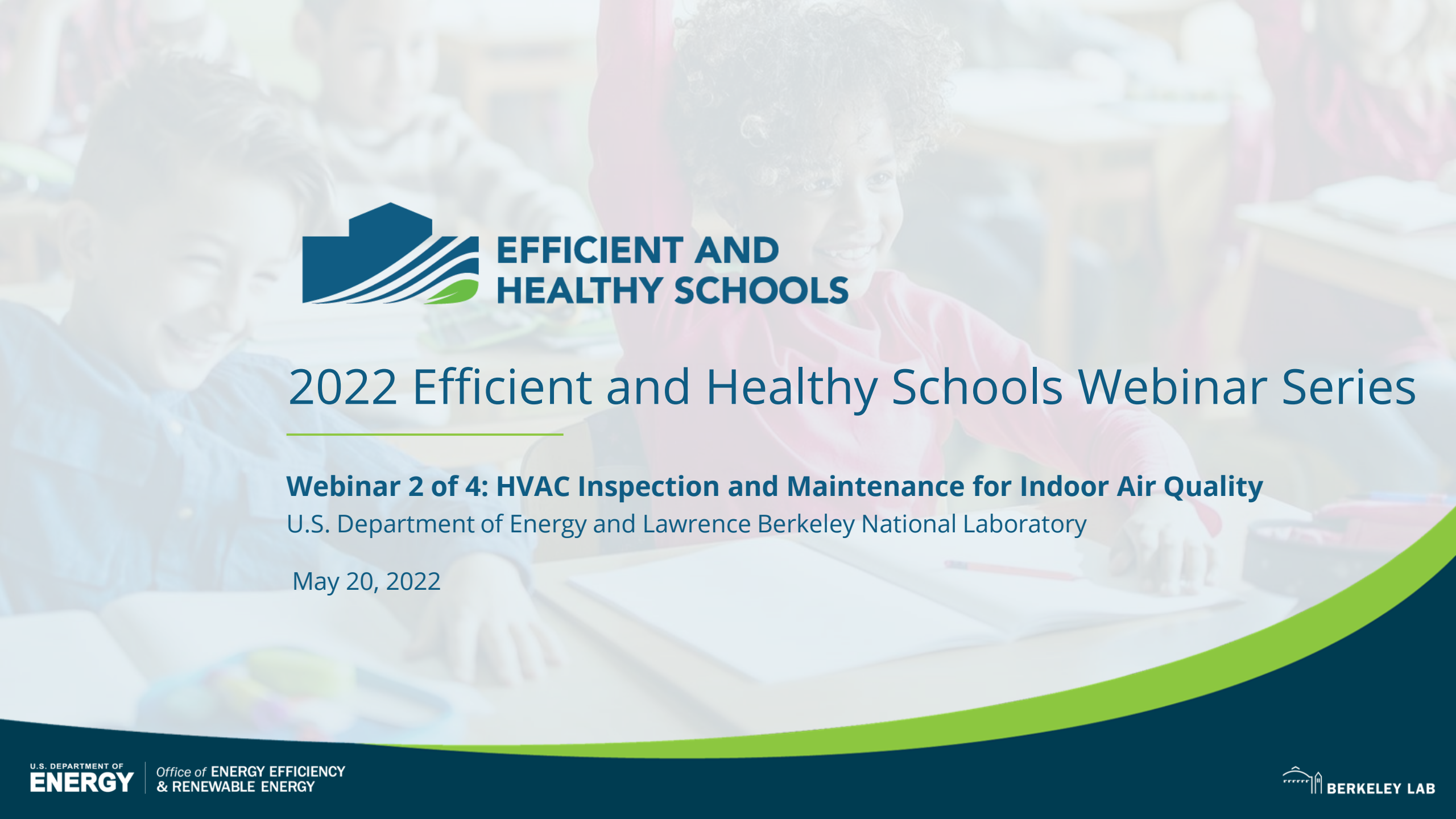


EFFICIENT AND HEALTHY SCHOOLS

2022 Efficient and Healthy Schools Webinar Series

Webinar 2 of 4: HVAC Inspection and Maintenance for Indoor Air Quality

U.S. Department of Energy and Lawrence Berkeley National Laboratory

May 20, 2022

Efficient and Healthy Schools Campaign Webinar

Welcome!

- Agenda is in the chat
- Webinar is being recorded
- All attendees are muted
- Please enter questions into the chat - they will be answered during the question and answer session toward the end
- We will send out the slides and presentation the week after the webinar

Today's Webinar, Summary

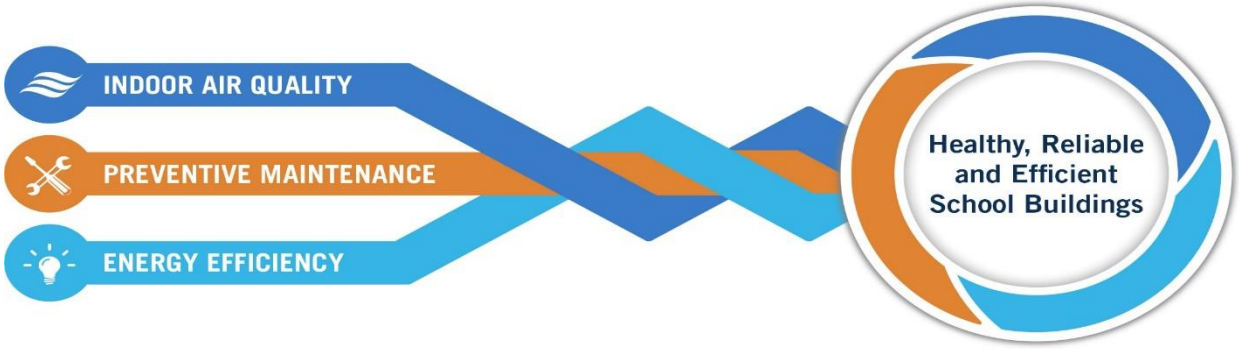
- Opening Remarks – Tracy Enger, U.S. Environmental Protection Agency
- Campaign Introduction – Rengie Chan, Berkeley Lab
- Campaign recognition program awardees presenting:
  - Best in Class – Rodney Williams, Newark Board of Education, NJ
  - Notable Achievement – Linda Mayfield, Mariposa County Unified School District, CA
- Ventilation Verification - HVAC Assessment – Christopher Ruch, National Energy Management Institute

Tools and Resources for Taking Action in Schools

KEY DRIVER:
Assess Your Environments Continuously

ASSESS

- Walk the Grounds
- Listen to Occupants
- Use Technology
- Determine a Baseline
- Keep Customers Satisfied
- Identify and Prevent Risks



Quality HVAC

ACTION KIT

★HVAC

- Inspect HVAC systems regularly.
- Establish a maintenance plan.
- Change filters regularly and ensure condensate pans are draining.
- Provide outdoor air ventilation according to ASHRAE standards or local code.
- Clean air supply diffusers, return registers and outside air intakes.
- Keep unit ventilators clear of books, papers and other items.

Integrated Energy Management Solutions

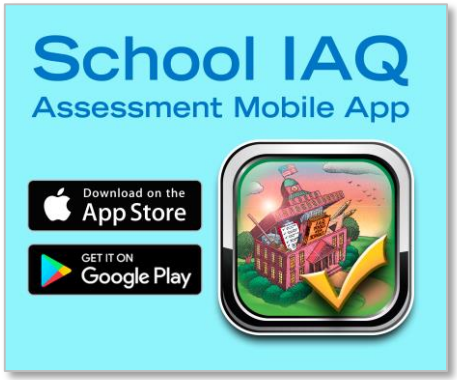
ACTION KIT

★Energy Efficiency

- Protect IAQ during energy efficiency upgrades and building renovations.
- Conduct regular HVAC maintenance and tune-ups.
- Install programmable thermostats.
- Consider performing post-construction commissioning for HVAC systems.
- Control moisture in building assemblies, mechanical systems and occupied spaces.

EPA Resources to Get You Started!

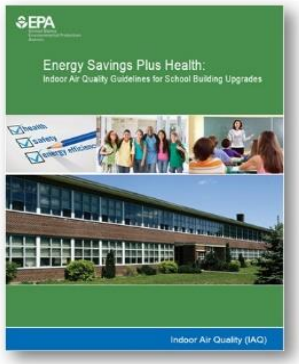
IAQ Tools for Schools
Action Kit



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

Efficient and Healthy Schools Campaign

The 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 Lawrence Berkeley National Laboratory.

Organizing partners

Recognition Program: 2021 Round One

The Efficient and Healthy Schools Campaign aims to recognize schools and school districts that have implemented exemplary solutions involving HVAC upgrades and other approaches to reduce energy costs, and improve energy efficiency and indoor air quality.

Areas for Recognition

- Schools and school districts that implement an inspection and maintenance policy to ensure adequate ventilation and effective filtration.

Opening windows, using portable air cleaners, and improving building-wide filtration are ways you can increase ventilation in your school or childcare program.

https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/ventilation.html

Good ventilation is important, especially in areas where students may not be able to wear masks. Eating meals outside is best. If you need to have students eat in a cafeteria, use methods such as opening windows, maximizing filtration as much as the system will allow and using portable HEPA air cleaners.

HVAC Inspection and Maintenance for IAQ

- Perform periodic inspections of HVAC systems; utilize approaches to aid systemic inspection of equipment
- Perform testing, adjusting, and balancing (TAB) to verify HVAC performance
- Ensure effective filtration
- Provide ongoing workforce training

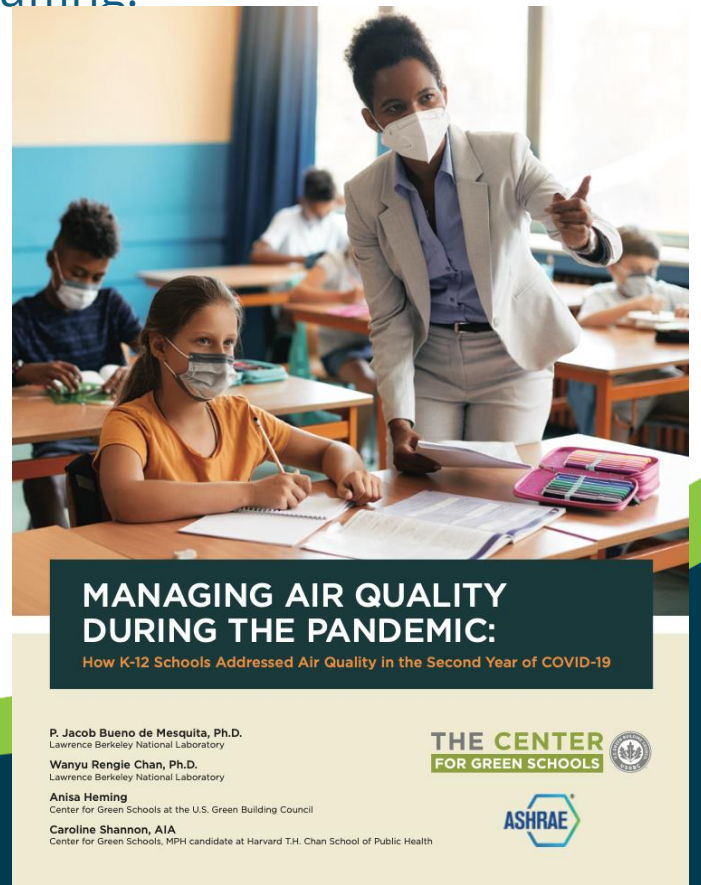
https://www.ashrae.org/technical-resources/reopening-of-schools-and-universities

Recent Survey (Oct-Dec 2021) of 88 School Districts

- What are the overall costs/savings from changes related to ventilation, filtration, and other building controls, compared with the same period during a typical school year prior to the pandemic? Costs/savings may include energy, materials, and staffing.

	Responses (N = 88)
Cost a lot more	**31 (35%)**
Cost moderately more	**36 (41%)**
No impact on overall costs	3 (3%)
Moderate savings	3 (3%)
Not sure	12 (14%)
NA / no changes	3 (3%)

https://www.usgbc.org/resources/managing-air-quality-during-pandemic-how-k-12-schools-addressed-air-quality-second-year



FOCUS GROUP INSIGHTS

> *I had a conversation with our administration about the impact to our budget that we are going to have this year and next year because we get paid per student per day in the classroom. If all of a sudden we are short a bunch of students our budget shrinks. So if we have healthier kids because we have better ventilation, I don't know what the numbers are and I don't know that we can say what the numbers are, but we can certainly say they are linked. Ventilation keeps kids in the seats, which keeps the budget happy.*
>
> — Focus Group Participant

https://www.usgbc.org/resources/managing-air-quality-during-pandemic-how-k-12-schools-addressed-air-quality-second-year

Utilizing State Energy Saving Program for Excellence in IAQ

Rodney L. Williams, CEFM, SFP
Director of the Energy and Sustainability
Newark Board of Education

Overview

The Newark Board of Education consist 39,900 students, 81 facilities (including Athletic complexes and warehouses) with approximately 7 million square feet of surface. We have buildings that are more than 150 years old, some building have full ventilation while others have little to no ventilation.

For the past couple of years we had been challenged with the onset of COVID-19 to provide an environment with limit exposure to the virus. The Board of Education used ESSER1 funding in a total of $275,432.36 to purchase the recommended MERV-13 filters for our existing mechanical ventilation equipment.

General Facilities Conditions

We reviewed each building to determined the basic types of mechanical systems we had running in the classrooms, findings as followed:

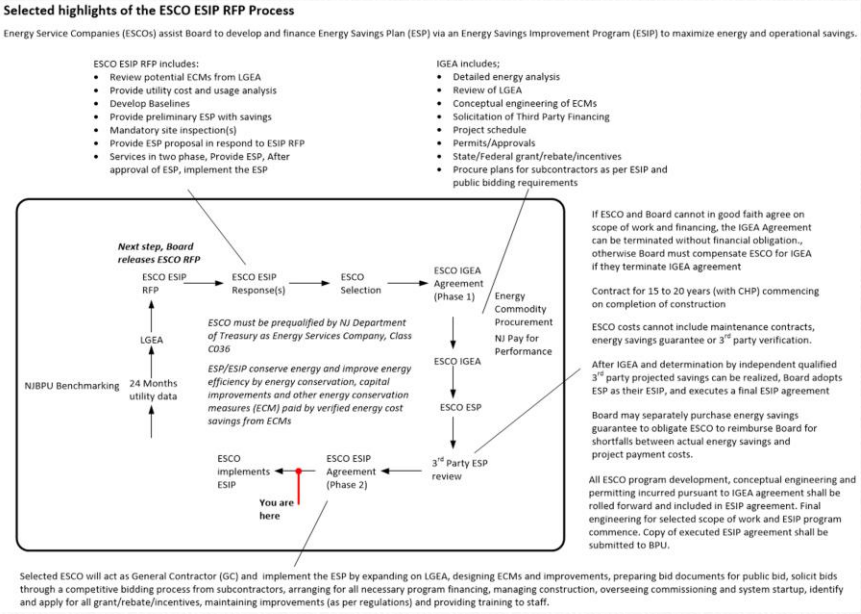
- 42% of the classrooms have only radiators with no mechanical fresh air
- 41% of the classrooms have univents with limited fresh air
- 15% of the classrooms have full mechanical ventilation in the entire building

HVAC Systems	Total # of Rooms
Radiators Only, No Fresh Air	1782
Mechanical Ventilation Univents, Limited Fresh Air	1718
Partial Mechanical System Portion of the Building	29
Full Mechanical Ventilation Entire Building	651

Utilizing the "ESIP" Energy Savings Improvement Program

*__ESIP__, is a state program from the Board of Public Utilities. This program allows school districts to use the saving from the installation of Energy Efficient equipment upgrades along with other energy savings measures to pay off the purchase and installation of that equipment within 15/20 years.

* **NBOE** is participating in this program and will receive over 100 million dollar of Energy Savings Measures. This will include **HVAC and Ventilation Equipment**

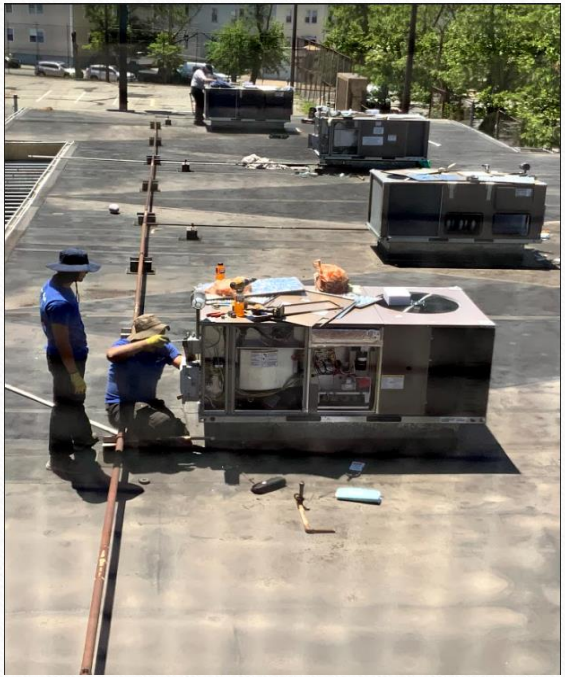


Example of Updated classroom units

New Classrooms units with good ventilation. We replaced standard MERV 8/10 filter to the MERV-13 filter. Increasing the ability to filter out pollutants in the air.

Additional HVAC Equipment

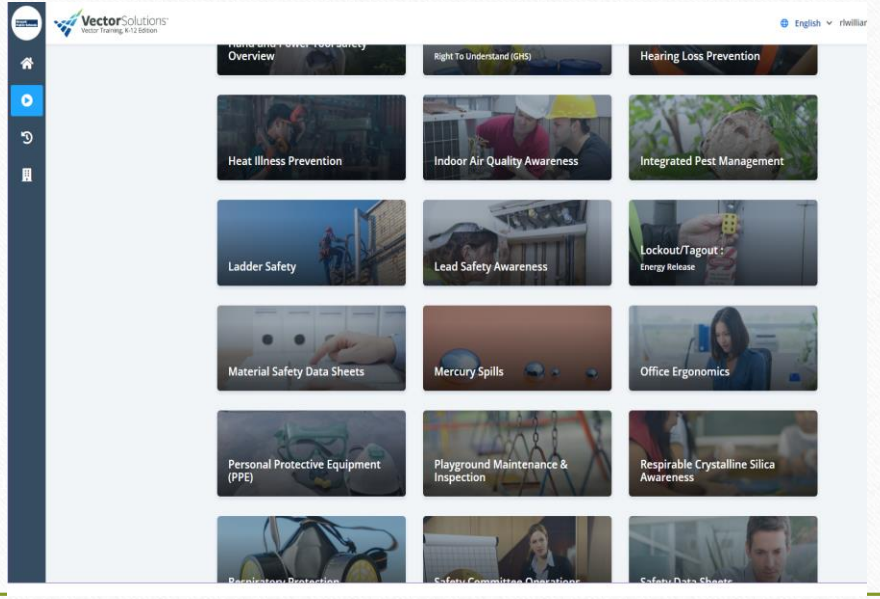
Ann Street built in 1885: Installed Rooftop Units under the State's Energy Program



Training on Equipment

SAFE SCHOOLS/VECTOR SOLUTIONS: a Training Solution built with unique features and functionality to fit the training needs is School Districts.

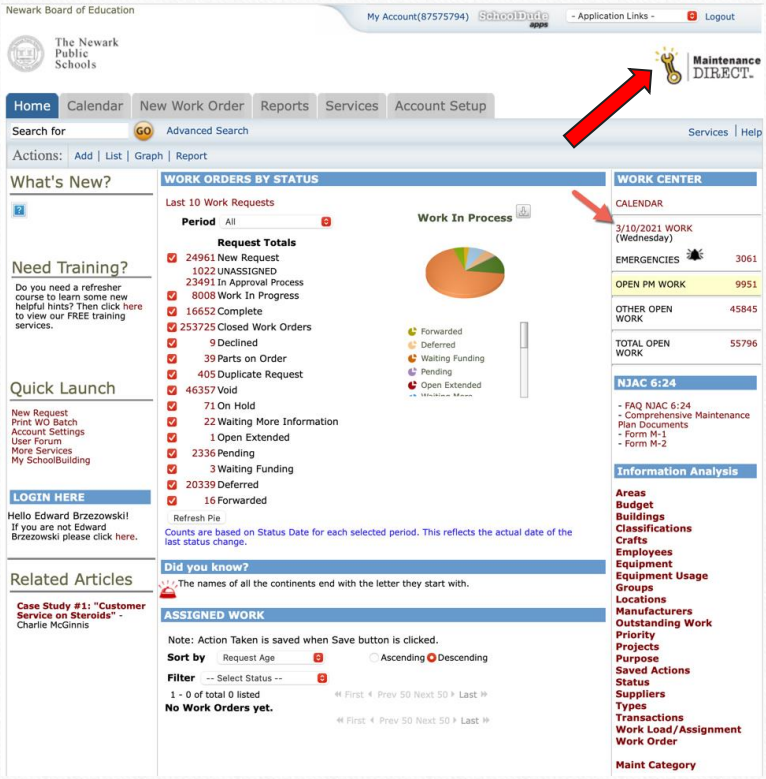
- We use Safe Schools to train our staff on Indoor Air Quality issues which includes maintenance and operation of equipment.
- This module helps us to keep track of current policy and procedures as well as verify who has completed the training and who is scheduled for training.



Keeping track on the Equipment and Maintenance

We use School Dude and Asset Essential.

This Online portal help us keeps tabs on the upkeep of the equipment by automatically sending PM workorders



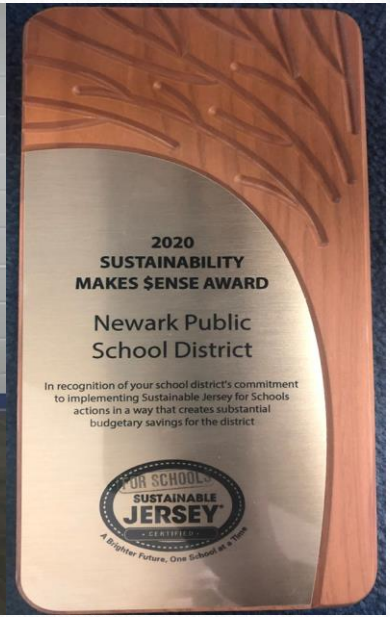
Utilizing State and Federal Programs

HOPE-LESS

HOPE-FULL!!!

* We are living in historic times where there is great attention and financial resources giving towards IAQ, in- door air quality. Even if your district has equipment from the 1800's where air quality wasn't a priority, Utilizing the energy incentive programs will put your District in a better position to repair, replace and install efficient equipment that Leads to a Healthier School Facility.

ANY QUESTION?



Mariposa County Unified School District

Small Necessary/Rural School District

Alternative Education: 133 students

Coulterville High/Greeley Hill Elementary: 66 students

Mariposa County High School: 430 students

Mariposa Elementary School: 383 students

Woodland Elementary School: 471 students

Lake Don Pedro Elementary School: 174 students

El Portal Elementary: 57 students

Yosemite Elementary: 38 students

Sierra Foothill Charter School: 136 students

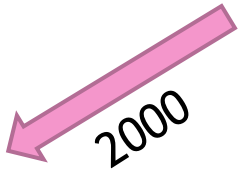
Total Student Count = 1888

AB 841

- I am utilizing AB 841 at our qualified school sites which will assist with HVAC Assessment, Maintenance, Filtration, and Monitoring.

Bond Funding

- Our District was able to obtain Bond Funding in 2016. All of our school sites had units that were well over 25 years old, and had outlived their useful life cycle.
- Beginning June 2022 both of our Elementary schools (Woodland and Lake Don Pedro School) are scheduled for 50 HVAC unit replacement.



Thermostats & Filter Upgrades

- Pelican Thermostats are out districts choice due to their ease of use for the maintenance department. We began replacing our antiquated Honeywell thermostats in January 2021.

- Filter Upgrades

Air Flow

- We asked that teachers open windows and doors (slightly) to allow for more air flow into the classrooms.
- HVAC economizers were utilized to allow as much fresh air into classrooms as possible.

Carpet Replacement

- Changing from carpet to vinyl will all help towards air quality.

Old Carpet

LVT

Ventilation Verification –HVAC Assessment

Christopher Ruch– Director of Education (NEMI)

ASHRAE Technical Committee (TC) 9.7 Educational Facilities Working Group

- ASHRAE TC 9.7 is concerned with the application of heating, ventilating, air-conditioning, refrigeration, life safety, and energy conservation systems to educational facilities.

  - **Design Guidance For Education Facilities: Prioritization For Advanced Indoor Air Quality**

**ASHRAE is currently processing the document through its official review/publishing process to make it a permanent document*

PRE-REQUISITE TASKS

1) Ventilation Verification and Testing, Adjusting, and Balancing (TAB) of HVAC airside components
2) Risk Tolerance Assessment – Wells-Riley or Equivalent

VERY HIGH PRIORITY TASKS

1) HVAC Equipment Filtration Upgrades
2) HVAC for Wellness/Nurse Suites for Pre-K-12
3) Classroom and Assembly Space Air Distribution Effectiveness

HIGH PRIORITY TASKS

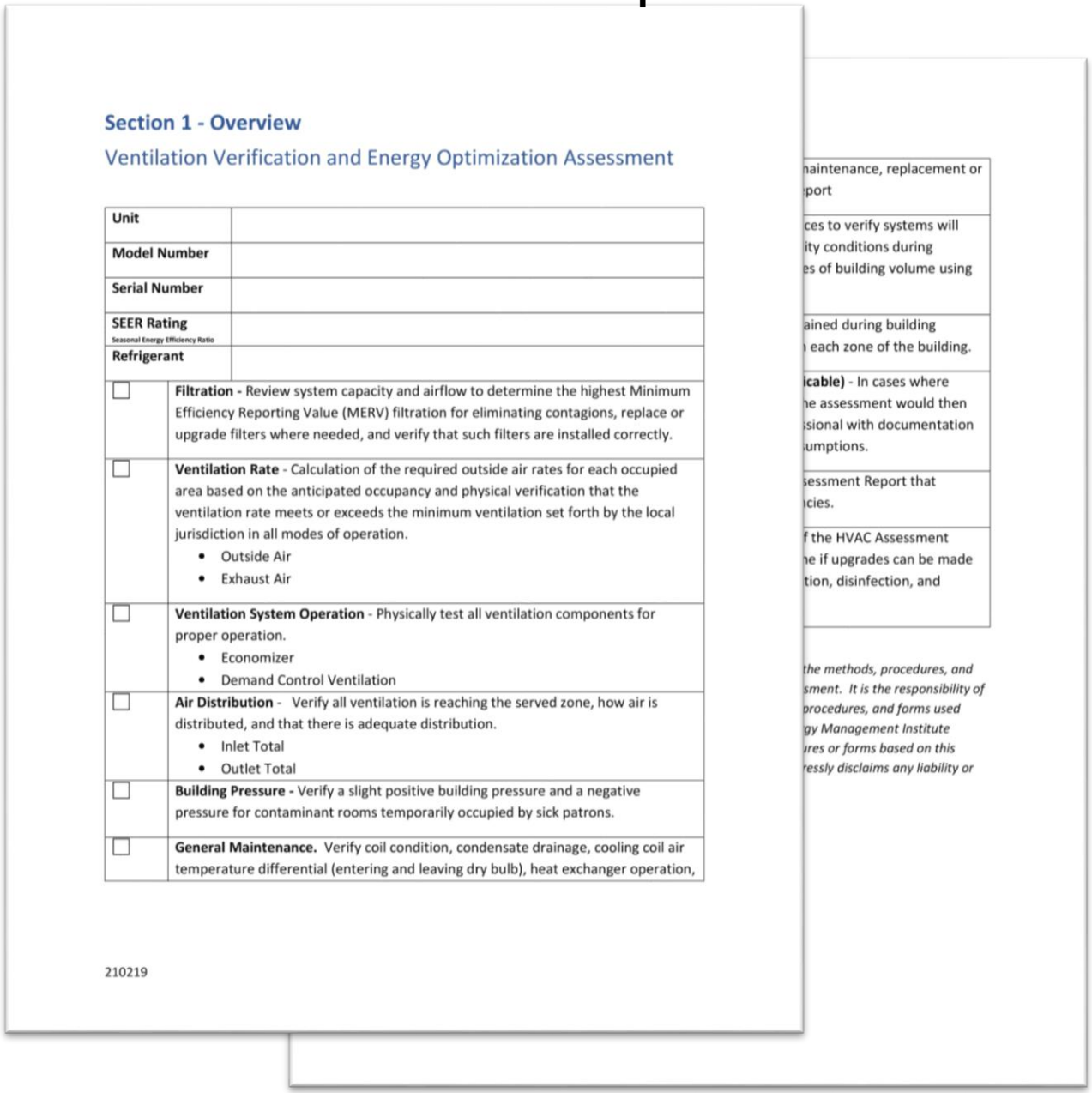
1) IAQ Sensors with Data Aggregation Platform
2) New HVAC equipment to achieve recommended ASHRAE air change rates
3) Classroom Level Air Cleaning
4) Restroom Exhaust and Air Filtration Upgrades
5) Staff Training and Documentation Organizational Platform
6) UV-C/UVGI for Air handlers

MEDIUM PRIORITY TASKS

1) Humidification systems
2) Energy Efficiency Offset Control Schemes for Advanced Indoor Air Quality
3) Operable Windows

Section 1 – Overview

Ventilation Verification Pre-Requisite Tasks



Section 1 - Overview

Ventilation Verification and Energy Optimization Assessment

Unit	
Model Number	
Serial Number	
SEER Rating Seasonal Energy Efficiency Ratio	
Refrigerant	

☐	**Filtration -** Review system capacity and airflow to determine the highest Minimum Efficiency Reporting Value (MERV) filtration for eliminating contagions, replace or upgrade filters where needed, and verify that such filters are installed correctly.
☐	**Ventilation Rate** - Calculation of the required outside air rates for each occupied area based on the anticipated occupancy and physical verification that the ventilation rate meets or exceeds the minimum ventilation set forth by the local jurisdiction in all modes of operation. • Outside Air • Exhaust Air
☐	**Ventilation System Operation** - Physically test all ventilation components for proper operation. • Economizer • Demand Control Ventilation
☐	**Air Distribution** - Verify all ventilation is reaching the served zone, how air is distributed, and that there is adequate distribution. • Inlet Total • Outlet Total
☐	**Building Pressure -** Verify a slight positive building pressure and a negative pressure for contaminant rooms temporarily occupied by sick patrons.
☐	**General Maintenance.** Verify coil condition, condensate drainage, cooling coil air temperature differential (entering and leaving dry bulb), heat exchanger operation,

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haintenance, replacement or
port

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each zone of the building.

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f the HVAC Assessment
he if upgrades can be made
tion, disinfection, and

the methods, procedures, and
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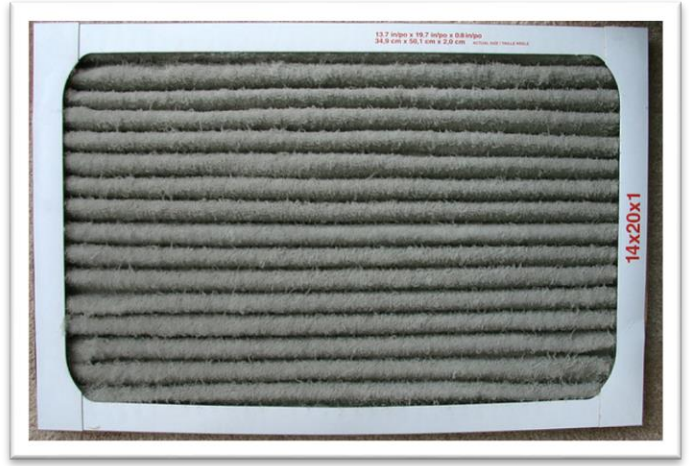
ressly disclaims any liability or

- Check off each Section of the Ventilation Verification assessment performed. All sections are not applicable to all units. Units may not have an economizer, Demand Control Ventilation (DCV), or even an outside air inlet.
- You will likely need to alter Sections, add sections, or remove sections based on individual HVAC units.

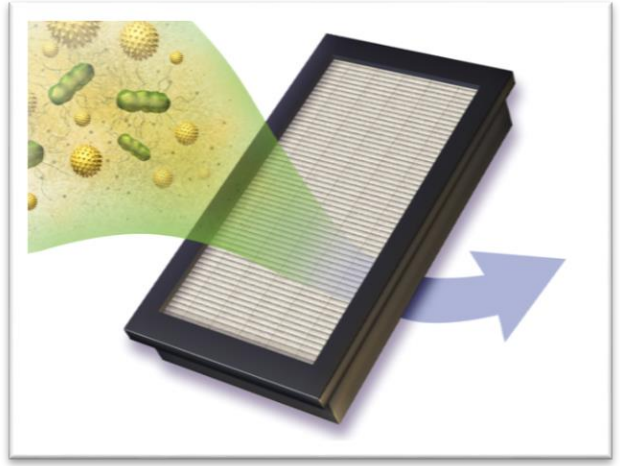
Section 2 - Filtration

Ventilation Verification Pre-Requisite Tasks

- Verify filters are installed correctly and replace if needed.



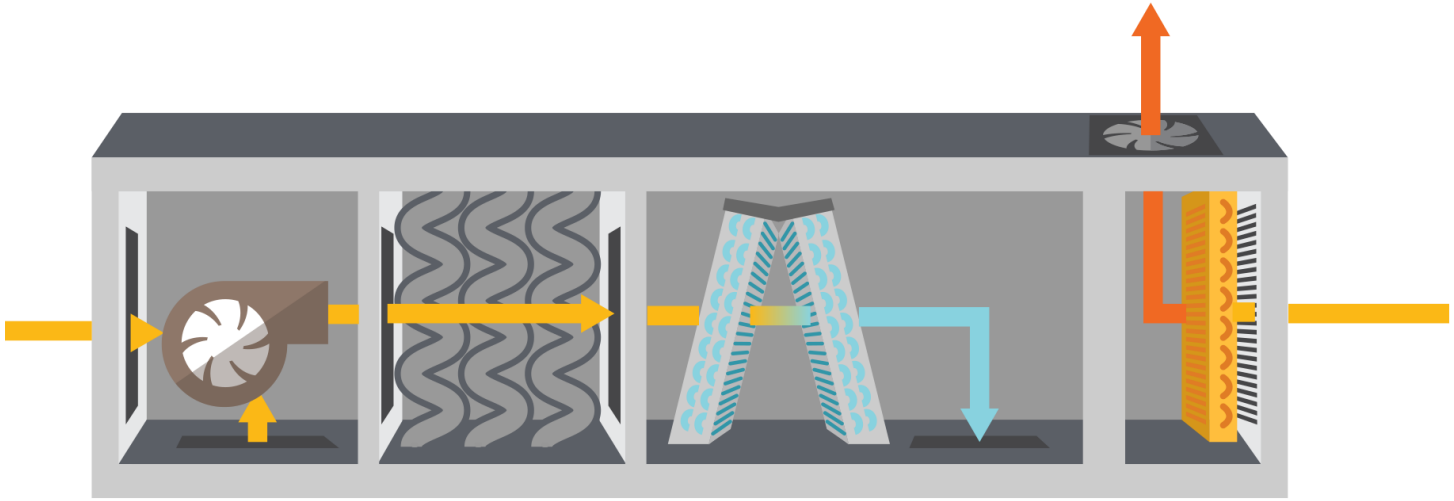
- Apply the highest Minimum Efficiency Reporting Value (MERV) applicable for the HVAC units considering airflow and conditioning capabilities. MERV 13 or better is recommended.



Section 3 – Ventilation Rate

Ventilation Verification Pre-Requisite Tasks

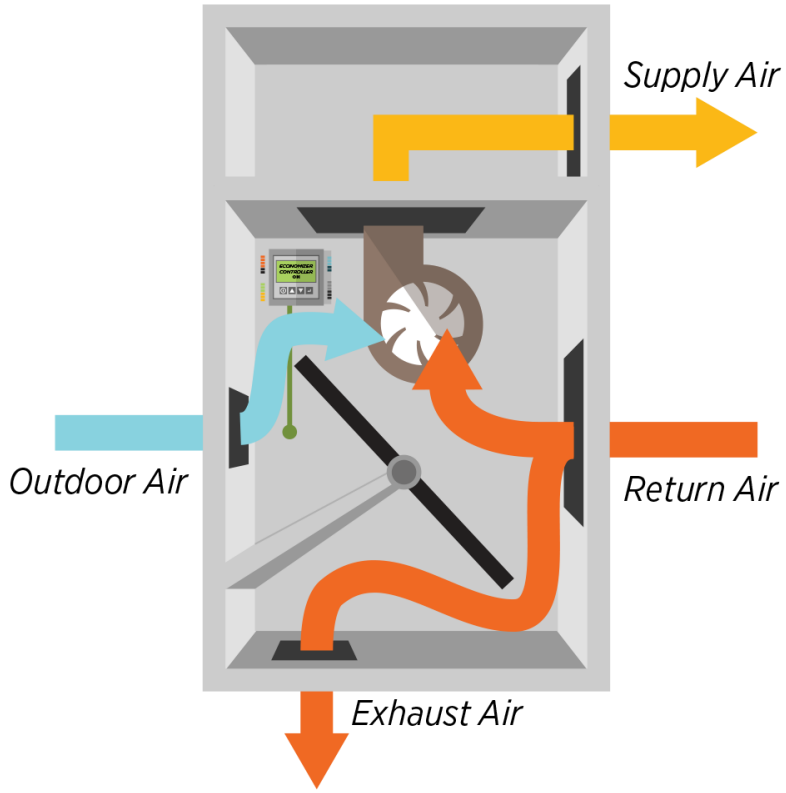
- Minimum Outside Air
- Can Outside Air be increased?
- Exhaust airflow



Source: UC Davis WCEC

Section 4 – Economizer Operation

Ventilation Verification Pre-Requisite Tasks



Source: UC Davis WCEC

Section 4 – Economizer Operation

Ventilation Verification and Energy Optimization Assessment

☐	Verify Economizer Operation

Step		Passing this test verifies the Economizer operates as designed.	Results
Step 1:		Disable demand control ventilation systems (if applicable)	
Step 2:		Enable the economizer and simulate a cooling demand large enough to drive the economizer fully open (record all of the following):	
	a.	Economizer damper modulates 100% open and that the return air damper modulates 100% closed.	P/F
	b.	All applicable fans and dampers operate as intended to maintain building pressure.	P/F
	c.	The unit heating is disabled (if applicable).	P/F
Step 3:		Disable the economizer and simulate a cooling demand (record all of the following):	
	a.	Economizer damper closes to its minimum position.	P/F
	b.	All applicable fans and dampers operate as intended to maintain building pressure.	P/F
	c.	The unit heating is disabled (if unit has heating capability).	P/F
Step 4:		If unit has heating capability, simulate a heating demand and set economizer so that it is capable of operating (i.e., actual outdoor air conditions are below lockout setpoint). (record all of the following):	
	a.	Economizer is at minimum position.	P/F/NA
	b.	Return air damper opens.	P/F/NA
Step 5:		Turn off the unit. Record if the Economizer damper closes completely.	P/F
Step 6:		Restore demand control ventilation systems (if applicable) and remove all system overrides initiated.	

Y/N	**Economizer functions as designed**
☐	**If economizer does not function as designed and requires adjustment or repairs:** • Document Required Repairs and Adjustments • Document information required for a repair or adjustment (i.e. measurements, model, serial, etc.)
	• Include relevant photographic documentation ☐

This document is intended to be used solely as an aide when developing the methods, procedures, and forms used in the Ventilation Verification and Energy Optimization Assessment. It is the responsibility of each contractor, supervisor, and technician to ensure that the methods, procedures, and forms used

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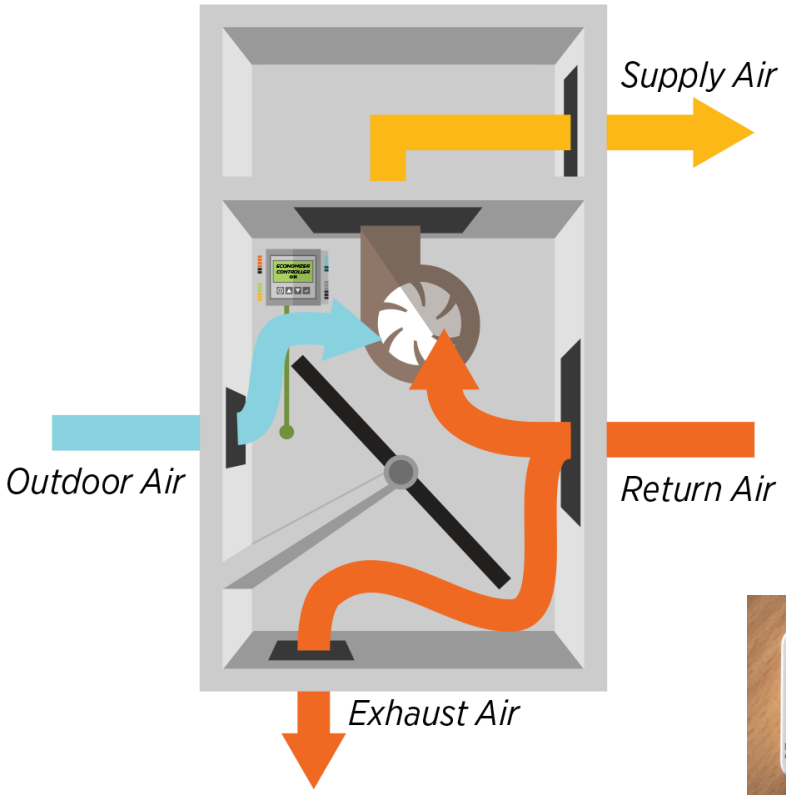
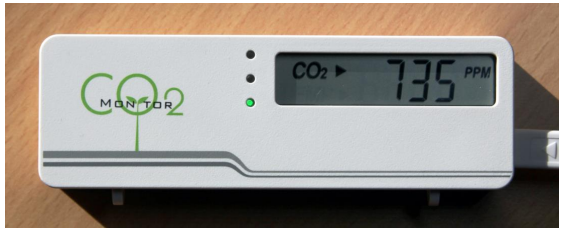
Section 5 – Demand Control Ventilation (DCV) Operation

Ventilation Verification Pre-Requisite Tasks





Source: UC Davis WCEC

Section 5 – Demand Control Ventilation (DCV) Operation

Ventilation Verification and Energy Optimization Assessment

☐	**Demand Control Ventilation (DCV) systems shall be verified for proper operation**	
Step	Passing this test verifies the DCV and associated CO_2 sensor operates as designed.	Results
1	Prior to functional testing, record the following:	
a.	Disable economizer controls.	
b.	Record outside air CO_2 concentration from dynamic measurement or	ppm
	Assume outside air concentration if dynamic measure is not include with the system	400 ppm
c.	Record interior CO_2 concentration setpoint (may not exceed Step 1b + 600 ppm)[1]	ppm
2	Simulate a signal at or slightly above the CO_2 concentration setpoint required.	
a.	Apply CO_2 calibration gas at a concentration at or slightly above the setpoint to the sensor.	ppm
b.	For single zone units, verify that the outdoor air damper modulates open to satisfy the total required ventilation air. called for in the Mechanical Schedule.	P/F/NA
c.	For multiple zone units, the zone damper (or outdoor air damper when applicable) modulates open to satisfy the zone ventilation requirements.	P/F/NA
3	Simulate signal well below the CO_2 setpoint.	
a.	Apply CO_2 calibration gas at a concentration well below the setpoint to the sensor or ventilate the sensor as necessary.	ppm
b.	For single zone units, outdoor air damper modulates to the design minimum value.	P/F/NA
c.	For multiple zone units, the zone damper (or outdoor air damper when applicable) modulates to satisfy the reduced zone ventilation requirements.	P/F/NA
4	Verify DCV operation with economizer	
a.	Restore economizer controls and remove all system overrides initiated during the test.	
b.	Apply CO_2 calibration gas at a concentration slightly above the setpoint to the sensor.	ppm
c.	Verify that the outdoor air damper modulates open to satisfy the total ventilation required air.	P/F
5	Remove all system overrides initiated during the test and return system to normal operation.	

Y/N	**DCV functions as designed with the established setpoint (1b)**
☐	**If No, and the DCV requires adjustment or repairs:** • Document Required Repairs and Adjustments • Document information required for a repair or adjustment (i.e. measurements, model, serial, etc.)
☐	**Disabled DCV During Pandemic:**

[1] Or as required by applicable local, state, or provincial guidance.

Section 6 – Air Distribution and Building Pressure

Ventilation Verification Pre-Requisite Tasks

- Ensure airflow patterns are measured, verified, and documented to provide maximize distribution and mixing but minimize occupant exposure to particles
- Room pressure differentials and directional airflow help control airflow between zones.

Section 7 – Maintenance

Ventilation Verification Pre-Requisite Tasks

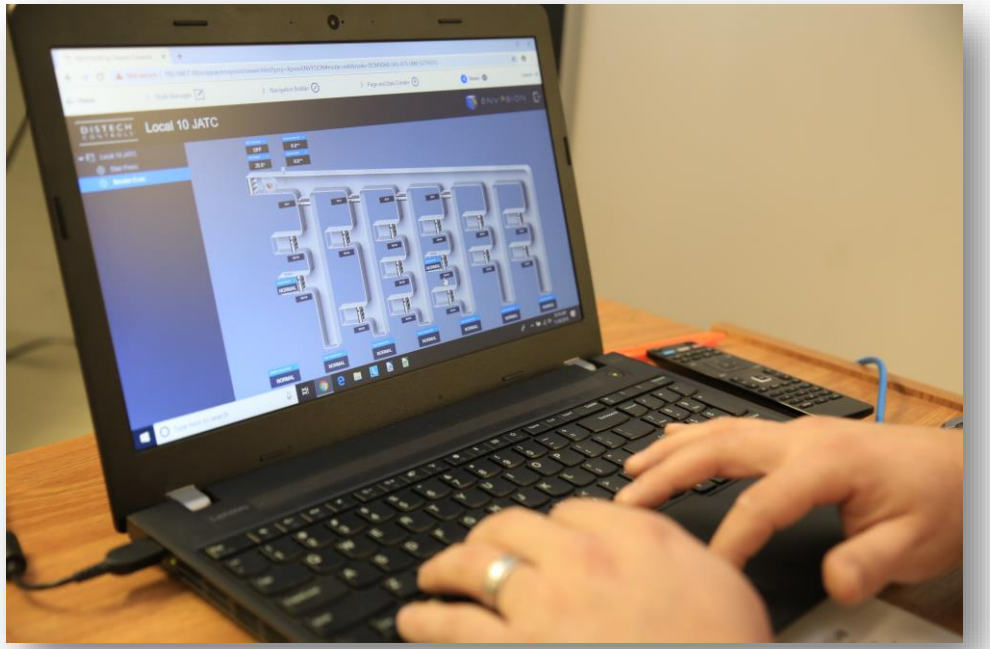
Section 7 – General Maintenance

Ventilation Verification and Energy Optimization Assessment

Verify General Maintenance	
☐	**Verify coil condition** - Note downstream and upstream condition
☐	**Verify condensate drainage**
☐	**Temperature Differential (Cooling Mode) -** Measure and Document cooling coil air temperature differential (entering and leaving dry bulb) • If applicable, measure GPM on hydronic systems.
☐	**Temperature Differential (Heating Mode) –** Measure and document air temperature differential (entering and leaving dry bulb) • If applicable, measure GPM on hydronic systems.
☐	**Verify condition of drive assembly**. (if applicable)
☐	**Deficiencies** - Document deficiencies, general condition of unit, and make recommendations for additional maintenance, replacement, or upgrades.
☐	**Repairs and Adjustment.** • Document Required Repairs and Adjustments
☐	Include relevant photographic documentation

Section 8 – Operational Controls

Ventilation Verification Pre-Requisite Tasks



Section 8 – Operational Controls

Ventilation Verification and Energy Optimization Assessment

Review control sequences to verify systems will maintain intended conditions during building operation.	
☐	**Temperature –** Setpoints match design.
Setpoint	**Design**
☐	**Humidity (if applicable) –** Setpoints match design. • Design professional to determine if setpoint should be adjusted to maintain a relative humidity between 40% and 60%.
Setpoint	**Design**
Ventilation Schedule Operation	
☐	**Ventilation operates continuously during occupied hours.** • Occupied hours to include **all** hours building is occupied by staff or patrons (i.e. teachers, security, janitorial staff, night shift, etc.). • Includes all exhaust fans and fans used to distribute outside air.
☐	**Daily Flush** • Verify a daily flush is scheduled for 3 changes of building volume using outdoor air as demonstrated by a calculation of flush times per ASHRAE Guidance for Building Readiness[1] or otherwise applicable local or state guidance **Calculated Flush Time =**
☐	**Deficiencies** - Document deficiencies, options for adjustment (i.e. Humidity) and recommendations for additional maintenance, replacement or upgrades.
☐	Include relevant screenshots and photographic documentation

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[1] ASHRAE, ASHRAE Epidemic Task Force: Building Readiness (February 1, 2021) (https://www.ashrae.org/file%20library/technical%20resources/covid-19/ashrae-building-readiness.pdf)

Section 9 – CO_2 Monitoring

Ventilation Verification Pre-Requisite Tasks

Section 9 – CO_2 Monitoring

Ventilation Verification and Energy Optimization Assessment

☐	**Verify installation or install a CO_2 monitor.** • All classrooms shall be equipped with a CO_2 monitor. • General Buildings – At least one CO2 monitor shall per installed in each zone of the building (where a zone is defined by an area of the building with temperature controlled by a thermostat). The number of CO2 monitor must also meet or exceed at least one CO_2 monitor per 10,000 square feet of occupied floor space. **CO_2 monitors shall**:
☐	Be hard-wired or plugged-in and mounted to the wall between 3 – 6 feet above the floor and at least 5 feet away from the door and operable windows.
☐	Display the CO_2 readings to the occupants through a display on the device or other means such as a web-based application or cell-phone application.
☐	Notify the building operator through visual indicator on the monitor (e.g. indicator light) or other alert such as e-mail, text, or cell phone application, when the CO2 levels have exceeded 1,100 ppm.
☐	Maintain a record of previous data which includes at least the maximum CO2 concentration measured.
☐	Have a range of 400 ppm to 2000 ppm or greater;
☐	Be certified by the manufacturer to be accurate within 75 ppm at 1,000 ppm CO2 concentration and is certified by the manufacturer to require calibration no more frequently than once every five years.

Y/N	**Is a CO_2 monitor installed that meets the required features listed above?**	
☐	If installed but lacking required features, what features are missing?	
☐	If installed, document CO_2 monitor nameplate data.	
Manufacturer:		Model:
Serial:		
☐	Include relevant photographic documentation	

Section 10 – Limited or No Existing Mechanical Ventilation

Ventilation Verification Pre-Requisite Tasks

Section 10 – Limited or No Existing Mechanical Ventilation

Ventilation Verification and Energy Optimization Assessment

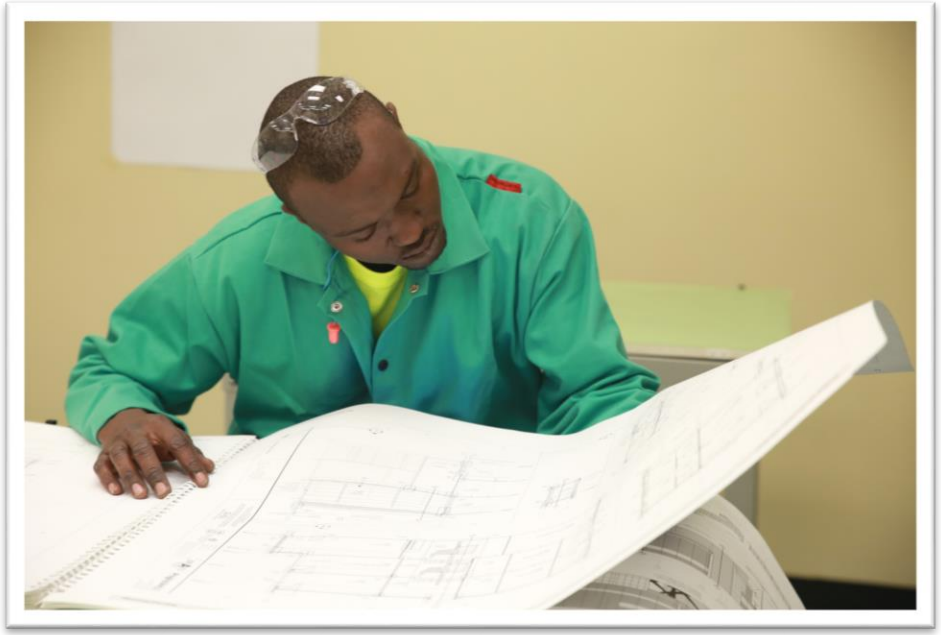
Collect and document existing HVAC infrastructure to assist the Design Professional in determining ventilation options.	
☐	**Existing HVAC Infrastructure –** Verify the functionality and document nameplate data on any existing HVAC equipment (i.e., heating only units, exhaust fans, etc.)
☐	Verify and document the location of windows and doors that can be opened. • Verify if windows have any switches or controls that initiate exhaust fans, motorized dampers or other devices that operate to provide free cooling.
☐	Verification or installation of the CO^2 sensor as detailed in Section 9.
☐	**Collection the following information, in addition to any information requested by a design professional to evaluate options for adding mechanical ventilation.** ☐ Verify existing mechanical, architectural, structural drawings match current conditions. ☐ Provide a sketch of actual roof penetrations, penetration type (i.e., vent pipe) and approximate locations if different from drawings. ☐ Document locations of any vents could contaminate Outside Air (OSA) intake locations. ☐ Photograph existing building, existing mechanical equipment (if applicable) and potential locations for mechanical ventilation equipment. ☐ Document roof and wall type/material to the best of the technician's ability. ☐ Document if existing mechanical equipment can be altered to provide outside air (OSA) or if a Dedicated Outside Air System (DOAS) is required. ☐ Obtain information on central plant capacity (if applicable) ☐ Document whether outside air conditions may make reliance on windows or other sources of non-filtered outside air potentially hazardous to occupants. ☐ Document recommendations for adding mechanical ventilation and filtration where none currently exists or for replacing a mechanical ventilation system where the current system is non-operational or is unable to provide recommended levels of ventilation and filtration.
☐	Include relevant screenshots and photographic documentation. • Include existing building and potential locations for mechanical ventilation equipment.

HVAC Assessment Report

- Preparation of an HVAC Assessment Report that includes documentation of all verifications and deficiencies.

Design Professional
Ventilation and Energy Evaluation

Upon completion of the HVAC Assessment Report, a **Design Professional** shall review and determine if adjustments, repairs, or upgrades can be made to the HVAC system to increase energy efficiency, filtration, disinfection and ventilation.



Repairs, Adjustments, and Upgrades

All work completed by **Skilled, Trained, and Certified Workforce**.

Thank you!

Questions…

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Cruch@nemionline.org

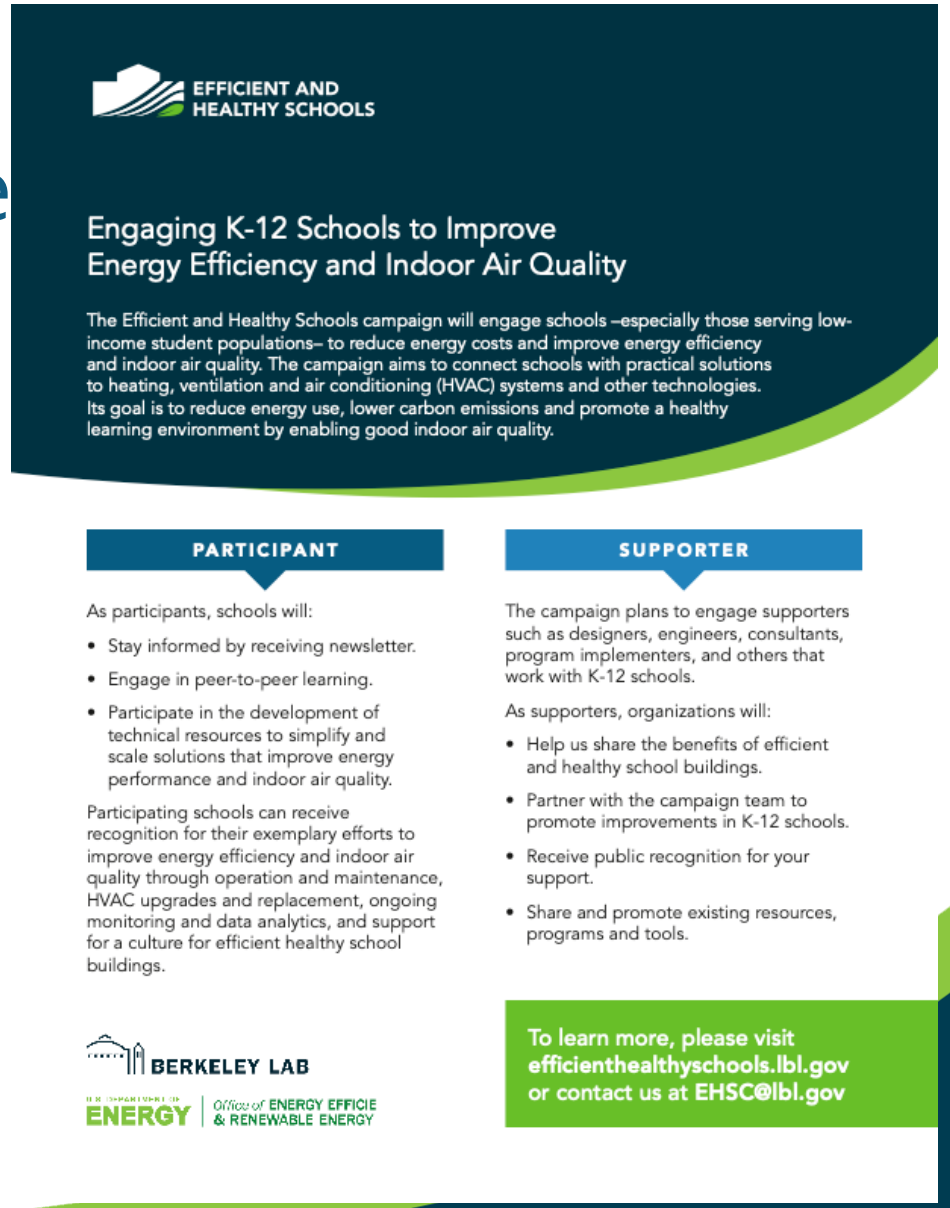
Q&A

Contact us at EHSC@lbl.gov

EFFICIENT AND HEALTHY SCHOOLS

Become a Participant or Supporte

- Access technical assistance and resources on best practices, guidance, case studies, and webinars
- Campaign prioritize schools serving low-income communities and in rural areas
- Campaign participants can receive recognition for their exemplary efforts to improve energy efficiency and indoor air quality
- Campaign supporters are encouraged to share and promote goals and benefits of efficient and healthy schools



EFFICIENT AND HEALTHY SCHOOLS

Engaging K-12 Schools to Improve Energy Efficiency and Indoor Air Quality

The Efficient and Healthy Schools campaign will engage schools –especially those serving low-income student populations– to reduce energy costs and improve energy efficiency and indoor air quality. The campaign aims to connect schools with practical solutions to heating, ventilation and air conditioning (HVAC) systems and other technologies. Its goal is to reduce energy use, lower carbon emissions and promote a healthy learning environment by enabling good indoor air quality.

PARTICIPANT

As participants, schools will:

- Stay informed by receiving newsletter.
- Engage in peer-to-peer learning.
- Participate in the development of technical resources to simplify and scale solutions that improve energy performance and indoor air quality.

Participating schools can receive recognition for their exemplary efforts to improve energy efficiency and indoor air quality through operation and maintenance, HVAC upgrades and replacement, ongoing monitoring and data analytics, and support for a culture for efficient healthy school buildings.

SUPPORTER

The campaign plans to engage supporters such as designers, engineers, consultants, program implementers, and others that work with K-12 schools.

As supporters, organizations will:

- Help us share the benefits of efficient and healthy school buildings.
- Partner with the campaign team to promote improvements in K-12 schools.
- Receive public recognition for your support.
- Share and promote existing resources, programs and tools.

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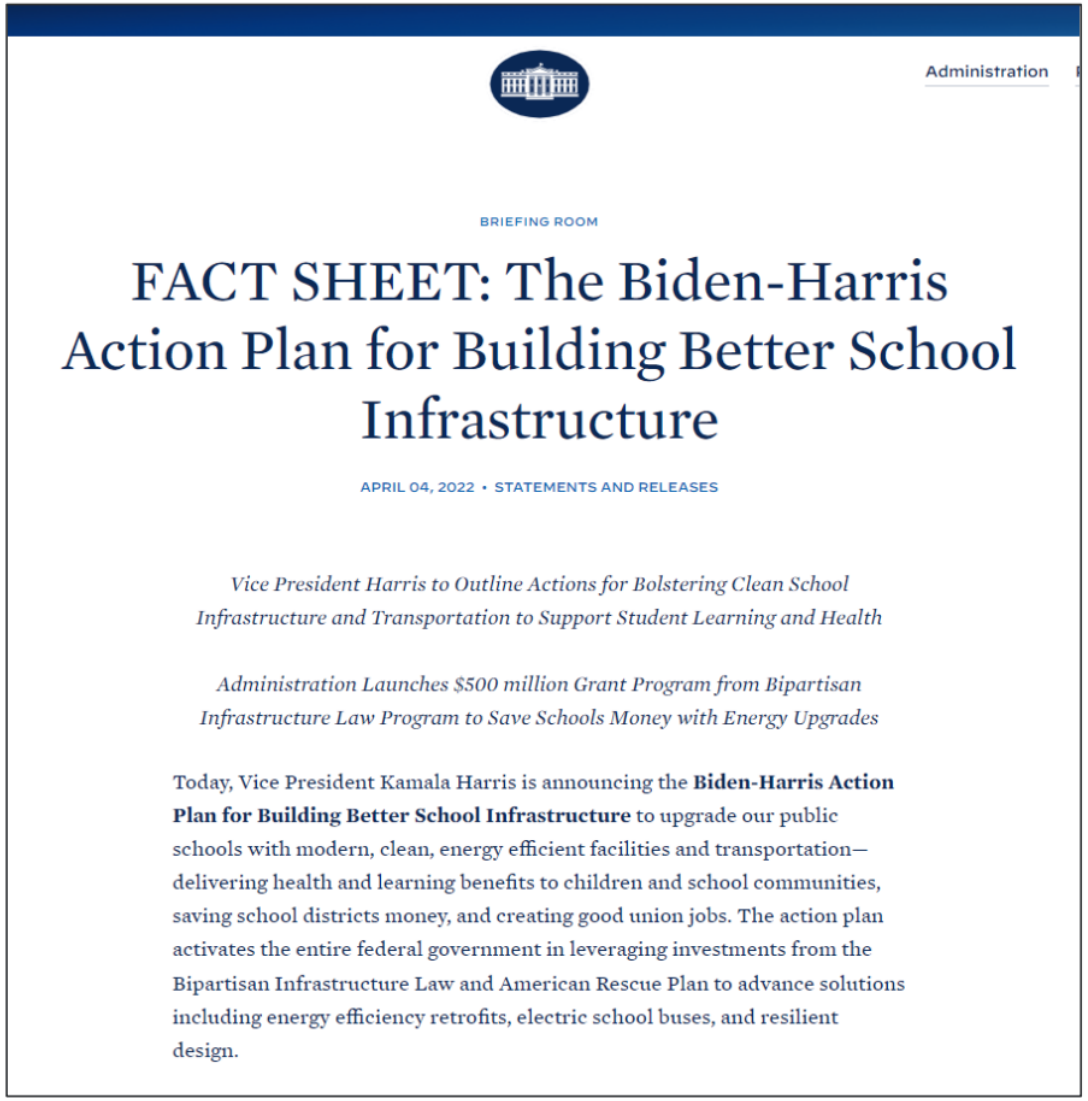
To learn more, please visit efficienthealthyschools.lbl.gov or contact us at EHSC@lbl.gov

DOE at Center of Building Better Schools Action Plan

The Biden-Harris Action Plan for Building Better School Infrastructure will:

Invest in More Efficient, Energy-Saving School Buildings: The Department of Energy (DOE) is launching a $500 million grant program through President Biden's Bipartisan Infrastructure Law to make public schools more energy efficient. This new program will lower energy costs, improve air quality, and prioritize schools most in need, enabling schools to focus more resources on student learning.



Administration

BRIEFING ROOM

FACT SHEET: The Biden-Harris Action Plan for Building Better School Infrastructure

APRIL 04, 2022 • STATEMENTS AND RELEASES

Vice President Harris to Outline Actions for Bolstering Clean School Infrastructure and Transportation to Support Student Learning and Health

Administration Launches $500 million Grant Program from Bipartisan Infrastructure Law Program to Save Schools Money with Energy Upgrades

Today, Vice President Kamala Harris is announcing the **Biden-Harris Action Plan for Building Better School Infrastructure** to upgrade our public schools with modern, clean, energy efficient facilities and transportation—delivering health and learning benefits to children and school communities, saving school districts money, and creating good union jobs. The action plan activates the entire federal government in leveraging investments from the Bipartisan Infrastructure Law and American Rescue Plan to advance solutions including energy efficiency retrofits, electric school buses, and resilient design.

Upcoming webinars summer 2022

- June: Team approach to support strategic investments in efficient and healthy schools
- July: Efficient HVAC for improving indoor environmental quality