
Efficient and Healthy Schools Campaign Recognition Program Recipient Celebration!

June 28th 2023

Agenda

- **Introduction**
 - Overview of the Campaign and Recognition Program
- **Campaign organizing partners**
 - U.S. Department of Education
 - U.S. Environmental Protection Agency
 - U.S. Department of Energy
- **Recognition honorees presentations**
- **Closing remarks**

Efficient and Healthy Schools Campaign

The Efficient and Healthy Schools Campaign aims to engage K-12 schools to improve energy performance and indoor air quality, with a focus on practical solutions involving HVAC and other technologies to reduce energy use and carbon emissions. This Campaign is led by the U.S. Department of Energy with technical support from Berkeley Lab and New Buildings Institute.

Organizing partners



2023 Recognition Program

Implementation

- **Energy Efficiency Plus Health** – improve energy efficiency and indoor environmental quality (IEQ): indoor air quality, lighting, thermal comfort, acoustics
- **Emissions Reduction and Resilience** – reduce carbon emissions and improve resilience



Strategic Planning

- Efforts by schools and districts to assess their facilities and plan improvements using recommended approaches.



Thank you!



- Organizing partners
- Supporters
- Participating schools and districts
- Other partners working with the Efficient and Healthy Schools Campaign to provide technical assistance and resources to improve school facilities



Andrea Falken

Special Advisor for Infrastructure and Sustainability

U.S. Department of Education





Infrastructure and Sustainability



<https://www2.ed.gov/about/inits/ed/infrastructure-sustainability/index.html>



https://public.govdelivery.com/accounts/USED/subscriber/new?topic_id=USED_27



Tracy Enger

Program Manager, Indoor Environments
Division

U.S. Environmental Protection Agency

EPA Resources For IAQ in Schools!



IAQ Tools for Schools Action Kit



IAQ Tools for Schools Mobile App



Framework for Effective IAQ Management



**IAQ Master Class
Professional Training
Webinar Series**



**Energy Savings Plus Health Guide and
Interactive Air Quality Planner**



**IAQ Tools for Schools: Preventive
Maintenance Guidance**

www.epa.gov/iaq-schools

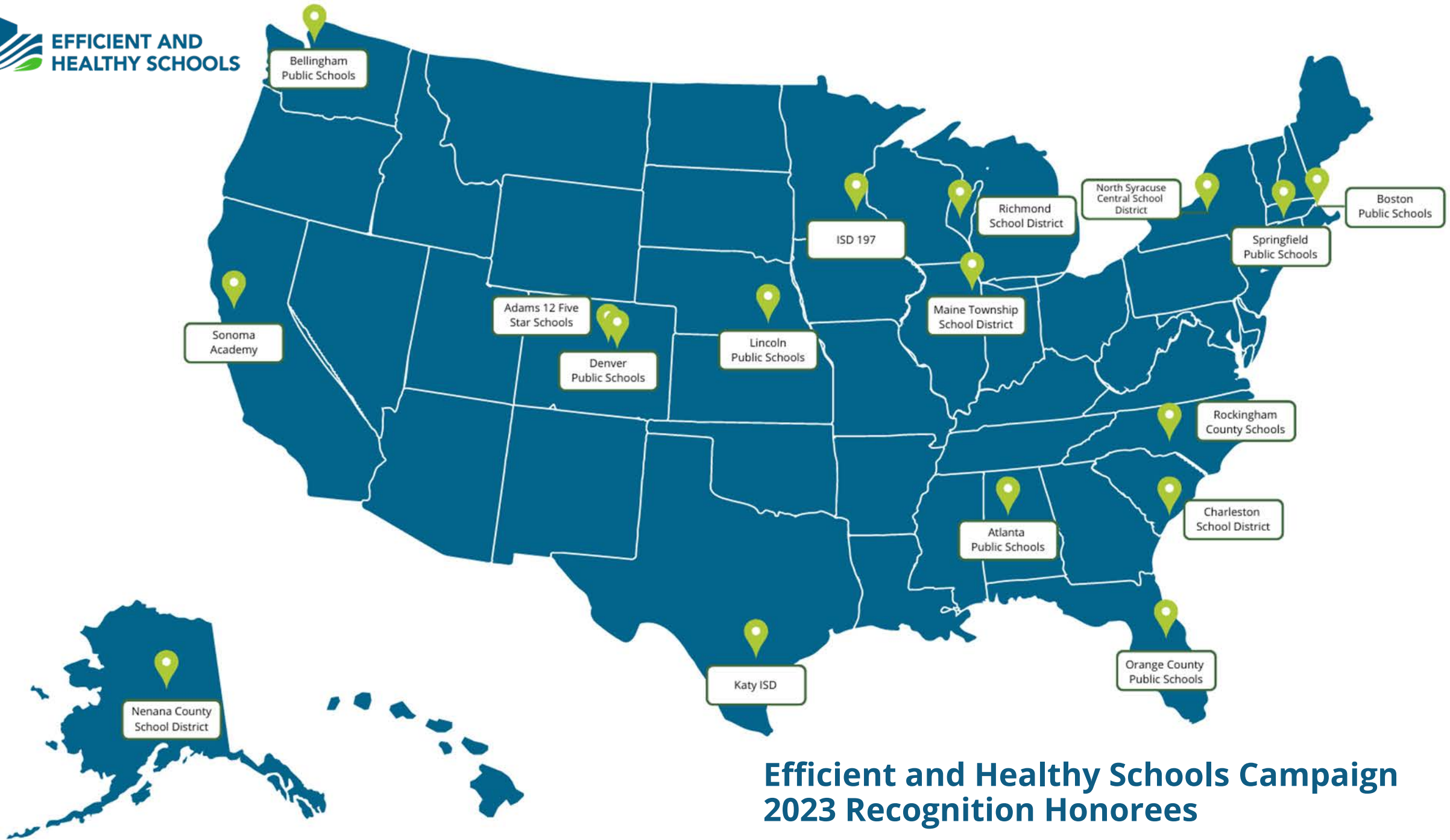


Alejandro Moreno

Acting Assistant Secretary for Energy Efficiency
and Renewable Energy

U.S. Department of Energy





Efficient and Healthy Schools Campaign 2023 Recognition Honorees



- Adams 12 Five Star Schools, CO



- Independent School District (ISD) 197, MN
- Lincoln Public Schools, NE
- North Syracuse Central School District, NY
- Katy Independent School District, TX
- Denver Public Schools, CO
- Boston Public Schools, MA

Adams 12 Five Star Schools

Recognition highlights:

- Benchmarking: energy use and cost, EUI, water usage, etc.
- GHG emissions tracking and reporting, tools used
- Low energy use design for 3 schools: siting/layout, envelope, and efficient building systems. Additional: solar array installation, low carbon materials
- Learning Opportunities: incorporation of real-time energy metering that students can access, and involvement of students during the design and construction process.

State: Colorado
Students: 36,078
Schools: 54



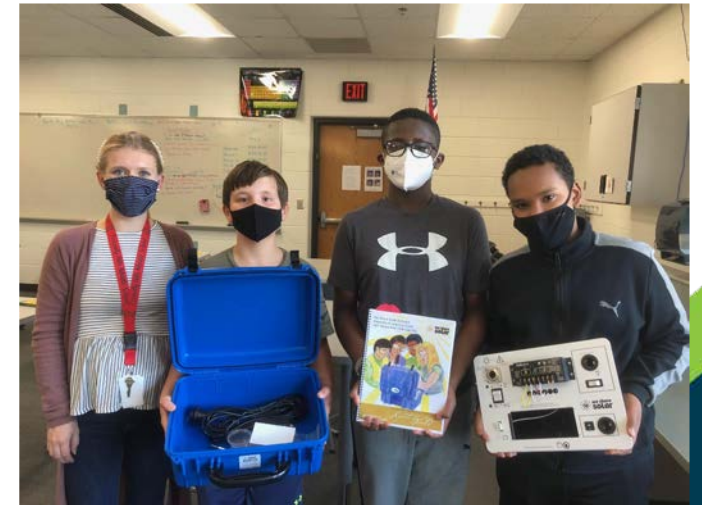
Independent School District (ISD) 197



Recognition highlights:

- 20+ years focus on energy efficiency and sustainability practices with school board and admin support
- Top 5% of schools nationwide for energy performance
 - EUI of 52.54 kBtu/sqft (Energy Star National school median EUI=114 kBtu/sqft)
 - Operations centrally monitors building HVAC and lighting systems
- Bond referendum for major renovations
 - Utilized 3rd party commissioning for energy design & planning
 - Added high efficiency condensing boilers, VFDs, LED lighting and natural lighting
 - Built aquatics building with rooftop solar thermal system as the primary heat source for the pool
- 100% of electricity offset through rooftop & community solar gardens
- LiveGreen students clubs at all schools engage students in energy and environmental projects

State: Minnesota
Students: 5,140
Schools: 8



Lincoln Public Schools

Recognition highlights:

- Park Middle School, built in 1926, went through an Indoor Air Quality project to replace all mechanical HVAC systems, update lighting, address code deficiencies, and make other building envelope improvements.
- 212 geothermal wells and 108 water source heat pumps replaced conventional air handling units which transitioned the primary heating source from being entirely natural gas to now being entirely electric.
- Prior to project, EUI was 94 and annual energy cost was \$273,475. After project EUI is 28 and annual energy cost is \$125,374
- Learning Opportunity: Park Middle School Green Team student engagement to become 'Air Quality Ambassadors' for their school

State: Nebraska
Students: 41,747
Schools: 74



North Syracuse Central School District

Recognition highlights:

- Elementary School complete renovation (target of Net Zero ready), including building envelope, interior and exterior LED lighting with daylighting control in all classrooms, occupancy sensors in every space, and all new HVAC mechanical equipment
- Advanced controls allow for targeted preventative maintenance by facilities staff
- Owner training was completed for all mechanical equipment to teach facilities staff proper operation and maintenance procedures

State: New York
Students: 8,108
Schools: 11



Katy Independent School District

Recognition highlights:

- Katy ISD is the 5th largest, and the 2nd fastest-growing school district in the state of Texas, with over 16 million square feet, spread over 181 square miles. With energy costs on the rise, the district modernized building control systems in addition to reducing energy costs.
- District-wide Building Management Control System (BMCS) retrofit projects on 50 facilities over the past four years, funded by community bond elections to optimize HVAC operations for efficiency and useability. Current plans include continuing BMCS upgrades at remaining campuses and standardizing for all new campuses.
- The Energy Use Intensity (EUI) reduction at these facilities has averaged 22%, and contributed to an overall reduction in district-wide annual EUI from 55.7 to 42.3 kBtu/SF over the last five years.
- Continuous training for our BMCS and HVAC technicians, and ongoing commissioning efforts by our Energy Management team are critical to sustain efficiency gains and raise awareness to district goal of minimizing operating costs while providing best-in-class learning environments.

State: Texas
Students: 94,000
Schools: 75



Denver Public Schools

Recognition highlights:

- Energy Performance Contracting: \$31M, savings \$1.6M/yr, facility improvements
- District-wide LED Retrofit: \$11M, savings \$1.5M/yr
- Utilized stakeholders, students and partnerships to effectively implement
- Real time IAQ monitors currently installed in 10% of classrooms across the District (~800 sensors) with over 5,000 HEPA units distributed to schools from State ESSER funding
- Ongoing research projects/partnerships with City and County of Denver (Love My Air program) and the Univ. of Colorado on IAQ and effectiveness of HEPA units, and the impact of wildfires on IAQ



State: Colorado
Students: 90,250
Schools: 207

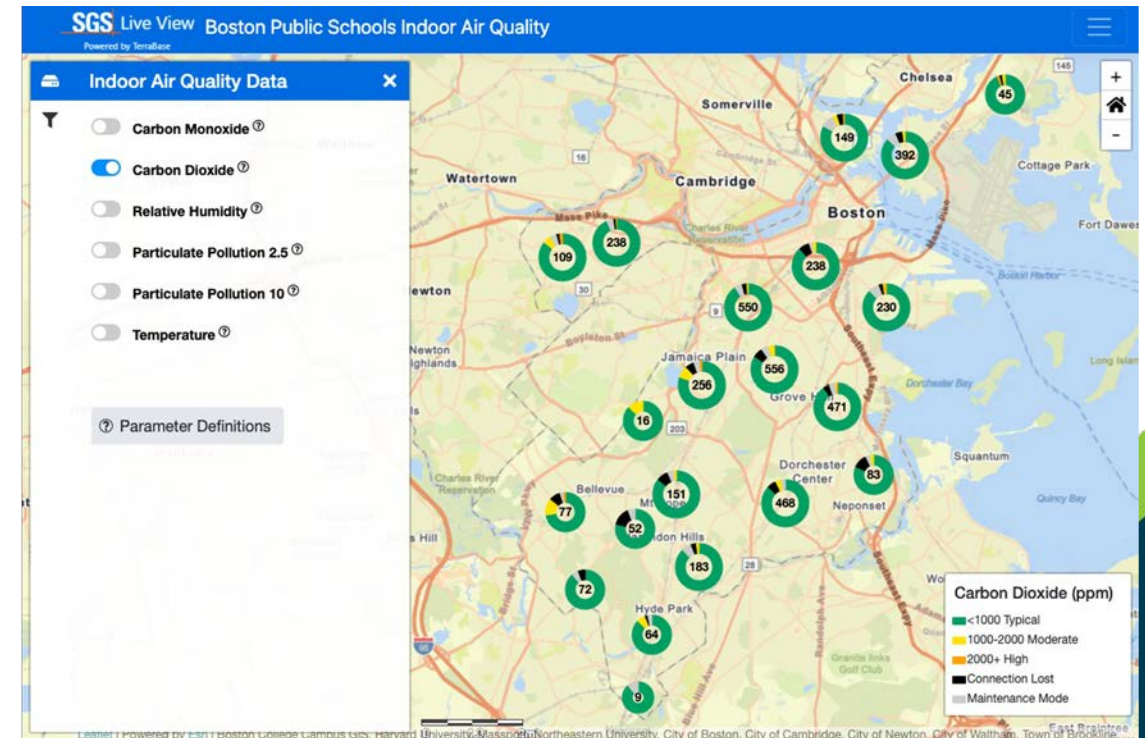


Boston Public Schools

State: Massachusetts
Students: 48,777
Schools: 119

Recognition highlights:

- Indoor Air Quality (IAQ) Management Program: Layered Risk Reduction Approach
- 4400 IAQ sensors and 118 roof-top sensors installed across all schools, monitoring air and environmental quality parameters, with real-time results reported on a public dashboard
- Portable HEPA air filters, ventilation maintenance, and upgraded filtration, with noted IAQ benefits
- Research partnership with Boston University Public Health - Analysis and Communications
- Investments in Building Environments (\$15.4M IVAQ Grant) and Staff (3 new Environmental FTE)





- Nenana City School District, AK
- Bellingham Public Schools, WA
- Orange County Public Schools, FL
- Charleston School District, SC

Nenana City School District

- Commits to decreasing fuel and energy consumption of district owned facilities by 30% by 2030
- Goal of safe and healthy learning and working environment:
 - MERV-13 or better filtration by 2030
- Commitment to increasing the resiliency of facilities
 - Energy resiliency plan by 2024
 - Explore on-site energy generation and storage



State: Alaska
Students: 1,700
Schools: 2

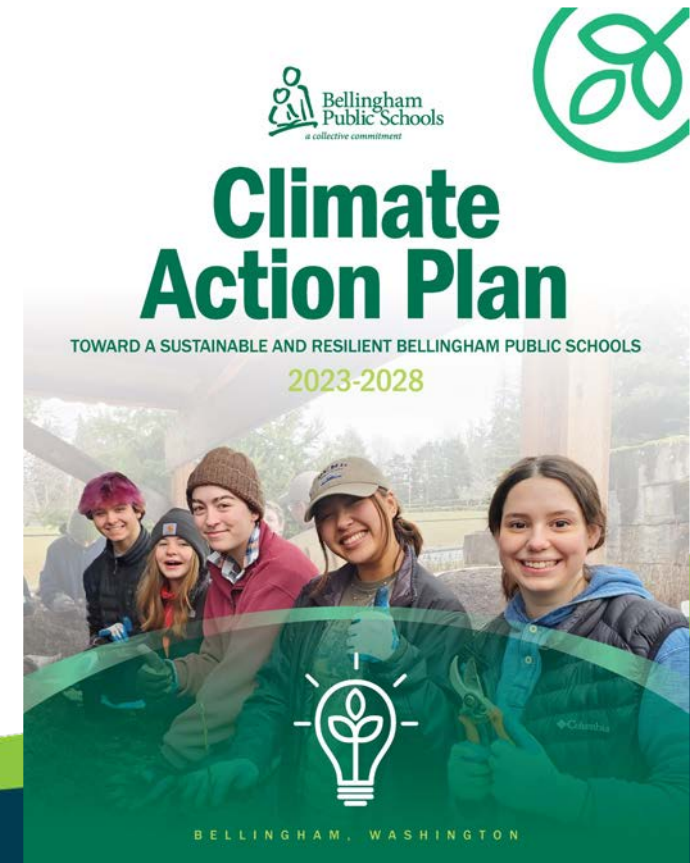


A school boiler installed in 1982. Parts are no longer manufactured and need to be sourced from eBay.

Bellingham Public Schools

- Developed a districtwide Climate Action Plan that prioritizes health, equity and sustainability and includes, but is not limited to:
 - Measurable goals related to tracking EUI and greenhouse gas emissions; assessing air quality; developing an integrated and vertically aligned curriculum; embedding sustainability into the culture of the district; and ensuring students and staff have opportunities to take action.
 - Benchmarking baseline energy data for 2022 to utilize moving forward

State: Washington
Students: 11,000
Schools: 22



Orange County Public Schools

- Goal to decrease carbon emissions by 50% by 2030
- Targeting food waste and solid waste reduction as a way to reduce emissions
- OCPS operates one of the largest food systems in Central Florida, serving more than 39 million meals per year, which exceeds 213,000 meals per day



State: Florida
Students: 199,100
Schools: 274





- Orange County Public Schools, FL
- Maine Township High School District 207, IL
- Rockingham County Schools, NC
- Richmond School District, WI
- Atlanta Public Schools, GA
- Springfield Public Schools, MA



- Sonoma Academy, CA

Orange County Public Schools



Recognition highlights:

- Master service agreement with local utility for LED retrofit projects campus wide
- 19 school campuses
- Reduction in energy consumption
 - More than 8.8M kWh annually

State: Florida
Students: 199,100
Schools: 274

Orange County Public Schools: Jones High School Auditorium

Before and After LED upgrades





Maine Township High School District 207

Recognition highlights:

- HVAC upgrades at a variety of schools; boiler plant replacement at two schools; mechanical, electrical, and plumbing (MEP) upgrades in three schools
- Goal to exceed base minimum energy codes was accomplished in many cases
- Savings were realized through improvements to standardizing equipment, CO2 controls in every space, and ventilation added through dedicated outdoor air system (DOAS)
- Engineering team volunteered to work with selected students throughout the district with an interest in engineering through internships
- 3 year phased project with a \$200MM construction budget
- 1.5MM square foot of renovation/addition

State: Illinois
Students: 6,335
Schools: 4



Rockingham County Schools

State: North Carolina
Students: 11,083
Schools: 22

Recognition highlights:

- Energy Services Agreement/ Performance Contract with Johnson Controls
- Existing lighting systems LED retrofits/replacements + occupancy sensors
- New air handling units + energy efficient air-cooled chiller
- Reduced water consumption
- Energy improvements not only impacted school district's IEQ and energy consumption, but it also positively impacted building operation



Sonoma Academy

Recognition highlights:

- Goals set in collaboration with stakeholders for new community dining and studio space
- Documented net zero energy, performed energy assessments via modelling
- Implemented: solar, all-electric, geothermal, passive design strategies, lower embodied carbon materials (10%).
- Net Zero Carbon certification for embodied carbon 90% due to purchased offsets
- Strategies implemented do improve risk from heat/ drought and prevents fire



**SONOMA
ACADEMY**

State: California
Students: 325
Schools: 1



Congratulations

2023 Efficient and Healthy Schools Campaign Honorees