments that can have a huge impact on all users, not just students but teachers as well. Design elements range from the use of curves, shapes, and colors to creating mentoring, transition, and recovery zones. These can recognize and celebrate differences, and also serve as recovery zones that allow students to refresh and relax during the day. It is also important to include access to, and views of, nature. Too often, outdoor spaces are an afterthought.

We must learn to design school environments that are going to help calm and soothe rather than stress. Stress interferes with the ability to learn. When we design for the most fragile, we design for all.

What does it mean to calm a space? We talk about the “Goldilocks principle,” finding the right balance—not too hot, not too cold, not too big, not too small, not too bright, not too dark—all of those things that provide an optimal space for learning.

DAY TWO, APRIL 6, 2022

WELCOMING REMARKS

- **Susan F. Goekler**, PhD, Board President, Healthy Schools Network
- **Claire L. Barnett**, MBA, Founder and Executive Director, Healthy Schools Network

TECHNICAL SESSION: AMERICAN ACADEMY OF PEDIATRICS POLICY: GLOBAL CLIMATE CHANGE AND CHILDREN'S HEALTH



- **Mark A. Mitchell**, MD, MPH (moderator), Associate Professor of Climate Change, Energy and Environmental Health Equity, George Mason University, Co-Chair, Commission on Climate and Health, National Medical Association
- **Lisa Patel**, MD, MEd, FAAP, on behalf of the American Academy of Pediatrics; Clinical Assistant Professor, Pediatrics, Stanford School of Medicine; Deputy Executive Director, Medical Consortium on Climate and Health

As climate change worsens, communities that already have the burden of air pollution will face even greater harms. Heat is the number-one weather-related killer and it's a silent killer. By the end of the century, heat-related deaths are projected to increase on the order of thousands to tens of thousands each year in the United States.

Worsening disasters due to climate change threaten both the long-term physical and mental health of children. As a pediatrician I see the effects of heat on children coming into my emergency room. I've taken care of infants on excessively hot days who live in unairconditioned apartments that are not suited to deal with that extreme heat. I've cared for athletes who are practicing in temperatures that are just a few degrees warmer than what their bodies are used to and now have kidney damage and severe dehydration. I've cared for adolescent outdoor workers who are working in 100+ degree heat who also suffer from dehydration and kidney damage.

Children are particularly susceptible during periods of extreme heat. Days that are hotter have increased levels of air pollution, smog, and ozone that exacerbate asthma. In the U. S. about 750,000 summertime asthma attacks are reported in children (under age 18). During the school year, students miss about 500,000 school days annually due to ozone smog resulting from oil and gas pollution. In the American West the wildfire season is longer than it was in the 1970s, which causes pediatricians concern since wildfire smoke is up to 10 times as toxic as normal air pollution.

Hispanic children are twice as likely to die from asthma as non-Hispanic white children. Black children are four times as likely to die from asthma as white children.

Hurricane Maria in Puerto Rico was one of the most sobering examples of what compounded and repeated disasters will mean for the continued health and safety of children and communities and schools.

Another issue the American Academy of Pediatrics has recognized is the large increase in mental health problems among our children and youth, an issue that climate change contributes to and compounds. The immediate and long-term impacts of climate change on the environment, society, and infrastructure can lead to trauma, shock, stress, anxiety, and depression.

I work with a school psychologist in my home county—Sonoma, California. The psychologist has told me about children that have had to evacuate their schools so often that they start to cry when they see smoke in the sky. The repeated anxiety and stress of those evacuations has taken that much of a toll.

While climate change impacts all of us, low-income communities, communities of color, children, the elderly, and those with limited language proficiency are some of the most vulnerable.

Schools are essential sites of climate action and of climate hope. Schools should be environments where children can breathe clean and temperate air and be in a safe and effective learning environment. However, indoor air quality in too many schools is poor. COVID-19 has focused people's attention on the importance of indoor air quality for multiple benefits such as infection control, health, and learning.

Schools can demonstrate health and community benefits when they are the focus of climate action.

Pediatricians have long understood that climate change will be a major determinant for children's health. We're already seeing it play out. And we understand that climate change will also disproportionately affect communities living in poverty and communities of color.

TECHNICAL SESSION: DECARBONIZATION OF SCHOOLS— CREATING A HEALTHY AND SUSTAINABLE FUTURE



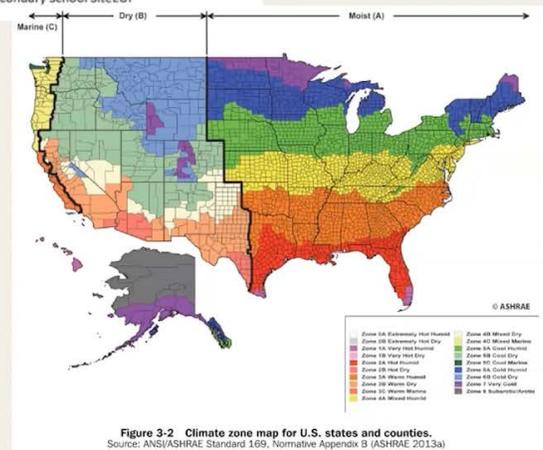
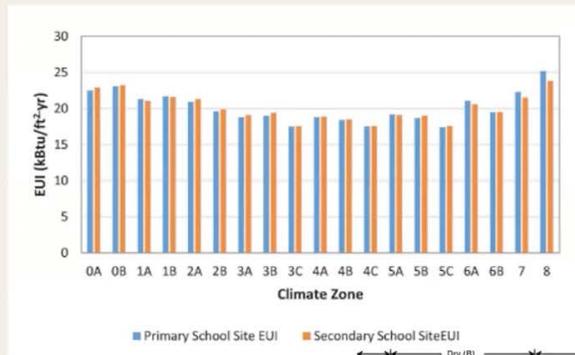
- **Sara Paul** (moderator), Superintendent, SFO, North Branch Area Public Schools, MN, Association of School Business Officials International, Education Committee
- **Donald Colliver**, PhD, PE, FASHRAE, Co-chair, ASHRAE Task Force for Building Decarbonization
- **Corey B. Metzger**, PE, Schools Team Lead – American Society of Heating, Refrigeration, and Air Conditioning Engineers, (ASHRAE)

Donald Colliver: It is important to understand how real and how threatening the climate crisis is and the data that support global warming.

Not One-Size-Fits-All

- Target Energy Use Intensity (EUI) values vary by 44% from low to high for different climate zones
- Strategies are different for different areas
- General building location and site can have significant impacts on system options
- Operations staff capabilities vary significantly

Graph from Figure 1-2 in Achieving Zero Energy: Advanced Energy Design Guide for K-12 School Buildings – available at <https://www.ashrae.org/technical-resources/aedgs/zero-energy-aedg-free-download>



We also know that better indoor air quality results in better learning outcomes. Sometimes, however, steps to improve air quality conflict with reducing energy consumption and moving towards net zero or decarbonization. To increase the energy efficiency in schools as a way of addressing the climate change crisis, building operations have an important role to play as they are the single largest source of carbon emissions. Achieving a goal of zero carbon requires mitigation but not necessarily the total elimination of carbon. Decarbonization today is the process of reducing the carbon.

Corey B. Metzger: School facilities support the education mission. Professional design teams can design mitigation solutions for decarbonization tailored to a school's existing systems. There is no one-size-fits-all solution for realistic performance standards. Solutions must factor in climate zones, the building envelope, and maintenance. Mitigation includes the building envelope, HVAC systems, lighting in the buildings, on-site generation, Advanced Energy Design systems, and clean water. Maintenance of existing facilities is key.

NALA RAIN NELSON, AGE 10
SONG: "EDUCATION SONG"



DAY TWO REMARKS:
PRINCESS R. MOSS, VICE PRESIDENT, NATIONAL EDUCATION ASSOCIATION



- Introduced by **Pamela Pugh**, DrPH, Vice President, Michigan State Board of Education and Vice President, National Association of State Boards of Education

Combating climate change requires collective action from many sectors including education. To the NEA, that means preparing educators to equip our students with the knowledge and skills they need to build a more sustainable world.

Our nearly 100,000 public schools have so much potential for becoming models of sustainability. We also know that climate and environment are critical issues for many of today's students. All of that means that each of our 50 million public school students has the opportunity to combat climate change, strive for climate justice, and advance a more sustainable society.

To effectively combat climate change, we must acknowledge a stark fact: that communities of color, indigenous communities, and under-resourced rural and urban communities face disproportionately negative impacts. While mobilizing public education for climate action, we must ensure that students from these communities experience the health, learning, social, and economic benefits of the transition to a clean economy and a sustainable future. Racial and social justice—the pillars of education justice—must be centered in this work.

Simply put, everyone with the power to make decisions that affect our students—federal and state policy makers, local districts and school boards, school administrators and every educator in every building—must engage in the fight for climate justice.

Environmental hazards have a direct impact on education—on students and educators. Right now, more than ten-and-a-half million school days are lost every year due to asthma, making it a leading cause of absenteeism in this country. It affects 4.5 million students under the age of 18, and climate change has worsened the problem. So, let's be clear: climate solutions are education solutions. The data also tell us this: our Black students are twice as likely to suffer from asthma as our white students, and Black students have an asthma death rate that is ten times that of white kids. So, let's be clear: climate solutions are racial justice solutions.

It is past time to harness young people's passion for the climate and the incredible role educators can play to bring about climate justice for all.

Let's be clear: climate solutions are education solutions. Let's be clear: climate solutions are racial justice solutions. Let's be clear: climate justice is education justice.

TECHNICAL SESSION: COMMUNITY SCHOOLYARDS FOR ALL



- **Nsedu Obot-Witherspoon**, MPH (moderator), Executive Director, Children's Environmental Health Network
- **Danielle Denk**, ASLA, RA, Schoolyard Initiative Director, The Trust for Public Land

We are for equitable schoolyards for all. Children need outdoor play areas. High-quality public space should be a human right. It is certainly critical to a good learning environment. We are trying to integrate environmental solutions into addressing the problems we have discussed at the summit: health, equity, climate.

We work to create green schoolyards, open to students and the community after class. (This work started in in New York City and Newark, New Jersey.)

Most schools, especially urban ones, are an asphalt landscape. Nationwide, less than 5% of all schoolyards are open to the public and designed with features that schools and communities need. With a different approach, community schoolyards can connect 80 million people to a park within a ten-minute walk, including 20 million who currently lack access to a park setting. Community schoolyards can provide daily access to nature for tens of millions of children. These create impacts that move climate, energy, health, and education policy in the right direction.

Green schoolyards can also address extreme urban heat. Low household incomes are correlated with extreme urban heat. Eighteen million students attend schools in urban heat islands where temperatures on asphalt can be upwards of 120 degrees. And this heat radiates back into the school buildings and classrooms. By ripping up asphalt and planting trees and gardens and greening the environment you can create up to a 15 degree temperature differential.

Transforming schoolyards provides children with places to learn, play, and thrive outdoors. And this also helps create the next generation of climate champions.

The asphalt landscape that is the common standard in so many school settings—fenced off, not offering students a productive place to play or learn, soaking up the heat, flooding, icing over—has to go.



HEALTHY SCHOOLS NETWORK

Healthy Schools Network
www.HealthySchools.org

APPENDIX A: SUMMIT AGENDA (AS CIRCULATED TO ATTENDEES APRIL 1, 2022)

SUMMIT AGENDA

DAY ONE – APRIL 5, 2022

12:30- 12:45pm EDT	Onboarding: attendees, speakers, and moderators
12:45-1:00pm	<p>Welcome, Introductions and Meeting Overview</p> <p>Claire Barnett, MBA, Executive Director, Healthy Schools Network</p> <p>Susan Goekler, PhD, Board President, Healthy Schools Network</p>
1:00pm-1:15pm	<p>Day One Opening Remarks</p> <p>Introduced by Pamela Pugh, PhD, Vice President, Michigan State Board of Education, Vice President, National Association of State Boards of Education</p> <p>Remarks by Fedrick C. Ingram, Secretary-Treasurer, American Federation of Teachers</p>
1:15-1:20pm	<p>Nala Rain Nelson, Navajo (Age 10)</p> <p>Sings “Life, I Walk with Bow and Arrow”</p>
1:20-2:15pm	<p>Justice Panel by and for Children and Youth</p> <p>Moderators: Kayce Solari-Williams, Board President, American School Health Association, followed by Alejandra Nunez, Deputy Assistant Administrator, Office of Air and Radiation, US EPA</p> <p>PANELISTS:</p> <p>Donele Wilkins, Founder and CEO, Green Door Initiative, Detroit, MI</p> <p>Erielys Vicente, MHSC Alumni/College Student, Rutgers University</p> <p>Ayden Clytus, Arizona State University, and Clarene Davis, Southwestern Indian Polytechnic Institute, Navajo, Climate Change interns</p>
2:15-2:30pm	Mid Afternoon Zoom Break
2:30-3:15pm	<p>School Role in Community Climate Adaptation and Resiliency for Buildings</p> <p>Moderator: Joseph da Silva, EdD, School Construction Coordinator, State of Rhode Island, Past President, National Council on School Facilities</p> <p>PANELISTS:</p> <p>Mihir Parikh, Senior Program Director, Resilience for Enterprise</p> <p>Craig Schiller, Executive Director, Collaborative for High Performance Schools (CHPS)</p> <p>Small Group Discussion</p>

3:15- 4:00pm

Calming SchoolsModerator: **Leslie Rubin, MD, Co-Director, PEHSU at Emory University****PANELISTS:****Aaron Jobson**, Principal/President, Quattrocchi Kwok Architects**Irene Nigaglioni**, AIA, Founder, IN2 Architecture**Small Group Discussion**

4:00-4:20pm

Healthy Schools Network's National Healthy Schools Hero™ Awards

- **Dr. Daniel Lefkowitz**, PCB in Schools, presented by Chip Halverson, ND, Selah Natural Medicine; Chair, National Healthy Schools Caucus
- National Association of School Nurses, accepted by **Linda Mendonca, MSN, NCSN**, Board President, **and Donna Mazyck, MS, RN**, Executive Director. Presented by Kathy Reiner, MPH, BA, RN

4:20-4:30pm

Debrief & Overview of Summit Day Two on April 6**DAY TWO – APRIL 6, 2022**

12:30- 12:45pm EDT

Onboarding - attendees, speakers and moderators

12:45-1:00pm

Welcome, Introductions and Agenda Overview**Claire Barnett, MBA**, Executive Director, Healthy Schools Network**Susan Goekler, PhD**, Board President, Healthy Schools Network

1:00-1:25pm

American Academy of Pediatrics Policy: Global Climate Change and Children's HealthModerator: **Mark A. Mitchell MD, MPH**, George Mason University, Co-Chair, Commission on Climate and Health, National Medical AssociationPresenter: **Lisa Patel, MD, MEd, FAAP**, presenting on behalf of the American Academy of Pediatrics; Clinical Assistant Professor, Pediatrics, Stanford School of Medicine; Deputy Executive Director, Medical Consortium on Climate and Health

1:25-2:15pm

Panel: Decarbonization of Schools - Creating a Healthy and Sustainable FutureModerator: **Sara Paul**, Superintendent, North Branch Area Public Schools, MN, Association of School Business Officials International**PANELISTS:****Donald Colliver, PhD**, PE, FASHRAE, Co-chair, ASHRAE Task Force for Building Decarbonization**Corey B. Metzger, PE**, Schools Team Lead, ASHRAE Epidemic Task Force**Small Group Discussion**

2:15-2:30pm**Day Two Remarks**

Introduced by **Pamela Pugh, PhD**, Vice President, Michigan State Board of Education and Vice President, National State Boards of Education (NASBE)

Speaker **Princess Moss**, Vice President, National Education Association

2:30-2:45pm**Mid Afternoon Zoom Break****2:45-2:50pm**

Nala Rain Nelson, Navajo, *(Age 10)* Sings

2:50-3:30pm**Community Schoolyards for All**

Moderator: **Nsedu Obot-Witherspoon, MPH**, Executive Director, Children's Environmental Health Network

Presenter: **Danielle Denk, ASLA, RA**, Schoolyard Initiative Director, The Trust for Public Land

Small Group Discussion**3:30-3:50pm****Healthy School Network's National Healthy Schools Hero™ Awards**

- **Mireille Ellsworth, Chair, Hawaii Healthy Schools Caucus**, presented by Chip Halverson ND, Selah Natural Medicine, Chair, National Healthy Schools Caucus
- **Judy Braiman, President, Empire State Consumer Project**, presented by Claire Barnett, MBA, Executive Director, Healthy Schools Network

3:50-4:15pm**Wrap-up- Amy Murphy, Susan Goekler, Claire Barnett****Day Two Debrief**

Summit housekeeping: Recording, Slides, Handouts, Report draft/final copy, Media

Challenge to the Attendees: Action Steps

Healthy Schools Network thanks all the summit speakers, moderators, and volunteer facilitators without whom this event would not have been possible.

We also express our deepest thanks to our Summit Sponsors and Contributors whose generosity and collaborations have done so much to help us find and elevate the science and practices that will help all schools and their communities weather the next disasters.

APPENDIX B: SPEAKER BIOGRAPHIES (IN ORDER OF APPEARANCE)

DAY ONE SPEAKERS

Claire L. Barnett, MBA, Executive Director, Healthy Schools Network

Claire L. Barnett, Founder and Executive Director, grew Healthy Schools Network from its roots in New York into the nation's premier voice for children's environmental health at school by advancing a comprehensive policy agenda, fostering state and local environmental health coalitions across the country, and securing landmark reforms in states and federally. With a primary concern for healthful indoor environments in schools, the organization has pioneered the tracking of how disasters impact schools and children, beginning with 9/11.

Barnett previously reported for TIME Magazine in New York City, administered rural New York outpatient mental health services, and assisted Adirondack Park communities with sustainable development. She shifted her focus to children's environmental health in the aftermath of her child's pesticide exposure at school. Barnett has an MBA from Rensselaer Polytechnic Institute (health systems finance) and a BA from Mount Holyoke College (psychology/political science). In 2017, she was honored to receive three national awards: the William K. Reilly Award for environmental leadership from American University School of Public Policy; the US EPA Indoor Air Quality Champion Recognition; and the David P. Rall Award for contributions to public health through science-based advocacy from the American Public Health Association.

In spring 2020, she pivoted HS Network and its scores of NGO partners to the pandemic disaster; in July, with more than twenty NGO partners, it issued a widely supported policy call for all schools to have written and adopted Infection Prevention and Control Plans, a policy later adopted by the American Public Health Association and amplified by the Harvard COVID Collaborative. She currently serves on several government advisory groups, including: the National Advisory Committee on Children and Disasters, the New York State advisory group on Climate and the Buildings Sector, and the NYS Department of Education's Safe Schools Task Force.

Susan Frelick Goekler, PhD., Board Chair, Healthy Schools Network

As CEO of two professional associations, the Directors of Health Promotion and Education (DHPE) and the American School Health Association (ASHA), Susan Goekler (aka Susan Wooley) oversaw operations and represented the association, its members and the field. She has co-authored/co-edited several school health-relevant publications that include book chapters, encyclopedia articles, peer reviewed journal articles, and books, including *Health Is Academic: A Guide to Coordinated School Health Programs*. She has worked in academia, schools, hospitals, non-profit agencies, associations, and government and served on non-profit boards. She is currently living in Rehoboth Beach, Delaware and enjoying retirement from full time work while taking on projects of interest, including serving as Chair of the Healthy Schools Network Board. She received her bachelor's degree with honors in biology from Case Western Reserve University, a master's degree in health education from the University of North Carolina at Greensboro, and a Ph.D. in health education from Temple University. She is a Retired Master Certified Health Education Specialist (RMCHES).

Pamela Pugh, PhD, Vice President, Michigan State Board of Education, Vice President, National Association of State Boards of Education

Dr. Pamela Pugh has spent her career seeking to improve the education and health of children and the environments in which they live, learn and play. She was elected to an eight-year term on the Michigan State Board of Education in 2014 and currently serves as the board's vice president. Dr. Pugh is the co-founder of Regeneration LLC, a consultancy that serves as a catalyst for economically sustainable and healthy urban communities, helping agencies, organizations and businesses build capacity through effective operations and partnerships. She served as the Chief Public Health Advisor for the City of Flint from October 2016 to November 2019, where she worked alongside Flint Mayor Dr. Karen Williams Weaver to implement a "Health Equity in All Policy" approach to decision-making during the Flint Water Crisis. As Michigan schools grappled to develop reopening plans amidst the Covid-19 pandemic, Dr. Pugh teamed up with Claire Barnett of Healthy Schools Network to express concerns about exposure risks related to building infrastructure, exacerbated by disparities in underfunded communities. Dr. Pugh also served as a member of University of Michigan School Siting Task Force Steering committee. She currently serves as both the Michigan State Conference of NAACP Health and Education Chair and is a two-time recipient of the national NAACP's Dr. Montague Cobb Award for special achievement in social justice, health justice, health education and promotion, fund-raising and research. Dr. Pugh organized Women's Health and Education Issues Conferences as the former 2nd Vice President of the National Federation of Democratic Women and immediate past Chair of the Michigan Democratic Women's Caucus and also co-chaired the first Climate, Energy and Environment Roundtable at the 2016 Democratic National Convention. She holds a Doctor of Public Health and Master of Science from the University of Michigan School of Public Health and a Bachelor of Science in Chemical Engineering from Florida A&M University. She is a proud member of Alpha Kappa Alpha Sorority, Inc.

Fedrick C. Ingram, Secretary-Treasurer, American Federation of Teachers

Fedrick C. Ingram is secretary-treasurer of the American Federation of Teachers, serving 1.7 million members, including pre-K through 12th-grade teachers; paraprofessionals and other school-related personnel; higher education faculty and professional staff; federal, state and local government employees; and nurses and other healthcare professionals.

Ingram is the immediate past president of the 140,000-member Florida Education Association. He also has served as an elected vice president of the AFT's executive council, and as an AFT vice president for six years (2014-2020) before being elected as the AFT's secretary-treasurer. Since becoming secretary-treasurer in September 2020, Ingram has joined the executive committee of the AFL-CIO's Transportation Trades Department and the board of Union Plus, a member benefits organization founded by the AFL-CIO. In February 2022, he was elected to serve as a trustee on the board of the NAACP Foundation. In June 2021, he was elected to chair the AFL-CIO's Department for Professional Employees, a coalition of unions representing millions of professional and technical employees, including doctors, lawyers, engineers, teachers, actors and other highly trained workers.

Ingram grew up in inner-city Miami, where he attended public schools. Pursuing his love of music, he attended Bethune-Cookman University on scholarship and became the first member of his family to earn a postsecondary degree, in music education.

He would go on to become a music teacher and band director in Miami-Dade public schools for 10 years. Ingram is also an accomplished musician in his own right and has performed throughout the state and nationally as a saxophone soloist and conductor.

In 2006, he was named the Francisco R. Walker Miami-Dade County Teacher of the Year. He was also a finalist for the state of Florida Teacher of the Year Award in 2006.

In May 2013, he was elected president of the United Teachers of Dade, which represents employees of the fourth-largest school district in the nation. He held that post until 2015, when he was elected vice president of the Florida Education Association, where he became a bridge-builder and fearless advocate for public education, the joy of learning and the importance of the arts in education. In 2018, he won election as FEA president. Since then, he has been in frequent demand as a speaker, lecturer and presenter, and is recognized nationally for his workshops and presentations on community organizing and coalition building.

In May 2013, the Miami Herald's Legacy magazine named Ingram as one of South Florida's 50 most powerful black business leaders. He is a recipient of the prestigious JM Family African-American Achievers Award, given to leaders who have exemplified excellence in their fields.

In addition to his bachelor's degree from Bethune-Cookman, Ingram earned a master's degree in educational leadership from Barry University. He also holds an honorary doctorate of humane letters awarded by Florida Memorial University.

He is married to Yvette Ingram, and they have three children, all of whom have attended public schools.

Kayce Solari-Williams, Board President, American School Health Association, Clinical Assistant Professor & Health Internship Coordinator, University of Houston

Dr. Kayce Solari Williams is a clinical associate professor and internship coordinator in the Health program at the University of Houston in the Department of Psychological, Health, and Learning Sciences as well as the Co-founder and CEO of Be Well Health Resources, LLC, a company focused on employee wellness training and providing equitable access to wellness information and resources. Dr. Solari Williams has been a K-12 dance and physical education teacher in Houston, Fort Bend, and Aldine school districts in Texas and is the current president of the American School Health Association's board of directors. Her current school health work focuses on the Employee Wellness component of the WSCC model, school dress code policies and disparities in violations based on race, gender, and body type, obesity prevention and active lifestyle promotion.

Donele Wilkins, Executive Director, Green Door Initiative

Donele Wilkins has dedicated her life's work towards improving the quality of life for Detroiters through environmental and social justice. She is the founding director of the Green Door Initiative, a non-profit organization promoting environmental justice in Michigan. She is sought after as a public speaker. Recipient of many awards most recently named an Innovator with the Campaign for Black Male Achievement.

For more than two decades Donele has led local movements for environmental justice, played a key role in developing the Michigan's Environmental Justice Policy, launched the city's first green jobs training program, advocated for citizen involvement in public policies, citizen science and placed environmental stewardship on the agenda of community leaders and decision makers.

Erielys Vicente, MHSC Alumni/College Student, Rutgers University

My name is Erielys Vicente, I am the Teen Youth Leader, as well as the assistant, for the Project Coordinator at North Camden Community Gardens (NCCG). A gardening program organized by NCCG, an organization that supports its community in beautifying its neighborhood by introducing all ages to urban greening and agriculture. The program focuses on A-Z gardening where students learn skills such as: Vermiculture, Tree Care, Planting & Plant care, Seed harvesting & Germinating, How to maintain a greenhouse, Entrepreneurship/ Marketing Sales, Bioremediation, and much more I am also a freshman student at Rutgers University with a Major in Art, my primary focus is Art Therapy.

Ayden Clytus, Intern, Institute for Tribal Environmental Professionals, College Student, Arizona State University

Yá'át'ééh! My name is Ayden Clytus and I am from Mesa, AZ but my home community is St. Micheals, AZ on the Navajo reservation where my family is from. Currently, I am a college sophomore earning my bachelor's degree in Justice Studies and a minor in American Indian Studies at Arizona State University (ASU). Whilst at ASU I have been involved in a variety of things including working for non-profits, holding leadership positions, and interning with the Institute for Tribal Environmental Professionals (ITEP) where I gained a better understanding of climate change through my internship with the Environmental Protection Agency (EPA). Once I obtain my bachelor's degree, I plan to attend law school with a focus on American Indian and Environmental Law. Lastly, some of my hobbies outside of attending college include watching various TV shows, listening to music or podcasts, gardening, and cooking!

Clarene Davis, College Student, Southwestern Indian Polytechnic Institute

Clarene Davis is a member of the Navajo Tribe. She is a college student pursuing a degree in environmental sciences as well as Native American studies. Low-Cost Sensors was part of my recent virtual summer internship at the University of Alaska. A communication project by Columbia University scientists, comprising a website, newspaper op-ed, and radio broadcast on the Navajo Nation. She is working on air quality with the Salt River Pima Maricopa community. At the Helping Hands Center, we currently have one Purple Air device.

Alejandra Nunez, Deputy Assistant Administrator for Mobile Sources, Office of Air and Radiation, US Environmental Protection Agency

Alejandra Nunez is the Deputy Assistant Administrator for Mobile Sources, Office of Air and Radiation at the U.S. Environmental Protection Agency. Prior to being appointed to her current position at the EPA, she served as a senior attorney at the Sierra Club's Environmental Law Program, where her work focused on litigation and regulatory advocacy on federal greenhouse gas and corporate average fuel economy standards for light- and heavy-duty vehicles, carbon dioxide standards for new and existing power plants, state transportation and clean energy policies, and the integration of environmental justice in climate policy.

Before the Sierra Club, Deputy Assistant Administrator Nunez worked as associate counsel at the World Bank's Legal Vice Presidency, advising on public-private partnerships in the energy and water infrastructure sectors. She was also an associate at Morrison & Foerster, representing clients on public trust issues, carbon sequestration projects, and conservation easements, and she taught a seminar on Advanced Energy Law at the Washington College of Law at the American University in Washington, D.C. Deputy Assistant Administrator Nunez holds Doctor of Juridical Science (S.J.D.) and Masters of Law (LL.M.) degrees from Harvard Law School, and a law degree (LL.B.) from the Instituto Tecnológico Autónomo de México. During her studies, she interned at UNESCO's World Water Assessment Programme and was also a research fellow at Stanford University's Program on Energy and Sustainable Development.

Joseph da Silva, PhD

Dr. Joseph da Silva is an award-winning school architect, nationally recognized trailblazing educator, and accomplished researcher. At the Rhode Island School Building Authority, Dr. da Silva spearheaded the publication of Rhode Island's first statewide school facilities survey, the Public Schoolhouse Assessment, published in 2013 and recently completed a statewide educational planning assessment of 300 plus public schools. Dr. da Silva is a founding board member, treasurer, and president of the National Council of School Facilities, which recently published the national "State of Our Schools" Report. He is an adjunct faculty member at Bristol Community College and Providence College. His new book titled School(House) Design And Curriculum In Nineteenth Century America: Historical and Theoretical Frameworks was just published in November 2018, with Palgrave McMillian.

Mihir Parikh, Senior Program Director, Resilience. PMP, LEED GA, Enterprise Community Partners

Mihir Parikh leads Enterprise's Climate Resilience Academies, helping owners, operators and developers preserve and protect affordable homes across the nation from the risks and impacts of natural hazards and a changing climate. The academies are the latest Enterprise initiative launched to help communities develop homes that can sustain natural hazards and promote environmental justice, health and social cohesion through innovative ideas, technical assistance, and advocacy support into post-event reconstruction. Mihir also develops guidance, tools, and technical and policy support across other Enterprise climate risk reduction programs.

Prior to joining Enterprise, Mihir was a part of APTIM's Resiliency and Sustainability Solutions practice, focusing on resiliency and sustainability consulting and program development. His experience and expertise consist of a diverse background, including resiliency planning; energy assurance planning; CDBG-DR program management; climate policy development; sustainability strategies; energy audits; green infrastructure, and utility energy efficiency programs for numerous sectors, including municipal, airports, private and higher education.

In 2020, Mihir served on President-Elect Biden's campaign Climate/Energy/Environment Policy Committee focusing on resilience. Mihir is a certified Project Management Professional (PMP) and LEED Green Associate and holds a B.A. in Environmental Studies and Policy from Ithaca College.

Craig Schiller, Executive Director, Collaborative for High Performance Schools

Craig is the Executive Director of the Collaborative for High Performance Schools and a sustainability expert specializing in the built environment, transportation, and climate policy. He has 12 years of experience advancing sustainability and decarbonization as a green building educator, state and federal climate policy designer, and project manager in energy efficiency, higher education, transportation, aviation, and net-zero energy building sectors. In addition, Craig spent seven years designing decarbonization programs at the think-tank RMI, served as an Advisory on the Biden-Harris Climate/Environment/Energy Committee, and as the Chief Strategy Officer of a clean-tech aviation startup. Craig has a Master's degree in Sustainable Design from Carnegie Mellon University, where he wrote his thesis on sustainable schools, and a B.S. in Geology & Geophysics from the University of Wisconsin.

Leslie Rubin MD, Associate Professor of Pediatrics, Morehouse School of Medicine School of Medicine, Southeast PEHSU at Emory University, Break the Cycle of Health Disparities, Inc.

Leslie Rubin, MD, is Associate Professor in the Department of Pediatrics at Morehouse School of Medicine, Adjunct Associate Professor in the Department of Pediatrics at the Emory University School of Medicine, Director, Break the Cycle Program, Southeast Pediatric Environmental Health Unit at Emory University, President and Founder of Break the Cycle of Health Disparities, Inc. and Medical Director of The Rubin Center for Autism and Developmental Pediatrics, in Atlanta, Georgia.

Dr. Rubin is originally from South Africa where he completed his pediatric training with an elective in Neurology at the University of Witwatersrand Medical School then went to Case Western in Cleveland, Ohio where he did fellowship in Neonatology and Care of the Handicapped Child. He then moved to Boston Children's Hospital where he was Assistant Professor in Pediatrics at Harvard Medical School. In 1994, he moved to Atlanta, Georgia where he was Associate Professor in Pediatrics at Emory University before moving to Morehouse Medical School. Dr. Rubin is a Developmental Pediatrician who is clinically active in caring for children with developmental disabilities and their families. He is the primary editor of Health Care for people with intellectual and developmental disabilities across the lifespan, Springer 2016. He is part of the Southeast PEHSU in actively promoting children's environmental health. He is also active in exploring the social, economic, and environmental determinants of health and in advocating for strategies to reduce health disparities in children thorough his not-for-profit Break the Cycle of Health Disparities, Inc. In 2004, he started an annual program Break the Cycle of Children's Environmental Health Disparities, which cultivates the interest of university and college students to raise awareness of environmental health disparities and cultivate future leaders to address these challenges. To date, there have been 16 annual programs with over 150 papers and 13 books in a Public Health Series with Nova Publishers. The program received The Children's Environmental Health Excellence Award from the US EPA in 2016.

His personal mission is to work in collaboration with others on reducing children's health disparities locally and globally, in the face of Climate Change and in the context of Social and Environmental Justice.

Aaron Jobson, Principal/President, Quattrocchi Kwok Architects

Aaron Jobson, one of QKA's five principals, comes from a family of educators and has a passion for creating dynamic, sustainable learning environments. He is known for his innovative projects, and advocacy on many issues related to educational facility design. Aaron has been involved in the Collaborative for High Performance Schools (CHPS) for more than 10 years through projects and as a Board member. A founding member of the School Energy Coalition, Jobson is a legislative advocate for energy efficiency measures affecting schools in California and a leading voice on sustainability. He is also one of the creators of Folia, a prefabricated two-story steel classroom building that dramatically reduces design, permitting and construction time on projects to market. Jobson's work, passion and advocacy has garnered his reputation as a thought leader on how school facility design directly impacts academic success – a subject on which he has spoken about at national education conferences. In 2015, Jobson was certified as an Accredited Learning Environments Planner (ALEP) by the Association for Learning Environments (A4LE).

Irene Nigaglioni, AIA, ALEP, LEED AP BD+C

Irene offers varied experiences in educational and institutional facilities. Her experience in the design of academic facilities ranges from renovation to new construction. As President of IN2 Architecture, Irene is involved in all aspects of a project, including visioning, programming, master planning, schematic design, design development, construction documents and contract administration.

Irene keeps up with the latest instructional and curriculum trends in school design, ensuring her client's buildings are designed with student success in mind. She has earned the A4LE Lifetime Achievement Award for her contributions to the world of educational facility design and planning, and is a A4LE Fellow. She is also an instructor in the Advanced Academy for Educational Facility Environments.

Dr. Daniel Lefkowitz, PCBinSchools

Dr. Daniel Lefkowitz has successfully raised public awareness about the presence of polychlorinated biphenyl compounds (PCBs) in building caulk that was applied to public buildings, most notably schools. Dr. Lefkowitz is the parent of a child that attended the French Hill Elementary School in Yorktown Town Heights, NY where he discovered, through testing, PCBs in the window caulking and soil at his son's school in 2004. As a result, Dr. Lefkowitz created a website that contains studies on PCBs in caulking, contact information for PCB blood analyses, various PCB sampling reports (for caulk and soil), links to EPA resources and other useful links to raise awareness about the issue. After discovering PCB contamination at his son's elementary school, Dr. Lefkowitz met with the staff of State Assemblyman Thomas DiNapoli, the New York State Health Department and the New York State Education Department. As a result of these meetings, the New York State Education Department was the first in the nation to issue a Protocol for Addressing Polychlorinated Biphenyls (PCBs) in Caulking Materials in School Buildings.

In 2008, Dr. Lefkowitz with the help of George Weymouth, took PCB caulk samples from a number of New York City schools buildings. After finding high levels of PCBs in the caulking, Dr. Lefkowitz contacted a reporter from the New York Daily News, who later did his own sampling. The Daily News' reporter found high levels of PCBs in the caulking and wrote several articles that prompted health officials, the EPA and New York City political leaders to look into the matter. In 2013, New York City agreed to a legal settlement to remove and replace old light fixtures, another source of indoor PCB contamination, at the cost of \$1 billion.

In April 2012, Dr. Lefkowitz received EPA Region Two's Environmental Quality Award for his achievement in protecting public health and the environment.

Dr. Lefkowitz lives in Yorktown Heights, NY with his wife and son and is still raising public awareness about PCB contamination in schools.

National Association of School Nurses

The National Association of School Nurses (NASN) is a 501(c)3 public charity specialty nursing organization and works at the local, state, and national levels to provide educational programs, resources, and tools to build capacity for schools and school nurses to optimize student health and learning. NASN has a membership of 17,000, affiliate SN organizations in 49 states and the District of Columbia. NASN and our members understand that while school nurses serve as the bridge between health and education, we are one component of a school health team, and we cannot succeed by working alone. Pursuing health, education, and social equity for students through shared leadership is a central goal of NASN's strategic plan. NASN works in collaboration with other organizations to achieve our vision of every student healthy, safe, and ready to learn through policies, practices, and programs.

DAY TWO SPEAKERS

Claire L. Barnett, MBA, Executive Director, Healthy Schools Network

Claire L. Barnett, Founder and Executive Director, grew Healthy Schools Network from its roots in New York into the nation's premier voice for children's environmental health at school by advancing a comprehensive policy agenda, fostering state and local environmental health coalitions across the country, and securing landmark reforms in states and federally. With a primary concern for healthful indoor environments in schools, the organization has pioneered the tracking of how disasters impact schools and children, beginning with 9/11 .

Barnett previously reported for TIME Magazine in New York City, administered rural New York outpatient mental health services, and assisted Adirondack Park communities with sustainable development. She shifted her focus to children's environmental health in the aftermath of her child's pesticide exposure at school. Barnett has an MBA from Rensselaer Polytechnic Institute (health systems finance) and a BA from Mount Holyoke College (psychology/political science). In 2017, she was honored to receive three national awards: the William K. Reilly Award for environmental leadership from American University School of Public Policy; the US EPA Indoor Air Quality Champion Recognition; and the David P. Rall Award for contributions to public health through science-based advocacy from the American Public Health Association.

In spring 2020, she pivoted HS Network and its scores of NGO partners to the pandemic disaster; in July, with more than twenty NGO partners, it issued a widely supported policy call for all schools to have written and adopted Infection Prevention and Control Plans, a policy later adopted by the American Public Health Association and amplified by the Harvard COVID Collaborative. She currently serves on several government advisory groups, including: the National Advisory Committee on Children and Disasters, the New York State advisory group on Climate and the Buildings Sector, and the NYS Department of Education' Safe Schools Task Force.

Susan Frelick Goekler, PhD., Board Chair, Healthy Schools Network

As CEO of two professional associations, the Directors of Health Promotion and Education (DHPE) and the American School Health Association (ASHA), Susan Goekler (aka Susan Wooley) oversaw operations and represented the association, its members and the field. She has co-authored/co-edited several school health-relevant publications that include book chapters, encyclopedia articles, peer reviewed journal articles, and books, including *Health Is Academic: A Guide to Coordinated School Health Programs*. She has worked in academia, schools, hospitals, non-profit agencies, associations, and government and served on non-profit boards. She is currently living in Rehoboth Beach, Delaware and enjoying retirement from full time work while taking on projects of interest, including serving as Chair of the Healthy Schools Network Board. She received her bachelor's degree with honors in biology from Case Western Reserve University, a master's degree in health education from the University of North Carolina at Greensboro, and a Ph.D. in health education from Temple University. She is a Retired Master Certified Health Education Specialist (RMCHES).

Mark Mitchell MD, MPH, Associate Professor of Climate Change, Energy and Environmental Health Equity, George Mason University

Mark Mitchell M.D., MPH, FACPM , Associate Professor of Climate Change, Energy, & Environmental Health Equity at George Mason University. Dr. Mitchell is Director of State Affairs for the Medical Society Consortium on Climate and Health and is Director of the Climate and Health Equity Fellowship, a joint program of the Consortium and the National Medical Association's Southeast Region (Region III). He also co-chairs the National Medical Association's Commission on Environmental Health.

A preventive medicine physician trained in environmental health and health policy, Dr. Mitchell has spent over twenty years working in the public health sector, including as Director of the Hartford, Connecticut Health Department and Deputy Director of the Kansas City, Mo Health Department. He spent fifteen years working with environmental justice communities to prevent and reduce environmentally related disease as well as to change policies that are detrimental to environmental health. He is the Founder and Senior Policy Advisor of the Connecticut Coalition for Environmental Justice.

Dr. Mitchell has served on several U.S. EPA and FDA advisory committees and has received a number of awards for his community and environmental health leadership. Dr. Mitchell earned his bachelors and medical degrees from the University of Missouri-Kansas City and his Masters of Public Health from The Johns Hopkins University.

Lisa Patel, MD, MEd, FAAP

Lisa Patel is a Clinical Assistant Professor of Pediatrics at Stanford School of Medicine. She received her Master's in Environmental Sciences from the Yale School of the Environment, her medical degree from the Johns Hopkins School of Medicine, and completed her training in pediatrics at UCSF. She is a former Presidential Management Fellow for the Environmental Protection Agency where she coordinated the US Government's efforts on clean air and safe drinking water projects in South Asia in collaboration with the World Health Organization. She is a faculty mentor for the Stanford Climate and Health group and mentors projects on climate-resilient schools, environmental justice, sustainable healthcare, and medical education curriculum reform. She is a member of the Executive Committee for the American Academy of Pediatrics Council on Environmental Health and Climate Change and the Deputy Executive Director for the Medical Society Consortium on Climate and Health.

Sara Paul, Superintendent, SFO, North Branch Area Public Schools, Association of School Business Officials – International, Education Committee

Sara Paul is a certified administrator of School Finance and Operations by the Association of School Business Officials (ASBO) Sara has served on the ASBO Education Committee for the past few years. She has been recognized as a national educator of the year by National Association of Securities Dealers Automated Quotations (NASDAQ) and for her leadership by the National Association of School Superintendents (AASA).

Sara currently serves as the Superintendent of North Branch Area Public Schools in Minnesota. The district is recognized for being at the forefront of educational excellence for their COVID response plan.

Donald G. Colliver, Ph.D., PE

Don is Professor and Director of Graduate Studies in the Biosystems Engineering Department at the University of Kentucky and Co-Chair of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Task Force for Building Decarbonization. Professionally Don has conducted research on energy usage in buildings and industrial facilities, solar energy, air infiltration and ventilation, building codes, and the analysis of climatological data for determination of design weather conditions. Don has lectured in 20 countries with his teaching emphasis in solar PV systems design; indoor environmental control; building energy modeling and analysis; and sustainable design. He was the ASHRAE Society President in 2002-2003 and subsequently initiated the AEDG Steering Committee and led it for ten years. He has served as the Director of the KY Industrial Assessment Center and participated in over 80 energy assessments in industrial facilities.

He was awarded a doctorate from Purdue University; and is a hiker, viticulturist, and a retired soccer referee. His love and pride are his two sons and daughter-in-laws, and five grandchildren.

Corey Metzger, PE, Schools Team Lead – American Society of Heating, Refrigeration, and Air Conditioning Engineers, (ASHRAE) Epidemic Task Force, Professional Engineer, ASHRAE

Corey Metzger is the founding Principal of Resource Consulting Engineers, LLC in Ames, Iowa. He is a professional engineer experienced in the design of building systems for numerous facility types. Corey serves as the Schools Team Lead for the ASHRAE Epidemic Task Force (ETF) and as a member of the ASHRAE Environmental Health and Technical Activities Committees. Corey and his wife Becky live in Ames with their two sons.

Princess Moss, Vice President, National Education Association

Princess R. Moss, an elementary school music teacher from Louisa County, Va., is Vice President of the National Education Association, the nation's largest professional organization. Previously, Princess was NEA Secretary-Treasurer and had primary responsibility for managing and maintenance of the Association's multimillion dollar budget.

At the local, state, and national levels, Princess is a respected, unwavering champion of children and public education. As vice president, she helps to guide the Association's mission of fulfilling the promise of public education to prepare every student to succeed in a diverse and interdependent world. For Princess, an important part of that work includes being a staunch, outspoken ally of students, educators, and families who represent communities that have been historically marginalized. These include Black, Brown and indigenous communities, LGBTQ+ communities, students with disabilities, and those who move through the world representing the ways in which these communities intersect.

Princess is a skilled organizer. She recognizes the opportunities and subtle power that exist within authentic one-to-one conversations. An intent listener who knows the value of storytelling, Princess frequently shares stories about the lived experiences of NEA members to make a point about the challenges faced by today's educators. Her goal is to ensure the voices educators raise on behalf of their students, and the professional authority of educators, continue to grow. In particular, Princess focuses special attention on increasing the ranks of new educators. She understands that within their knowledgeable hands lies the future of NEA and the nation.

Elected NEA vice president in 2020, as the U.S. faced the dual pandemics of coronavirus and systemic racism, Princess is an outspoken, sought-after advocate on the topics of racial and social justice in education and the ways in which awareness, capacity-building, partnership and individual and collective outcomes can help to improve public schools, and ensure that every public school student has an opportunity to achieve the American Dream. To Princess, and to the entire NEA, every child and every student —no matter their parents' incomes, where they live, the language they speak at home, their race, religion, ethnicity, gender identification, or physical capabilities—deserves to attend a great public school. Princess believes in using every available tool—organizing, legal and legislative measures, the ballot box, and collective action—to protect the rights of students and educators and protect public education.

Princess distinguished herself with two terms on the NEA Executive Committee, where she served on the Elementary and Secondary Education (ESEA) Advisory Committee, steering the Association's strategy for the law's pending reauthorization, and the Dropout Prevention Advisory Committee, helping develop relevant tools for NEA members. She also served on the Board of Directors for the NEA Health Information Network, a non-profit dedicated to providing school communities with vital and timely information that supports successful learning environments and student achievement.

Princess is past president of the 62,000-member Virginia Education Association (VEA), where she increased VEA membership, advocated successfully for greater investment in public education at the state and local levels, and helped to lay the groundwork for the state's collective bargaining law, passed in 2019. She also served as VEA vice president and was on the Board of Directors for NEA and VEA for over 10 years.

In 2006, Princess was tapped by Virginia Gov. Tim Kaine to serve on the Commonwealth's P-16 Education Council, tasked with coordinating education reform from preschool through higher education. She also served on the Executive Committee of the Foundation for Virginia, a 501(c)4 bipartisan coalition of organizations, business leaders, and public officials promoting a better future by ensuring quality education, public safety, and other priorities. Through her wide range of experiences, Princess has developed a recognized expertise on women's issues, minority concerns, political action, school finance, and professional development.

An advocate for a great public school for every student, Moss was appointed by Governor Tim Kaine to a term on the University of Mary Washington Board of Visitors, 2007-2011. She was reappointed by Governor Ralph Northam, 2021-2024.

As the daughter of two school bus drivers who instilled within her the core beliefs of courage, honesty, respect, and the value of getting a good education, Princess earned her bachelor's degree in music education from the University of Mary Washington, and received the university's Distinguished Alumnus Award in 2006. She also earned a master's degree in elementary and secondary administration and supervision from the University of Virginia.

Nsedu Obot-Witherspoon, MPH, Executive Director, Children's Environmental Health Network

Ms. Nsedu Obot Witherspoon, MPH, serves as the Executive Director for the Children's Environmental Health Network (CEHN), where her responsibilities include successfully organizing, leading, and managing child-protective policy, education/training, and science-related programs. For the past 21 years, she has served as a key spokesperson for children's vulnerabilities and the need for their protection, conducting presentations and lectures across the country. She is a leader in the field of children's environmental health, serving on the External Science Board for the Environmental Influences on Child Health Outcomes (ECHO) NIH Research work. She is a Co-Leader the Health/Science initiative of the Cancer Free Economy Network and Co-Chair of the National Environmental Health Partnership Council. Ms. Witherspoon is also the Board Chair for the Pesticide Action Network of North America, Board Member for the Environmental Integrity Project and Healthy Building Network, and serves on the Maryland Children's Environmental Health Advisory Council.

Ms. Witherspoon has held past appointments on the Children's Health Protection Advisory Committee for the Environmental Protection Agency, the NIH Council of Councils, the Science Advisory Board for the Centers for Disease Control and Prevention, and the Board for the American Public Health Association. She is a past member of the National Association of Environmental Health Sciences Council and the Institute of Medicine's Environmental Health Sciences Roundtable.

Ms. Witherspoon has a variety of publications and has the distinct honor of having one of CEHN's leadership awards, the Nsedu Obot Witherspoon (NOW) Youth Leadership Award, named in her honor. She is also the recent recipient of the William R. Reilly Award in Environmental Leadership from the Center for Environmental Policy at American University and the Snowy Egret Award from the Eastern Queens Alliance.

Ms. Witherspoon has a B.S. in Biology Pre Med from Siena College and a M.P.H. in Maternal and Child Health from The George Washington University, School of Public Health and Health Services. She is a proud mom to 4 children!

Danielle Denk, ASLA, RA, Schoolyard Initiative Director, The Trust for Public Land

Danielle is the Community Schoolyard™ Initiative Director at The Trust for Public Land where she works across the organization to enable the local, state and federal systems for equitable community schoolyards nationwide. Prior to that, Danielle directed and managed The Parks for People Program in Camden and Philadelphia where she worked directly with schools and communities to transform asphalt schoolyards and parks into vibrant, healthy, climate-smart centers for resilience and health. With over 25 years' experience in public space design and development, Danielle sees access to high quality public space as a human right. Danielle has a professional degree in architecture and urban design from Kent State University and a master's degree in landscape architecture from The University of Pennsylvania. When not working, Danielle can be found hiking, biking and kayaking with her family on the trails in the Wissahickon Valley.

Mireille Ellsworth, Chair, Hawaii Healthy Schools Caucus

Mireille is a veteran teacher with 20 plus years in the classroom. She is currently employed in Hawaii. She is a strong HEA and NEA leader who is committed to seeing change.

Judy Braiman, President Empire State Consumer Project Founder and executive, Empire State Consumer Project (ESCP), is a registered 501c3 nonprofit organization dedicated to reducing the use of unsafe products and chemicals toxic to human and environmental health. The group was founded by Judy Braiman in 1971. In 2021, NYS Attorney General Letitia James honored Judy's lifetime achievement for her 50 years of service to consumers.

Judy Braiman's work has resulted in regulations that reduce toxics in consumer products and the environment. She has been a forerunner in product testing and educating the public on product and environmental hazards, especially those that can harm children.

APPENDIX C: RECOMMENDED RESOURCES

Pandemic v. Schools: States Must Guide School Reopening, Slowing Virus, July 2020, Healthy Schools Network and New Jersey Work Environment Council, et al., a national collaborative report calling for public health agencies to develop and schools to adopt Infection Prevention and Control Plan policies that drive clean indoor air, clean drinking water, and clean facilities.

Towards Healthy Schools: National Data and Policy Summary Update 2021, Healthy Schools Network, 2021

National Summit Report COVID, Climate, Children, and Schools, January 27-28, 2021, Healthy Schools Network

American Public Health Association Policy Statements

- ***Establishing Environmental Public Health Systems for Children at Risk or with Environmental Exposures in Schools***, policy adopted 2017
- ***Preparing Public Schools in the United States for the Next Public Health Emergency; Lessons Learned from COVID-19***, policy adopted 2021

Clean Air in Buildings Challenge, White House National COVID-19 Preparedness Plan directs US Environmental Protection Agency to lead federal inter-agency effort focused on offices and schools, March 2022

Climate Change portal, US EPA

President's Task Force on Risks to Children's Environmental Health and Risks to Children's Safety, Subcommittee on Climate, Emergencies and Disasters, Task Force co-chaired by EPA Office of Children's Health Protection and HHS Office of Science and Medicine, Office of the Assistant Secretary

K-12 Climate Action, Aspen Institute, 2021