

# Federal Interagency Committee on Indoor Air Quality (CIAQ) Meeting Minutes

October 24, 2024

**Moderator:** Laureen Burton, U.S. Environmental Protection Agency

## Meeting Overview

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[www.epa.gov/indoor-air-quality-iaq/federal-interagency-committee-indoor-air-quality](http://www.epa.gov/indoor-air-quality-iaq/federal-interagency-committee-indoor-air-quality)

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## U.S. Department of Energy (DOE)

Agency Point of Contact: Chris Early, 202-586-0514, [chris.early@ee.doe.gov](mailto:chris.early@ee.doe.gov)

### The Building America Solution Center

#### **Background**

The Building America Solution Center (<https://basc.pnnl.gov/>) provides access to expert information on hundreds of high-performance construction topics, including air sealing and insulation, HVAC components, windows, indoor air quality, and much more.

#### **New Updates**

The following are some of the guidance related to indoor air quality that was added to the Center recently:

- The Composite Panel Association reprinted the “VOC Emission Barrier Effects of Laminates, Overlays, and Coatings for Particleboard, Medium Density Fiberboard (MDF), and Hardboard” Technical Bulletin.
- EPA web page — *Flood Cleanup to Protect Indoor Air and Your Health*.
- The Carpet and Rug Institute’s Document describing the emissions criteria for carpets, cushions, and adhesives to qualify as those with low volatile organic compound (VOC) emissions under the Carpet and Rug Institute’s Green Label Plus Indoor Air Quality Testing Program.
- EPA website — *Protect Your Family from Exposures to Asbestos*.

### Oak Ridge National Laboratory

#### **New Journal Article**

Jiang, H., Muneeshwaran, M., Liu, X. et al. 2024. “A review of antimicrobial implications for improving indoor air quality.” *Journal of Materials Science* 59(30). <https://www.osti.gov/biblio/2439001>.

Removing microorganisms from indoor air is critical to improve indoor air quality. Numerous studies in recent years have been published on developing antimicrobial materials and technologies for antibacterial and antiviral applications. Further, this study critically reviews the recent antimicrobial advances for improving indoor air quality. This paper provides a comprehensive analysis of the antimicrobial mechanisms, development of materials, and deployment strategies, as well as a performance evaluation of the antimicrobial implication for indoor air quality. Furthermore, the challenges and opportunities of future research directions are also highlighted.

### Pacific Northwest National Laboratory

#### **New Journal Article**

Riley K.W., K. Burke, A. Cole, M. Ureno, H.M. Dixon, L.P. Calero, and L.M. Bramer, et al. 2023. “Factors that Influence Environmental Health Literacy from Returning Polycyclic Aromatic Hydrocarbon Exposure

Results.” *International Public Health Journal* 15((3):317–331.PNNL-SA-178413.  
<https://www.pnnl.gov/publications/factors-influence-environmental-health-literacy-returning-polycyclic-aromatic>.

Reporting back on personal environmental exposure data has become more common; however, there have been few tools developed to assess whether report back increases Environmental Health Literacy (EHL). Our goal in this study was to determine whether sociodemographic or environmental characteristics were associated with both quantitative and qualitative changes in EHL after receiving personal air monitoring results back. This study was conducted in a New York City–based pregnancy cohort with personal chemical exposure monitoring conducted for polycyclic aromatic hydrocarbons (PAH) during the third trimester of pregnancy. Participants (n=168) received their results back 2–5 years after the monitoring, and a subset (n = 47) subsequently completed a survey asking about their thoughts and actions following the return of results. With the survey responses, we created a quantitative scale of EHL, with higher scores indicative of higher EHL. We found that mothers with a college degree were significantly more likely to be surprised by their results than mothers with less than a high school degree (OR = 5.60, p = 0.05) and that higher naphthalene levels were associated with a decreased odds of being surprised about receiving the results (OR = 0.37, p = 0.02). There were no observed associations between demographic or exposure characteristics and our dichotomous EHL indicator; however, those with more education and higher income tended to have higher EHL scores. Additionally, participants who reported being surprised by or glad to receive their results had higher EHL scores. Open-ended text responses indicated that while some participants felt worried after receiving their results, semantic analysis indicated somewhat positive feelings. We find that people were glad to have received the report even though several years may have passed.

### **The Building Technologies Office’s Efficient and Healthy Schools Program**

On October 9, the U.S. Department of Energy (DOE) announced the launch of the [2024–2025 Recognition](#) for the Efficient and Healthy Schools Program. The program recognizes schools and districts for improving their energy performance, advancing resilience, and promoting a healthy learning environment. Applications are due December 20, 2024.

### **The Federal Energy Management Program**

#### ***Background***

The Federal Energy Management Program (FEMP) focuses on key services that help federal agencies meet energy and water reduction requirements and goals. For energy efficiency and indoor environmental quality (IEQ), the [FEMP](#) offers resources to help federal agencies plan assessments and upgrades. FEMP offers tools, trainings, case studies, and publications. In particular, the FEMP, in partnership with the General Services Administration and with support from Pacific National Laboratory, developed the [Healthy Buildings Toolkit](#) to support the identification of energy efficiency and indoor environmental quality upgrades, leveraging savings from productivity gains and reductions in utility expenditures to improve business-cases. The toolkit provides customized estimates for the financial savings and non-monetary benefits related to improving IEQ and occupant productivity.

#### ***New Updates***

The Federal Energy Management Program’s Energy Efficiency and Indoor Environmental Quality Program has continued engagement with three federal partners this summer: Bureau of Indian

Education, Indian Health Services, and General Services Administration. The Bureau of Indian Affairs completed assessments at two large schools in the southwest U.S. comprising over 500 students and staff and one dormitory building as well. The Indian Health Services completed an assessment at one outpatient hospital with a dental unit that has 144 staff members. FEMP worked with these sites to develop a set of recommendations to improve IEQ and energy efficiency where needed. GSA recently began IEQ studies at two federal buildings, one in Colorado and one in New Mexico, and is planning on using FEMP's Healthy Buildings and Energy Support Tool to analyze the data collected to establish baseline IEQ conditions before conducting testing and balancing at these sites in the coming year.

## **Lawrence Berkeley National Laboratory (LBNL)**

### ***New Journal Article***

Jiayu Li, Haoran Zhao, Marion L. Russell, William W. Delp, Alexandra Johnson, Xiaochen Tang, Iain S. Walker, Brett C. Singer. 2024. "Air Pollutant Exposure Concentrations from Cooking a Meal with a Gas or Induction Cooktop and the Effectiveness of Two Recirculating Range Hoods with Filters." *Indoor Environments*. [doi.org/10.1016/j.indenv.2024.100047](https://doi.org/10.1016/j.indenv.2024.100047).

This study compares air pollutant concentrations resulting from cooking with gas or induction cooktops, with or without either of two recirculating range hoods with filters. A meal was cooked three times for each cooktop and hood combination. Measurements were made of nitrogen oxides (NO<sub>x</sub>), carbon dioxide (CO<sub>2</sub>), size-resolved particles, and speciated volatile organic compounds (VOCs) during cooking and 30 minutes after cooking. Cooking with induction used half as much energy, produced no discernible NO<sub>x</sub>, and significantly reduced ultrafine particles (UFP, diameter < 100 nm) and CO<sub>2</sub> compared to gas cooktops. Induction produced statistically higher PM<sub>2.5</sub> when calculated using size-resolved particle measurements from one pair of instruments, but the difference was not discernible when calculating from another pair. With gas cooktops, roughly half of the PM<sub>2.5</sub> was in particles smaller than 0.3 μm and thus below the lower quantitation threshold for many optical particle instruments; optical devices may thus substantially under-report PM<sub>2.5</sub> from gas cooking. VOCs did not significantly differ between gas and induction. Both recirculating range hoods substantially reduced all particle sizes when cooking with either fuel, and the reductions were larger for gas cooking. One of the range hoods also substantially lowered some of the VOCs.

### ***New Information Paper***

Walker, I, Emmerich, S. and Persily, A. 2024. "Trends in building and ductwork airtightness. Ventilation Information." Paper 45.12. *Air Infiltration and Ventilation Center*. INIVE. Ghent, Belgium. [https://sco.lt/9CCNt2?track\\_p\\_id=63WTGEE50IkUA\\_rnfBsaLgP](https://sco.lt/9CCNt2?track_p_id=63WTGEE50IkUA_rnfBsaLgP)

### ***New Upcoming Conference Planning***

The *Indoor Environmental Quality 2025 Conference* will take place in Montreal, Canada, in September 2025. Organized by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the Air Infiltration and Ventilation Centre (AIVC), this conference provides the opportunity to learn, network and engage with IEQ professionals dedicated to advancing the field of indoor environmental quality. Emphasis is placed on the growing understanding of occupant response to indoor environment elements (thermal, air quality, lighting and acoustics) while enhancing resilience in a changing climate. Seminars are led by experts from around the world representing AIVC, ASHRAE and

many other partnering organizations. <https://www.ashrae.org/conferences/topical-conferences/ieq-2025-conference>.

Abstracts for Conference Papers and Extended Abstracts Due: November 11, 2024

- Performance Metrics: For all aspects of IEQ
- Occupant Behavior: How behavior impacts IEQ and how IEQ impacts behavior—psychological dimensions of IEQ
- Smart Sensors, Data and Controls: Sensor properties, data management, cybersecurity, applications, commissioning, equivalence
- Resilience and IEQ: Responding to climate change and disasters
- Ventilation: Mechanical, passive, natural and hybrid systems
- Air Tightness: Trends, methods and impacts
- Thermal Comfort: Dynamic approaches, health impacts and trends
- Policy and Standards: Trends, impacts, implications
- HVAC and IEQ in a post-COVID world
- Ventilation and building decarbonization

### ***Preparing ASHRAE Standard 241 (Airborne Infectious Aerosol Control)***

ASHRAE has published its pioneering consensus-based, code enforceable standard, developed to reduce the risk of infectious aerosol transmission in buildings to be ready for public review. If people want to comment, they should look out for notes from ASHRAE on the public review. This effort will convert the standard to an American National Standards Institute (ANSI) standard.

LBNL and PNNL are involved in proposing a new IEA (International Energy Agency) EBC (International Energy in Buildings and Communities) Annex. It focuses on IEQ and Decarbonization Synergies in Residential Buildings. The new Annex follows from existing Annex 86—Energy Efficient Indoor Air Quality Management in Residential Buildings. The proposed new Annex focuses on the relationship between IEQ and decarbonization of residential buildings. This Annex will investigate the two-way nature of the relationship between IEQ and decarbonization. Firstly, following on from EBC Annex 86, we will investigate how to best provide acceptable IEQ while minimizing energy-related CO<sub>2</sub> (and other contaminant) emissions. Secondly, we will determine the IEQ-related benefits of decarbonizing new and existing residential buildings due to respectively avoiding or removing combustion devices and hence the associated airborne pollutants. To achieve this, we will gather the existing scientific knowledge related to the energy-related CO<sub>2</sub> emissions for providing IEQ that goes beyond energy use to include the time and location-varying energy-related CO<sub>2</sub> emissions related to building energy use. The Annex will investigate the potential changes in building systems, controls and strategies in converting from energy-based metrics to energy-related CO<sub>2</sub>-based metrics. The Annex will also gather scientific knowledge and data needed to evaluate the changes in IEQ related to residential building decarbonization in order to provide a solid basis for including any resulting benefits in policy (particularly building energy codes/regulations/standards) and planning activities by government agencies and other entities. The Annex will bring together experts from fields such as architecture, mechanical engineering, building science, chemistry, data science, and environmental health with the goal of developing practical guidelines and tools that minimize IEQ-related emissions and capture all the IEQ benefits of decarbonization.

LBNL worked with Dr. Andy Persily (NIST) and Dr. Cara Lozinsky (U. Carelton, Canada) to update MultiFamily air leakage/compartmentalization summary in preparation for proposed change to ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings.

***LBNL Contributes to Asthma Research in California***

LBNL coordinated and directed the work of project partner Central California Asthma Collaborative (CCAC) to recruit participants; conduct screening inspections for electrical capacity and collect data during initial visits to participants' homes; and start baseline measurements of IAQ, child respiratory health, and equipment use and activities that impact the IAQ parameters. Through July 31, the field teams conducted initial visits at 67 homes, had 61 sign consent forms to proceed in the study, and had 56 homes visited by electricians to assess suitability to shift to electric cooking.

***Pollutant Exposures from Cooking***

LBNL is funded by the California Energy Commission in July for a new project that is examining pollutant exposures associated with cooking and the benefits of mitigations, including kitchen and dwelling unit ventilation. CEC is providing \$2 million, and the Department of Energy's Building Technologies Office committed an additional \$100,000 match. The project is expected to start in October 2024.

## National Institute of Science and Technology (NIST)

### Chemical Assessment of Surface and Air (CASA)

*Project Contact: Dustin Poppendieck, 301-975-8423, [dustin.poppendieck@nist.gov](mailto:dustin.poppendieck@nist.gov)*

In Spring 2022, NIST hosted the Chemical Assessment of Surface and Air (CASA) research campaign. A team of 12 external research groups used environmental and chemical perturbations in the Net-Zero Energy Residential Test Facility (NZERTF) to investigate the chemistry of indoor environments. Chemical transformation induced by ozone, smoke, ammonia, carbon dioxide, insecticides and VOCs were investigated. Since the conclusion of empirical testing, environmental and chemical data collected throughout the campaign have fueled an ongoing effort between NIST and several external research groups to create digital twins of the NZERTF and model the chemistry observed within the indoor environment.

An overview paper on the entire project has been [published](#). Articles relating to 1) [water soluble gases](#), 2) [acid base chemistry](#), 3) [VOC surface flux measurements](#), 4) [smoke partitioning](#), and 5) [indoor NOx chemistry](#) have been recently published, and more papers should be available shortly.

### ASHRAE Standard 62.1

*Project Contact: Lisa Ng, 301-975-4853, [lisa.ng@nist.gov](mailto:lisa.ng@nist.gov)*

The 2022 version of Standard 62.1, Ventilation and Acceptable Indoor Air Quality, was published last year by ASHRAE. Among many other changes, the new version of the standard contains the following: a reorganization of Section 5, “Systems and Equipment,” to better reflect the path of airflow and the relationship of buildings, systems, and equipment; improvements to the performance-based IAQ Procedure; requirements for a maximum dew-point temperature in mechanically cooled buildings; clarified air density adjustments; and removal of items related to transient occupancies that now fall under Standard 62.2. The committee will meet at the ASHRAE Winter Meeting in Orlando <https://www.ashrae.org/conferences/2025-winter-conference-orlando>.

The [April issue of the ASHRAE Journal](#) included the airflow and contaminant simulations supporting the writing of the approved [ANSI/ASHRAE Addendum a to ANSI/ASHRAE Standard 62.1-2022](#) on adding a new “Corridor” space type under “Educational Facilities” that requires a per-area ventilation rate that is double the current rate for a “General” corridor. By using the ventilation rate for this space type, schools could reduce annualized CO<sub>2</sub> exposure in the corridors by 11% and exposure to a generic TVOC by 41%. Check out the [Hot Air](#) podcast episode on the article that aired on March 24.

### ASHRAE Standard 62.2

*Project Contact: Steven Emmerich, [steven.emmerich@nist.gov](mailto:steven.emmerich@nist.gov)*

The Standing Standard Project Committee (SSPC) 62.2 met virtually during October and will meet at the ASHRAE Winter Meeting in Orlando in February 2025. Current topics include an IAQ performance procedure, revised kitchen exhaust requirements and control of infectious aerosols.

## **ASHRAE Standard 189.1**

*Project Contact: Andrew Persily, [andyp@nist.gov](mailto:andyp@nist.gov)*

The committee responsible for the ASHRAE/ICC/IESUSGBC SSPC 189.1, *Standard for High-Performance Green Buildings Except Low-Rise Residential Buildings*, published an update of the 2020 version of the standard in 2023. This standard will constitute the technical content of the *2024 International Green Construction Code*. The committee holds monthly web meetings, which are open to all interested parties. The committee will meet at the ASHRAE Winter Meeting in Orlando <https://www.ashrae.org/conferences/2025-winter-conference-orlando>. More information on the 189.1 committee activities can be found on the ASHRAE website, where you can sign up for notifications of public reviews and other information at <https://www.ashrae.org/resources--publications/free-resources/listserves>.

## **ASHRAE Guideline 44P**

*Project Contact: Steven Emmerich, [steven.emmerich@nist.gov](mailto:steven.emmerich@nist.gov)*

Proposed ASHRAE Guideline 44P *Protecting Building Occupants from Smoke During Wildfire and Prescribed Burn Events* has completed a second public review, and the GPC 44P committee has responded to all public review comments. The Committee has voted for publication of the Guideline and will consider a recommendation to place the document on continuous maintenance. The committee will also consider a recommendation for ASHRAE to develop training on the use of the guideline.

## **ASHRAE Guideline 45P**

*Project Contact: Lisa Ng, 301-975-4853, [lisa.ng@nist.gov](mailto:lisa.ng@nist.gov)*

The ASHRAE committee developing a guideline titled *Measurement of Whole Building Performance for Occupied Buildings Except Low-Rise Residential Buildings* has been meeting by webinar every three weeks. The committee is rewriting the ASHRAE *2010 Performance Measurement Protocols for Commercial Buildings* into a guideline.

## **ASHRAE Guideline 241**

*Project Contact: Steven Emmerich, [steven.emmerich@nist.gov](mailto:steven.emmerich@nist.gov)*

ASHRAE has published Standard 241 *Control of Infectious Aerosols*. The committee is revising the Standard in preparation for a full ANSI public review early next year. The committee is meeting virtually monthly and will meet during the ASHRAE Winter Meeting in February.

## **ASHRAE Center of Excellence for Decarbonization**

*Project Contact: Lisa Ng, [lisa.ng@nist.gov](mailto:lisa.ng@nist.gov)*

On July 1, ASHRAE launched the [Center of Excellence for Building Decarbonization](#) (CEBD) where efforts on decarbonizing the building industry will be coordinated, without compromising occupancy safety or the indoor environment. NIST will serve as a liaison on the CEBD to the Environmental Health Committee at ASHRAE. CEBD is in the information gathering stage of selected projects.



## **ASHRAE Environmental Health Committee**

*Project Contact: Lisa Ng, [lisa.ng@nist.gov](mailto:lisa.ng@nist.gov)*

The 2025 ASHRAE Handbook chapter, Indoor Environmental Health, has been significantly updated and will be published next year. Revisions included adding sections on lighting, acoustics, and climate change; adding discussion on ASHRAE 241 and aerosol transmission; and updating the section on bioaerosols.

## **ASTM: D22.05 Subcommittee on Indoor Air**

*Project Contact: Dustin Poppendieck, 301-975-8423, [dustin.poppendieck@nist.gov](mailto:dustin.poppendieck@nist.gov)*

The fall 2024 meeting of D22.05 was canceled due to Hurricane Milton.

The subcommittee has also started a workgroup to produce a standard test method for the testing of air cleaning technologies (ASTM *WK81750 Standard Test Method for Chemical Assessment of Air Cleaning Technologies*). This method is designed to be agnostic to the air cleaning technology, quantify the removal performance of multiple target chemicals, and investigate a range of potential byproducts. NIST has conducted experiments to support method development and provide precision and bias data for the method. A journal article summarizing the NIST data has been recently published (<https://pubs.acs.org/doi/10.1021/acs.est.3c09331>). This method was balloted for the first time in the summer of 2023. The working group is methodically working through a large number of comments from the Association of Home Appliance Manufacturers (AHAM). The item will be re-balloted in Fall 2024.

*Project Contact: Andrew Persily, [andyp@nist.gov](mailto:andyp@nist.gov)*

The subcommittee has been revising *D6245 Standard Guide on the Relationship of Indoor Carbon Dioxide Concentrations to Indoor Air Quality and Ventilation*. The most recent version was published in June 2024. A new revision of the standard is being initiated to address issues raised during the January 2024 ballot.

## **International Society of Indoor Air Quality and Climate (ISIAQ) Scientific and Technical Committee (STC34)**

*Project Contact: Steven Emmerich, [steven.emmerich@nist.gov](mailto:steven.emmerich@nist.gov)*

ISIAQ Scientific and Technical Committee (STC34) aims to continuously monitor, collect, and organize information about IEQ guidelines worldwide. In 2021, STC34 created an open integrated IEQ database that is freely accessible at [www.ieqguidelines.org](http://www.ieqguidelines.org). Currently, STC34 is focusing on outreach efforts including an IAQ handbook chapter and a journal article.

## **CO<sub>2</sub> Monitoring Outreach**

*Project Contact: Andrew Persily, [andyp@nist.gov](mailto:andyp@nist.gov)*

The use of CO<sub>2</sub> monitoring in schools and other buildings has increased in efforts to identify poorly ventilated spaces. In support of these and other activities, NIST published a paper titled *Development and Application of an Indoor Carbon Dioxide Metric in the Indoor Air* journal, available as open access (<https://doi.org/10.1111/ina.13059>). The paper refers to an online tool, QICO<sub>2</sub>, that can be used to

estimate a space-specific CO<sub>2</sub> concentration based on the target ventilation rate of the space and its occupancy, which can serve as a ventilation rate metric. That tool is available at <https://pages.nist.gov/CONTAM-apps/webapps/CO2Tool/#/> and is described in NIST Technical Note 2213 Indoor Carbon Dioxide Metric Analysis Tool, which is available at <https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.2213.pdf>.

### **Germicidal UV (222 nm) Indoor Air Chemistry Impacts**

*Project Contacts: Dustin Poppendieck, [dustin.poppendieck@nist.gov](mailto:dustin.poppendieck@nist.gov) and Michael Link [michael.f.link@nist.gov](mailto:michael.f.link@nist.gov)*

In-room germicidal UV (GUV) using 222 nm wavelengths has recently gained traction as a method to inactivate airborne pathogens. The technology directs 222 nm light onto occupied spaces to minimize the near field bioaerosol transmission. Previous NIST research demonstrated GUV 222 nm devices produce ozone in a chamber (<https://doi.org/10.1021/acs.estlett.3c00318>). To examine the impact of the devices on real world locations, a GUV 222 nm was placed in a NIST restroom, and the impact of its operation on indoor air quality was analyzed. A journal article summarizing the results is now available <https://pubs.rsc.org/en/content/articlehtml/2024/em/d4em00144c>. In addition, results from these efforts were shared at the Second International Congress on Far-UVC Science and Technology (ICFUST) 2024 (June 18–24, 2024). NIST participated in a workshop summarizing the current state of GUV 222 nm IAQ knowledge and shared the results of the restroom study at Indoor Air 2024 (July 7–11, 2024). The impacts of GUV on indoor materials and gas phase emissions will be a subject of future NIST studies.

### **American Council for an Energy-Efficient Economy (ACEEE) Hot Water Forum: Optimizing Hot Water Distribution Systems**

*Project Contact: Stephen Zimmerman, [stephen.zimmerman@nist.gov](mailto:stephen.zimmerman@nist.gov)*

Reference buildings, previously developed for energy analyses to support the development of commercial/institutional building energy efficiency standards, had been further developed to support airflow and indoor air quality analysis. In recent years, NIST undertook an effort to develop premise plumbing system designs for three residential reference buildings and four commercial reference buildings to support more consistent modeling efforts and has made the designs available for researchers and industry to analyze system performance, new technologies, and design and operation strategies. On March 14, 2024, these designs were presented and discussed with plumbing system professionals at the Hot Water Forum in Atlanta, GA. More information can be found at: <https://www.aceee.org/2024-hot-water-forum-hot-air-forum>.

### **CONTAM Multizone Airflow and IAQ Model Developments**

*Project Contact: W. Stuart Dols, [william.dols@nist.gov](mailto:william.dols@nist.gov)*

CONTAM software developed by NIST is under continuous development. Recent work includes developing a set of application programming interfaces (APIs) to enable the use of CONTAM capabilities within other tools or frameworks and the extension of CONTAM capabilities via other programming environments or platforms. Two APIs are under development including various bindings to these APIs: *ContamX-API* and *ContamP-API*. *ContamX-API* provides access to the CONTAM simulation engine, *ContamX*, to perform simulations with existing CONTAM projects (PRJ files) while *ContamP-API* enables the creation and modification of CONTAM projects. While these are under development, there are fully

functional, pre-release versions of these APIs available. The *contamxpy* module provides python bindings to the *ContamX-API* and is available via The Python Packaging Index, PyPI at the following link (<https://pypi.org/project/contamxpy/>). The *contamxpy* module includes documentation of the module as well as detailed examples, i.e., python driver programs, demonstrating its usage. The *ContamP-API* has been integrated into the *Rhino-Grasshopper 3D* modeling framework via the development of the *ANT* plugin (*ANT* is short for *CONTAMinANT*). *ANT* allows users to create 3-dimensional building models with *Rhino*, establish an associated CONTAM model, and utilize other plugins to perform a range of analysis. The fully functioning, beta version of *ANT* with an example project is available on the *food4Rhino* application site at the following link (<https://www.food4rhino.com/en/app/ant>). Refer to *ANT: A Multizone Indoor Air Quality (IAQ) and Ventilation Analysis Plug-in for Algorithm Aided Design* for more information [https://publications.ibpsa.org/conference/paper/?id=simbuild2024\\_2150](https://publications.ibpsa.org/conference/paper/?id=simbuild2024_2150).


## U.S. Department of Housing and Urban Development (HUD)

Office of Lead Hazard Control and Healthy Homes


**Federal Interagency Committee on Indoor Air Quality (CIAQ) Meeting  
October 24, 2024**

U.S. Department of Housing and Urban Development  
(HUD)

Office of Lead Hazard Control and Healthy Homes  
(OLHCHH), Policy & Standards Division (PSD)



Presenter: Brenda M. Reyes, MD, MPH



Office of Lead Hazard Control and Healthy Homes

**HUD Announces More Than \$420 Million to Eliminate Lead and other environmental hazards Exposure in Homes**



## Protecting Children under Six from Lead Poisoning

HUD is awarding more than **\$395 million to 73 state and local governments** under the [Lead Hazard Reduction Program](#) to bolster their efforts to protect children under six from lead poisoning. Award recipients will develop comprehensive programs to identify and control lead-based paint hazards in eligible privately-owned rental or owner-occupied housing populations.



## Preparing Communities for Future Lead Hazard Grants

Through HUD's [Lead Hazard Reduction Capacity Building Program](#), the Department is awarding more than **\$13 million to 10 local jurisdictions, tribes and government agencies** to develop infrastructure that is critical to identifying and controlling lead-based paint hazards.



Links referenced in the slides above:

- <https://www.hud.gov/sites/dfiles/PA/documents/LHRDLBPHC2024.pdf>
- <https://www.hud.gov/sites/dfiles/PA/documents/LHRCB2024.pdf>

### Coordinating Home Intervention Services (HHWCD)

• HUD awarded \$2 million in awards to two non-profit organizations under the Healthy Homes and Weatherization Cooperation Demonstration Program to coordinate home intervention services that prevent lead exposure for low-income residents and families. In coordination with the U.S. Department of Energy's Weatherization Assistance Program, funding awarded by HUD allows grantees to help identify and repair hazards in homes and while increasing a healthier, safer, more energy efficient and resilience homes.

### Improving Efficacy and Reducing Costs of In-Home Health Hazard Evaluations (LHHTS)

HUD awarded nearly \$10 million to 12 educational institutions, non-profit organizations and corporations through the Lead and Healthy Homes Technical Studies Programs to support research that will improve the efficacy and cost-effectiveness of methods for evaluating and controlling housing-related health and safety hazards.



Links referenced in the slides above:

- <https://www.hud.gov/sites/dfiles/PA/documents/HHWCD2024.pdf>
- <https://www.energy.gov/scep/wap/weatherization-assistance-program>
- <https://www.hud.gov/sites/dfiles/PA/documents/LTSHHTS2024.pdf>

Biden-Harris Administration Strengthens Standards to Protect Millions from Exposure to Lead Paint Dust, Announces New Actions to Address Toxic Lead Exposure(today)

The main item in the fact sheet is the **EPA's revised dust lead standards rule**.

Today's announcement is expected to reduce the lead exposure of up to 1.2 million people every year and represents one of over 100 actions taken by the Administration in 2024 to reduce lead poisoning

- [White House's fact sheet on lead safety](#)



Links referenced in the slides above:

- <https://www.whitehouse.gov/briefing-room/statements-releases/2024/10/24/fact-sheet-biden-harris-administration-strengthens-standards-to-protect-millions-from-exposure-to-lead-paint-dust-announces-new-actions-to-address-toxic-lead-exposure/>



## U.S. Environmental Protection Agency (EPA), Indoor Environments Division (IED)

### Science

In November 2024, EPA will release updated guidance on indoor air quality (IAQ) strategies for preventing the spread of common respiratory viruses in homes, schools, offices, and commercial buildings. In addition to COVID-19, this guidance will cover many other types of airborne respiratory viruses, including influenza (flu) and respiratory syncytial virus (RSV), that can spread more easily indoors than outdoors. IAQ strategies that help to prevent the spread of respiratory viruses indoors include ensuring proper ventilation indoors, filtering particles from the air, and providing supplemental air cleaning and air treatment. EPA's updated guidance takes into consideration recent ventilation guidance issued by the Centers for Disease Control and Prevention (CDC) and reflects the latest, best available science regarding IAQ strategies and their role in promoting good IAQ and helping to reduce the spread of common respiratory viruses indoors.

Updates and specific indoor air COVID-19 content is available within the indoor air quality website at: <https://www.epa.gov/indoor-air-quality-iaq/indoor-air-and-coronavirus-covid-19>, which also includes links to multilingual web content on COVID-19 and indoor air quality.

### Emergencies and IAQ

#### ***New EPA Emergencies and Indoor Air Quality Website***

EPA's new [Emergencies and Indoor Air Quality](#) website highlights the ways that natural disasters and emergencies can impact the indoor environment (e.g., homes, schools, and commercial buildings) and the health of building occupants. The new website features emergency-specific information and guidance on the indoor air quality impacts of:

- [Wildfires](#),
- [Floods](#),
- [Power outages](#),
- [Extreme heat](#),
- [Severe winter weather](#), and
- [Other natural disasters and emergencies](#).

The website highlights general information and strategies for preparing for, responding to, and safely recovering from disasters or emergencies, with the goal of maintaining healthy indoor air quality and the protecting building occupants. This website provides valuable new information for:



- The public, including individuals and communities concerned about or affected by recent emergencies;
- Those involved in emergency management activities, such as emergency responders; and
- Technical audiences, including environmental and public health professionals in government or non-governmental organizations who are seeking information that they can share with their constituents.

The website also features a variety of new [Resources About Emergencies and Indoor Air Quality](#), including but not limited to:

- [EPA's Power Outages and Indoor Air Quality](#) – This video demonstrates how to protect your indoor air quality during a power outage, including how to prevent the buildup of harmful indoor pollutants, safely use a fuel-powered portable generator, and maintain indoor temperatures.
- [EPA's Virtual Flooded Home](#) – Tour this interactive virtual flooded home to learn how to safely reenter and clean up your home after a flood.
- [Emergency Events Can Impact Your Indoor Air Quality](#) – Learning about the hazards to you and your indoor air quality during and following wildfires, flooding, power outages, extreme heat events, and severe winter weather.

#### ***New Factsheet on Extreme Heat and Wildfire Smoke Available on AirNow Website***

A new factsheet developed to accompany [Wildfire Smoke: A Guide for Public Health Officials](#) is now available on the AirNow website:

- [Protect Yourself from Smoke and Extreme Heat](#)

New factsheets are posted on the [Wildfire Guide Factsheets](#) page. For more information about the Wildfire Guide including factsheets and updates, visit: <https://www.airnow.gov/wildfire-guide-information/>.

#### ***National Preparedness Month GovDelivery and Social Media***

In September 2024, EPA's Emergencies and Indoor Air Quality Program conducted outreach in [English](#) and [Spanish](#) via GovDelivery mass email and social media (i.e., X) to raise awareness of the ways in which emergencies can impact the indoor environment and what people can do to prepare for emergencies that affect IAQ.

#### ***Support for IAQ Preparedness, Response and Recovery During/Following Hurricanes Debby, Helene, and Milton***

In August, September, and October 2024, EPA's Emergencies and Indoor Air Quality (IAQ) Program conducted outreach in English and Spanish via GovDelivery mass email and social media (i.e., X) to help guide community preparation for, response to, and recovery from IAQ impacts stemming from Hurricanes Debby, Helene, and Milton:

- Message to support preparedness and response (Debby): [English](#) and [Spanish](#)
- Message to support preparedness and response (Helene): [English](#) and [Spanish](#)
- Message to support safe recovery (Helene and Milton): [English](#) and [Spanish](#)

Flooding, storm surge, and wind damage from hurricanes can introduce new hazards indoors and worsen existing ones. Flood waters can carry biological and chemical contaminants indoors, and standing water and wet materials can become a breeding ground for viruses, bacteria, and mold. Exposure to these contaminants can cause disease, trigger allergic reactions, and continue to damage materials long after the flood. Additionally, the devastating impact of Hurricane Helene left many communities without electricity. Consequently, EPA highlighted guidance on maintaining indoor temperatures and safeguarding IAQ during a power outage, including how to avoid harmful exposure to carbon monoxide via the improper use of fuel-powered portable generators indoors.

EPA's Emergencies and Indoor Air Quality (IAQ) Program highlighted the following resources and information in its outreach:

- [Floods and Indoor Air Quality](#)
  - [Flood Cleanup and Indoor Air Quality Summary 1-pager with QR Codes](#)
  - [Resources on Flood Cleanup](#)
- [Power Outages and Indoor Air Quality \(IAQ\)](#)
  - [Power Outages and Indoor Air Quality 1-pager with QR Codes](#)
  - [Resources on Power Outages and Indoor Air Quality](#)

### ***Support for IAQ Preparedness, Response and Recovery During/Following Wildfires***

In July and August 2024, IED conducted outreach via GovDelivery mass email and social media (i.e., X) to help guide community preparation for, response to, and recovery from IAQ impacts stemming from wildfire smoke. Smoke from wildfires can enter a home or building and make the air indoors unhealthy to breathe.

- Message to support preparedness and response, *Is Your Home Smoke Ready?*: [English](#) and [Spanish](#)
- Message to support safe recovery, *Protect Your Indoor Air from Wildfire Smoke*: [English](#) and [Spanish](#)

### ***EPA Grants for Wildfire Smoke Preparedness in Community Buildings***

In 2024, IED awarded nine grants ranging from approximately \$350,000 to \$2 million—totaling over \$10 million—under the EPA's new Wildfire Smoke Preparedness in Community Buildings grant program. This is a new federal program to enhance community wildfire smoke preparedness by providing grants to states, federally recognized tribes, public preschools, local educational agencies, and non-profit organizations. Projects are designed to assess, prevent, control, or abate wildfire smoke hazards in community buildings that serve the public, and that serve disadvantaged communities or vulnerable populations.

The following entities received awards:

- **Arizona Board of Regents - Arizona State University, AZ** – to engage diverse communities in Arizona to develop resilient solutions to the challenges that are posed by wildfires. The project is

expected to: (1) engage community members with knowledge of indoor air pollution control and associated health fields; (2) evaluate the resilient capacity of facilities to handle the air pollution and heat impacts of wildfires; and (3) implement sustainable solutions in facilities to enhance resiliency towards the air quality and heat impacts of wildfires.

- **Esperanza Community Housing Corporation, CA** – to protect the people of South Los Angeles from wildfire smoke by strengthening wildfire smoke preparedness infrastructure in the Mercado La Paloma building and using the site as the launch pad for a grassroots education and outreach campaign.
- **Colorado Department of Public Health and Environment, CO** – to design and implement a statewide program to provide outreach, education, and training for local community partners on how to prepare for, and respond to, the public health threat of wildfire smoke.
- **Nez Perce Tribe, Tribal Land Within Boundaries of ID** – to improve public health protection against smoke from wildfires by strengthening preparedness in community buildings. The project will (1) enhance smoke readiness planning, outreach, and training; (2) deploy portable air cleaners; (3) conduct indoor/outdoor air monitoring; (4) complete weatherization; and (5) upgrade HVAC systems. Three community centers, nine public libraries, and four youth centers will be upgraded to provide cleaner air spaces to the public during wildfire smoke events for effective reduction of occupants' exposure.
- **Montana Department of Public Health and Human Services, MT** – to engage a variety of partners to increase wildfire smoke awareness, create and pilot a clean air shelter recognition program in six communities for easy replication in other high need areas, create culturally appropriate and tailored messaging on wildfire smoke and air quality, and provide training to building and facility managers on HVAC maintenance and importance of good IAQ.
- **Oregon State University, OR** – to develop a set of interventions that includes tailored toolkits and resources that can be used by schools, preschools, and daycares to reduce wildfire smoke exposures and increase community resilience across Oregon.
- **Utah Department of Environmental Quality, UT** – to enhance communities' resilience to wildfire smoke by (1) deploying indoor/outdoor low-cost PM<sub>2.5</sub> and CO<sub>2</sub> sensors at public schools, (2) developing air quality alerts, and (3) distributing air cleaners and filters to public schools/preschools and residents in target underserved areas.
- **Bellingham School District No.501, WA** – to focus on smoke readiness assessment and planning as well as indoor and outdoor air quality monitoring.
- **Gonzaga University, WA** – for activities that will reduce indoor exposure to pollutants in wildfire smoke in the City of Spokane and in three community centers serving disadvantaged communities.

For more information, visit our webpage for the [Wildfire Smoke Preparedness in Community Buildings Grant Program](#).

## IAQ and Tribal Communities

### *Environmental Justice Thriving Communities Technical Assistance Centers (EJ TCTAC)*

The U.S. Environmental Protection Agency Environmental Justice Thriving Communities Technical Assistance Centers Program (EJ TCTACs or Program) is a network of technical assistance centers (Centers) across the nation providing direct technical assistance, training, and capacity-building support to communities and organizations to advance environmental and energy justice priorities. The Centers provide training and other assistance to build capacity of local grassroots nonprofit organizations, **tribal**

**governments**, and other similar community stakeholders in navigating federal, state, and private grant application systems such as Grants.gov and SAM.gov, writing stronger grant proposals, and effectively managing grant funding. In addition, these Centers provide guidance on community engagement, meeting facilitation, and translation and interpretation services for limited English-speaking participants, thus removing barriers and improving accessibility to resources for communities with environmental justice concerns. Each of the Centers also manages communication channels to ensure all communities have direct access to resources and information.

EPA and DOE work cooperatively with 13 Regional Centers and 3 National Centers across the United States supporting communities. For more information about EJ TCTACs, please visit: [The Environmental Justice Thriving Communities Technical Assistance Centers Program](#).

[Join TCTAC Network News!](#) With this monthly internal newsletter, you receive monthly updates on EJ TCTAC projects, share spotlights of the great work being done across the country, reminders for program events, and whatever else you may need.

### ***Indoor Environments Division Tribal Newsletter***

IED issues the Indoor Air Quality Tribal Newsletter 3–4 times per year to over 35,000 email subscribers. The newsletter provides the latest news and opportunities for education and engagement on tribal indoor air topics and identifies tools and resources that can improve the health and the safety of tribal members on indoor air quality issues. Please use the following link to be included in our listserv: <https://public.govdelivery.com/accounts/USEPAIAQ/signup/37381>.

### ***NASEM Workshop: Why Indoor Chemistry Matters Townhall: A Dialogue for Improving Health and Building Healthier Homes in the Four Corners Region***

On November 14, 2024, the National Academies of Sciences, Engineering, and Medicine’s (NASEM) will hold the Why Indoor Chemistry Matters Townhall: A Dialogue for Improving Health and Building Healthier Homes in the Four Corners Region. This hybrid townhall will create a community dialogue among researchers, community leaders, educators, public health practitioners, local residents, and representatives from Tribal, state, and federal agencies. This event is a follow-on in a series of events around the NASEM consensus report [Why Indoor Chemistry Matters](#), which was co-sponsored by EPA. For more information about the townhall, visit [here](#).

### **Engagements and Outreach for Spanish-Speaking Communities**

IED has one of the most robust Spanish communications and outreach programs within EPA. Spanish-language social media messages (Facebook, Instagram, X, GovD) are considered in all communications and outreach planning strategies. IED’s Spanish-language website includes 90 webpages and a host of online factsheets and infographics where Spanish-speaking visitors can access information in their native language about EPA’s tools and guidance to improve indoor air quality. Throughout the year, IED publishes a quarterly Spanish newsletter that includes information on some of the most current popular topics. These newsletters are not translated from English but rather published exclusively to our Spanish-speaking community. The last Spanish newsletter was sent in September 2024.

On April 16, 2024, IED hosted a Spanish webinar on the Impact of Ventilation and Particulate Matter on Indoor Air Quality. This webinar covered the impact ventilation can have on our homes, what is particulate matter and how it enters the homes and impacts indoor air quality, and a recent report

released by the National Academies of Sciences, Engineering, and Medicine which discussed the health effects of indoor exposure to PM<sub>2.5</sub> and practical interventions to reduce indoor exposure to PM<sub>2.5</sub>.

On June 4, 2024, IED in coordination with EPA's Office of Children's Health Protection hosted the Indoor Air Quality, Extreme Heat and Children's Environmental Health: Overview and Case Studies webinar, which covered the impact of extreme heat on indoor air quality and children's environmental health. The goal of the webinar was to give attendees a firm understanding of the level of danger that is present during extreme heat events, as well as tips, strategies, and best practices to help communities adapt.

On October 22, 2024, IED in collaboration with EPA's Office of Children's Health Protection hosted a webinar on the Impact of Lead on Indoor Air and Children's Health. The webinar also included speakers from EPA's Caribbean Environmental Protection Division in Puerto Rico and Housing and Urban Development's Office of Lead Hazard Control and Healthy Housing.

Also in early October, the [IAQ Spanish Microsite](#) was refreshed and published with a new look and feel. It now includes a new "About Emergencies and IAQ" section and webpage, along with the interactive [Flooded Home](#).

## **Household Energy (Cooking, Heating and Lighting in Low- to Middle-Income Countries)**

### ***Leadership on Cookstoves/Household Energy***

Over the past 3-plus years, EPA has continued leading an effort to broaden and strengthen a U.S. whole-of-government approach to addressing the global issue of 3.2 million deaths annually from exposure to emissions from polluting cookstoves and fuels. The U.S. government's (USG) Household Energy Interagency Working Group now includes seven agencies: CDC, DOE, EPA, NIH, State Department, U.S. Agency for International Development (USAID), and U.S. Department of Agriculture (USDA). If you or your organization are interested in joining the Household Energy Working Group, please reach out to John Mitchell at [mitchell.john@epa.gov](mailto:mitchell.john@epa.gov).

### ***Public Events***

On September 5, 2024, at World Resources Institute in Washington, DC, EPA's Principal Deputy Assistant Administrator for Air and Radiation, Alejandra Nunez, spoke as a panelist at the 5th annual commemoration of the International Day of Clean Air for Blue Skies. Nunez spoke about the Biden Administration's domestic and international initiatives to improve air quality, including EPA's new air quality regulations and environmental justice work and IED's work with the Clean Cooking and Climate Consortium to develop a new carbon methodology to drive confidence and investment in the clean cooking sector. The event was co-hosted by the World Resources Institute, the Climate and Clean Air Coalition, and the UN Environment Program.

IED spoke on a Clean Cooking panel at the United Nations' (UN) Sustainable Development Goal 7 (SDG7) Action Forum on September 26, 2024, during the UN General Assembly meeting in New York City. The forum, which is organized by the World Health Organization (WHO), World Bank, the UN Department of Economic and Social Affairs, and the UN Development Program, focused on sustainable development goal #7, to "ensure access to affordable, reliable, sustainable and modern energy for all." The event brought together global clean cooking leaders, policymakers, and experts to reflect on implementation advancements, share challenges, and discuss how to enhance cooperation and further accelerate effective implementation strategies on the ground. EPA's Household Energy and Clean Air Coordinator

highlighted the USG whole-of-government approach to clean cooking with a focus on the new Comprehensive Lowered Emissions Assessment and Reporting (CLEAR) Methodology for crediting clean cooking interventions on the carbon market.

***Clean Cooking at the G20 [the G20 or Group of 20 is an intergovernmental forum comprising 19 sovereign countries, the European Union (EU), and the African Union (AU)]***

Brazil, as 2024 president and host of G20, has prioritized expanding access to clean cooking and has put forward a Strategic Roadmap for Clean Cooking. EPA is working closely with the USG Household Energy Interagency Working Group and DOE, the lead U.S. agency on G20's Energy track, to support Brazil's leadership on clean cooking. Ambitious language was included in the two negotiated texts—the Ministerial Outcome Statement and the Principles for Just and Inclusive Energy Transitions. The South African Delegation (who have the G20 Presidency in 2025) indicated that they plan to carry forward clean cooking in their presidency, and Brazil's leadership on clean cooking will continue with their hosting of COP30 next year.

***Cleaner Cooking for Household Energy Emission Reductions With the Clean Cooking Alliance***

The EPA works closely with the [Clean Cooking Alliance](#) (CCA) through a cooperative agreement to improve climate, environment, health, gender equity, and livelihoods by reducing emissions from household energy in low-to-middle income countries. CCA's core mission is the expansion of clean cooking access to the 2.4 billion people worldwide who lack it. No other intervention has the potential to simultaneously improve human health, reduce emissions of CO<sub>2</sub> and short-lived climate pollutants, reduce forest degradation, save women time and drudgery, and improve livelihoods and quality of life. Coordinated national programs are an essential way to achieve significant, sustained expansion of clean cooking at scale. Through this cooperative agreement, CCA will accelerate access to clean cooking through standards-based national policies and country-level climate action, resulting in increased awareness, capacity, and action to increase the sustained use of clean fuels and technologies, as well as emissions reductions in low-to-middle income (LMIC) countries from household energy use.

Two primary CCA initiatives, Nationally Determined Contributions (NDC) work under international climate protocols and developing a cooking and carbon methodology, are discussed in detail below. Additionally, EPA and CCA continue to support country governments in elaborating national clean cooking priorities and strengthening the capacity of cookstove testing labs to test to the ISO standard, ensuring the effectiveness and safety of stoves promoted around the world.

***Working With Countries to Implement Their Nationally Determined Contributions (NDCs)***

To date, 98 countries have now included references to reducing emissions from household energy in their [Nationally Determined Contributions](#) to the Paris Climate Agreement. The EPA is working with our partners in [the Clean Cooking and Climate Consortium \(4C\)](#) (which includes the CCA, Climate and Clean Air Coalition [CCAC], Berkeley Air Monitoring Group, Stockholm Environment Institute, and the United Nations Framework Convention on Climate Change [UNFCCC]), to support countries in meeting their climate goals through clean cooking initiatives. 4C has been hosting a series of expert consultations to facilitate more direct interaction and support to countries in the development of household energy components in their NDCs, organizing their measurement, reporting, and verification (MRV) activities, financing opportunities, and best practices for scaling clean cooking programs to meet their national climate goals.

### ***Developing a New Clean Cooking and Carbon Methodology***

EPA is working with the 4C on an initiative to drive integrity, credibility, and trust in the cooking and carbon markets by developing a new methodology in line with the latest science for crediting emissions reductions from cookstove projects. Carbon markets play a key role in the pursuit of net-zero greenhouse gas emissions and have the potential to provide funding at the scale necessary to bring about substantive transitions in the world's energy systems and economies. To realize this potential, these markets must be able to channel funding toward the most essential solutions to meet the world's global climate goals, including clean cooking. This funding could make clean cooking technologies and clean fuels more affordable and accessible for customers, enabling companies to grow faster and deliver the widespread benefits of clean cooking to new markets.

To take full advantage of the opportunities provided by carbon finance, clean cooking projects must be grounded in sound scientific methodologies, realistic parameters, and conservative assumptions that increase integrity, transparency, and accountability. Building integrity in the cooking and carbon market supports a virtuous cycle wherein credits with higher integrity drive better technologies and incentives for sustained use. This is why EPA is working with 4C to develop a new methodology for crediting emissions reductions from cooking projects for use under the Paris Agreement and in the voluntary carbon market. This effort will enhance transparency, consistency, and scientific integrity in clean cooking carbon markets, helping deliver affordable clean cooking solutions to the billions currently cooking with inefficient stoves or open fires. By harnessing the power of carbon finance in tandem with gender-responsive approaches, we can ensure that women and children, who today are disproportionately impacted by energy poverty, are not left behind in the energy transition. The draft methodology was released in the Summer of 2024 for public comment, and more than 700 comments from 40 organizations were received. 4C is now in the process of reviewing and responding to the public comments.

### ***State of the Evidence Base Paper***

EPA and its partners are developing a State of the Evidence Base paper for the clean cooking sector, covering research on health, climate, gender, economics, and more. This paper, which is targeted to be completed in 2024, will collect existing knowledge about household energy, identify gaps in research, and help actors set priorities for future efforts in this sector.

## **Radon**

### ***National Radon Action Plan (NRAP)***

IED continues to support the growing national network of federal agencies, private sector, nongovernmental organizations (NGOs) and states to prevent lung cancer deaths through the NRAP. The NRAP presents a long-range strategy for eliminating avoidable radon-induced lung cancer in the U.S. The NRAP Leadership Council invites leaders who are serious about preventing radon-induced lung cancer and saving lives; building in health protection where we live, work, and learn; eliminating preventable disease; and realizing a high return on investment in a healthier future to join the NRAP Leadership Council.

Leadership Council members meet monthly to share updates and progress towards the goals outlined in the NRAP. Twice a year, the NRAP holds a longer and more in-depth meeting with all members to evaluate the collective impact of our work and identify continued actions needed to reinforce priority



strategies and activities. The Leadership Council held their virtual assessment meeting January 17, 2024, and Leadership Council bimonthly meetings in March and May. The American Lung Association developed the [National Radon Action Plan 2021–2025 Interim Progress Report: Changing systems and practices, saving lives](#), which provides highlights of progress made under the National Radon Action Plan 2021-2025.

### ***State and Tribal Indoor Radon Grants (SIRG)***

IED continues to support programs aimed at risk reduction through the State and Tribal Indoor Radon Grant (SIRG) Program. For FY2024, the SIRG appropriation is \$9.13 million. EPA administers SIRG through the Regional offices. Each EPA Region distributes their SIRG funding to their States and Tribes using an application process. IED has worked closely with the EPA Regional offices to increase their attention to tribal SIRG awards. For the first time in FY2024, Regions are establishing a Tribal set-aside. This is a target percentage of each Region’s allocation for Tribal awards. FY2024 regional allotments and reports are posted on the [EPA’s SIRG Resources webpage](#).

In addition, IED developed and issued the 2023 Annual SIRG Activities Report and finalized a multi-year cross-office effort to update the primary SIRG Program Guidance document, incorporating the most recent grant regulations and policies and providing streamlined technical assistance to grantees implementing radon programs.

### ***Building Codes and Standards***

IED continues to collaborate with industry and states to promote adoption of radon-resistant new construction (RRNC) practices through international, national, state and local building codes. EPA works with other radon advocates to present common sense and health protective code changes and work toward consensus. These efforts are a key component of the National Radon Action Plan (NRAP). Model codes and standards for RRNC exist in single family, multifamily, and large buildings through ANSI/AARST Voluntary Consensus Standards, IED programs, and green standards for single family buildings. This includes programs like EPA’s Indoor AirPlus, NAHB 700 and ASHRAE 189.

The International Residential Code (IRC) is the most widely used national building code for residential new construction in the U.S. that comes from the International Code Council’s (ICC) family of national building codes. Appendix F in the IRC was adopted in 1995 to provide RRNC optional requirements if someone were to build a radon-resistant home. An important opportunity for code improvement for Appendix F and the rest of the IRC will happen in 2025 where EPA will pursue bringing RRNC and testing requirements for radon into the main body of the code.

In January 2025, a group of NRAP partners (industry, state, federal) will propose changes to the IRC that aim to provide clarity and reduce radon risk. The proposed changes will go through a Committee Action Hearing (CAH) in April 2025, a period to comment on the CAH ruling and potentially adjust the proposals ending in July, and then a final ruling in October 2025.

### ***Radon Credentialing***

IED’s work on credentialing of radon service providers is part of the Agency’s responsibility to promote and support the availability of quality radon services to the public. Professionals who provide radon testing and mitigation services play a key role in public health protection efforts. In March 2023, EPA released Proposed Radon Credentialing Criteria to help align and encourage consistency in quality across



radon credentialing programs operated by states and non-governmental programs. Twenty-nine entities submitted comments, which the Agency has analyzed. This past spring, the Agency also delivered four technical assistance sessions on the proposed criteria engaging hundreds of public stakeholders from approximately 40 states. Feedback received through the public comment period and technical assistance sessions held across multiple regions of the U.S. this spring and summer is informing the upcoming final criteria, which EPA anticipates releasing in 2025. For more information about EPA's proposed criteria, visit the EPA radon website at EPA's Draft Criteria for Radon Credentialing Organizations (<https://www.epa.gov/radon/epas-draft-criteria-radon-credentialing-organizations>).

### ***EPA's Radon Reference and Intercomparison Program (ERRIP)***

As part of annual requirements for secondary radon chambers to be certified to perform radon measurements and calibrations services for the radon industry participating in the National Radon Safety Board (NRSB), AARST-NRPP, and state radon programs, secondary radon chambers participate in EPA's ERRIP, managed and operated by the EPA's Office of Radiation and Indoor Air, National Analytical Radiation Environmental Laboratory (NAREL) located in Montgomery, AL. NAREL provides the only U.S. radon reference that is NIST-traceable. There are currently three industry certified secondary radon chambers for use by the U.S. radon community. These radon chambers are as follows: Bowser-Morner, Inc., Dayton, OH; KSU Radon Chamber, Manhattan, KS; and Spruce Environmental Technologies, Ward Hill, MA.

## **Asthma**

### ***National Environmental Leadership Award in Asthma Management***

IED's asthma program will soon launch the application for the 2025 EPA National Environmental Leadership Award in Asthma Management. This is the only national award for excellence in comprehensive asthma management with a focus on environmental interventions for asthma triggers. This year marks the 20th anniversary of the awards program. The award winner will be announced in May during Asthma Awareness Month.

### ***Technical Assistance and Resources***

An important component of IED's asthma program is equipping stakeholders with ongoing technical knowledge and capacity building. This is accomplished through [AsthmaCommunityNetwork.org](https://www.asthmacommunitynetwork.org), an online resource that facilitates peer-to-peer engagement and action learning events. Currently, there are over 5,000 members registered. EPA hosts [technical webinars](#) throughout the year, and they are archived on this website. In addition, AsthmaCommunityNetwork.org features over 600 asthma educational materials in the [Resource Bank](#) and offers [mentoring opportunities](#) for registered members. You can also find more information on our [asthma award winners](#) and [sustainable financing](#). This online network is a great way to engage around Asthma Awareness Month! If you are not a member, consider joining today.

On August 14, 2024, IED hosted a webinar titled, "Indoor Environmental Determinants of Health (IEDOH) Solutions for Asthma During Wildfire Events." This webinar highlighted the serious and growing risks from wildfire smoke to people with asthma and other respiratory diseases and described how to use data, equipment, and community networks to prepare to deliver IEDOH solutions for people with asthma and others at risk from wildfire smoke. During the webinar, Anne Kelsey Lamb, Director of the Regional Asthma Management and Prevention (RAMP) project at the Public Health Institute, discussed

communities financing and delivering indoor air cleaners, replacement filters, environmental education, and in-home counseling for people with asthma during wildfire air pollution spikes. The panel discussions also featured representatives from the Montana Asthma Control Program and Esperanza Community Housing in Los Angeles. A recording of the webinar is posted [here](#).

In September 2024, IED published a new webpage on the [epa.gov/asthma](https://epa.gov/asthma) website on IEDOH. The new webpage introduces IEDOH through a brief description of the social determinants of health and explains how this terminology can be used to build cross-sector partnerships to expand the scope and therefore impact of in-home environmental interventions. The new webpage can be found [here](#).

The [Asthma Publications Resource One-Pager](#) has QR codes to several asthma resources – including guides for asthma triggers, tips for controlling asthma, and a home-visit checklist for health care professionals. Learn how good indoor air quality contributes to a favorable environment for individuals with asthma. Simply scan the QR codes to access the resources (See [Asthma Resources One-Pager PDF](#)).

### ***Federal Collaboration on Asthma Disparities***

EPA continues to serve on the Asthma Disparities Subcommittee of the President’s Task Force (PTF) on Environmental Health and Safety Risks to Children. The Task Force includes 17 federal agencies and is the focal point for federal government agencies to coordinate for the betterment of children’s environmental health. Monthly meetings feature reporting from the PTF supporting subcommittees that address four priority areas including: 1) climate, emergencies, and disasters, 2) asthma disparities, 3) lead exposures, and 4) chemical exposures.

EPA also co-leads the Asthma Disparities Workgroup (ADWG). The ADWG is an extension of the Federal Asthma Disparities Action Plan and is co-chaired by EPA, U.S. Department of Health and Human Services (HHS), and U.S. Department of Housing and Urban Development (HUD). The goal of the ADWG is to help close the gap in inequities in comprehensive asthma care. During monthly meetings, members discuss strategies to advance the three major priority areas of the Asthma Disparities Subcommittee, which are focused on expanding sustainable financing for in-home asthma interventions, closing research gaps, and creating equitable expectations for asthma outcomes for all patients and caregivers.

### **Comprehensive IAQ Interventions in Homes**

#### ***Indoor AirPlus: New Homes***

IED’s Indoor AirPlus Program (IAP) is a voluntary partnership and labeling program that provides builders with an opportunity to earn a home certification for enhanced IAQ features. IAP certification is also a pre-requisite to achieve both DOE’s Zero Energy Ready Home (ZERH) label, as well as Passive House Institute U.S. or PHIUS+ certification. The advent of revised tax credits, which include incentives for DOE’s ZERH certification, has prompted a renewed interest from homebuilders and verifiers across the U.S., with over 600 new IAP partnerships in the last 12 months. As a result, IAP certifications in the market have also continued to grow, with over a 20% increase in IAP labeled homes from FY22 to FY23. The IAP team continues to engage regularly with DOE staff, technical support contractors, and leading industry partners to coordinate important program updates among the suite of federal home certifications, and to help facilitate the program adoption that EPA and DOE are expecting from the incentives in the years ahead.

### ***Indoor AirPlus: Program Updates***

In August 2024, the EPA released enhancements to its Indoor AirPlus home certification program – IAP Version 2. These improvements are designed to advance indoor air quality protections and expand market accessibility and program impact.

IAP Version 2 includes a branding update, with a new program naming convention (Indoor AirPlus) and updated logos. More importantly, builders now have an opportunity to choose between two certifications within the new program framework: Indoor AirPlus Certified homes, and Indoor AirPlus Gold Certified homes. The “Indoor AirPlus Certified” tier focuses on strategies to improve indoor air quality without a pre-requisite of ENERGY STAR certification. The proposed “Indoor AirPlus Gold Certified” tier includes more advanced protections for improved indoor air quality in conjunction with ENERGY STAR certification. After assessing recent shifts in the Quality Assurance landscape for similar programs, the EPA will be releasing the Indoor AirPlus Certification System, with updated QA/QC requirements and checklists for Home Certification Organizations to oversee the certification process in the market in early 2025. New training requirements for IAP builders and verifiers will also be announced and implemented in calendar year 2025.

During the initial phase of implementation, partners may continue to use Indoor AirPlus Construction Specifications Version 1, Rev.4 or begin to use the new verification requirements for either tier. The Indoor AirPlus Version 1 Construction Specifications will be sunset in January 2026. These dates were chosen to give partners ample time to implement the program changes in Version 2 into their building plans and are subject to change.

### ***Indoor AirPlus: Leader Award Winners***

IED announced the [winners of the 2024 Indoor AirPlus Leader Awards](#) in September 2024. The awards recognize market-leading homebuilders and rater partners who construct and verify Indoor AirPlus homes, which are designed and built for improved indoor air quality. Winners have demonstrated exemplary approaches to promote safer, healthier, and more comfortable indoor environments by offering enhanced indoor air quality protections and long-term value for new homebuyers with the Indoor AirPlus label. The winners were formally recognized in October at the Energy and Environmental Building Alliance (EEBA) High Performance Home Summit. During this event, EPA also announced the two Indoor AirPlus Leaders of the Year awarded to Providence Homes (Jacksonville, FL) in the builder category and Integral Building + Design Inc. (New Paltz, NY) in the rater category for outstanding program participation and promotion.

## **Comprehensive IAQ Interventions in Schools**

### ***Inflation Reduction Act—Schools Air Quality Grants and Technical Assistance***

Provision 60106 of the Inflation Reduction Act (IRA) includes a new \$50 million School Air Quality program to improve school indoor air quality and reduce greenhouse gas emissions, with a particular focus on schools serving low-income, disadvantaged and tribal communities. This program will include funding for grants and other activities to monitor and reduce indoor air pollution and greenhouse gas emissions at schools, as well as technical assistance to schools in low-income, disadvantaged, and tribal communities to address environmental issues, develop school indoor air quality plans that include standards for school building, design, construction, renovation, maintenance, and identify and mitigate ongoing air pollution hazards.

In 2023 IED completed a 6-month outreach effort to solicit feedback from the public, non-profits, industry, tribes, and the federal government on how to make the best use of the IAQ school funding provided by the IRA. The feedback provided by well over 500 individuals and organizations has heavily influenced the design of the IAQ grant program and technical assistance activities.

In January 2024, IED EPA posted a Notice of Funding Opportunity on <https://www.grants.gov/> and posted additional [information on this webpage](#). States, tribes, territories, local governments/educational agencies, and non-governmental organizations were able to submit applications for grant funding to address indoor air pollution in low-income, disadvantaged, and tribal K–12 schools until March 19, 2024. EPA has completed the review of applications, announced five selectees in August, issued the awards in late September, and anticipates that grantees will begin work in a few months after they complete the remaining administrative requirements.

EPA recently awarded \$34 million in grant funding to address indoor air pollution in schools. The five awarded applications will fund proposed initiatives to monitor and reduce greenhouse gas emissions and indoor air pollution at schools from kindergarten through grade 12 in low-income, disadvantaged, and tribal communities across the country. These grants to protect children’s health are made possible through the IRA, the largest investment in climate action and environmental justice in history.

The following entities received awards:

- **The University of Utah** received \$6.5 million to support the development of indoor air quality management and greenhouse gas reduction plans for schools in urban and rural areas in Utah and Nevada, as well as with the Northern Arapaho Tribe in Wyoming. This will be accomplished through energy efficiency assessments of school buildings, indoor/outdoor air pollutant monitoring, demonstration of effectiveness of air pollution reduction strategies, development of an indoor air quality school phone app, community engagement, training, educational activities, and by providing indoor air quality and greenhouse gas reduction guidance to schools.
- **The American Lung Association** received \$8 million to deploy the Clean Air School Challenge to raise awareness, educate, build capacity, increase implementation, and recognize the efforts of schools in low-income, disadvantaged, and tribal communities nationwide as they implement comprehensive indoor air quality and greenhouse gas management plans.
- **The New York State Department of Health and Health Research, Inc.** received \$5 million to provide capacity building in indoor air quality and greenhouse gas reduction in disadvantaged and tribal schools throughout New York state and additional states across the country. The two organizations will draw on their experience to enable hundreds of disadvantaged and tribal schools in New York to adopt sustainable indoor air quality management plans to make air quality improvements and greenhouse gas reductions that will improve the health and performance of many of New York’s 1.6 million disadvantaged students plus teachers and school staff.
- **The Go Green Initiative** received \$8 million and will partner with the National School Boards Association and their state affiliates to provide education and training for school staff, administrators, and school board officials involved in improving school indoor air quality and reducing climate pollution across all 50 states. They will also provide targeted, intensive technical assistance and capacity building in tribal and low-income school districts in all 10 EPA regions.
- **The U.S. Green Building Council’s Center for Green Schools** received \$6.5 million to build capacity among school district staff in low-income, disadvantaged and tribal communities to

establish indoor air quality management and greenhouse gas reduction plans. This work builds on long-running and successful support that the Center for Green Schools has provided to hundreds of school district staff, who collectively serve 9.3 million students. The program places direct emphasis on making capacity building and training activities more accessible to school district staff serving low-income, disadvantaged, and tribal communities.

### ***EPA Engagements and Webinars on Schools***

IED continues to support healthy indoor environments in schools, including after the COVID-19 public health emergency, which ended in May 2023. View IED-hosted webinars in the series, [Healthy Indoor Environments in Schools: Plans, Practices and Principles for Maintaining Healthy Learning Environments](#).

IED continues to actively deliver technical assistance to the schools community through two professional training webinar series: ([IAQ Master Class Professional Training Webinar Series](#) and [IAQ Knowledge-to-Action Professional Training Webinar Series](#)). Since 2015, both series have had more than 22,000 views from live webinars and on-demand recordings online. IED is working to drive even more action in school districts through spreading the IAQ Master Class Professional Training Webinar Series across more networks and platforms. Please contact us at [iaqschools@epa.gov](mailto:iaqschools@epa.gov) if your organization would like to use your existing training platforms and vehicles to host or link to the webinar series.

### ***Collaboration With Federal Partners to Promote School Environmental Health***

EPA, the Department of Education, and DOE are working to sustain and expand a collaborative partnership on healthy infrastructure, indoor air quality investments, and health and learning in schools. This collaboration is prioritizing good indoor air quality in schools as essential for achieving learning outcomes, health, and well-being and has a special focus on schools serving low-income communities.

EPA continues to collaborate with the DOE Efficient and Healthy Schools (EHS) Program. The EHS Program aims to help K–12 schools—especially those serving low-income student populations—identify practical HVAC solutions and upgrades to improve energy efficiency while promoting healthier spaces for teaching and learning. This program promotes peer-to-peer learning among school participants and recognizes schools for their best practices and exemplary solutions. The program also engages supporters such as designers, engineers, consultants, and program implementers to better support schools that are investing in efficient and healthy school buildings.

### ***Expanding the Reach for School IAQ Training***

[Resources for Healthy IAQ in Schools One-Pager](#) – This one-pager, which is available for downloading and printing, has QR codes to several IAQ in Schools resources—including guides for parents, teachers, school administrators, and school maintenance professionals. Learn how good IAQ contributes to a favorable environment for students, improved teacher and staff performance, and a sense of comfort, health, and well-being. In combination, these elements empower schools in meeting their core mission—educating children. Simply scan the QR codes to access the resources. (See the [Resources for Healthy Indoor Air Quality in Schools PDF](#).)

IED also continues to promote the *Indoor Air Quality Tools for Schools: Preventive Maintenance Guidance and Energy Savings Plus Health: Indoor Air Quality Guidelines for School Building Upgrades Documents* to help school personnel take a holistic, proactive approach to IAQ issues. These resources lead school personnel through the steps to develop and implement an IAQ preventive maintenance plan

and offer a framework to make the case using a value proposition for an IAQ preventive maintenance plan and gain buy-in from the school community. These resources can also help to ensure that IAQ is protected and improved during construction and renovation projects in school buildings.

### **Clean Air in Buildings Challenge**

The “[Clean Air in Buildings Challenge](#)” is a call to action by the Biden–Harris Administration to encourage and assist building owners and operators with reducing risks from airborne viruses, infectious disease, and other contaminants indoors. The Clean Air in Buildings Challenge includes a set of guiding principles and best practices that highlight a range of recommendations and available resources for improving ventilation and indoor air quality in buildings, which can help to better protect the health of building occupants and reduce the risk of spread of COVID-19 and other infectious disease.

Key actions outlined in the Clean Air in Buildings Challenge include:

- Create a clean indoor air action plan,
- Optimize fresh air ventilation,
- Enhance air filtration and cleaning, and
- Conduct community engagement, communication and education.

EPA sought input from a wide variety of stakeholders about actions and approaches that could help mitigate disease transmission in the nation’s building stock through the Request for Information (RFI) titled, “Better Indoor Air Quality Management to Reduce COVID-19 and Other Disease Transmission in Buildings: Technical Assistance Needs and Priorities to Improve Public Health.” EPA will soon post a summary of the comments and EPA actions related to this RFI.

### **Consider Subscribing to Email Alerts on IAQ Topics**

EPA offers a free subscription service for information on over 20 indoor air topics—opt-in at <https://public.govdelivery.com/accounts/usepaiaq/subscriber/new> to receive email updates on IAQ. More than 200,000 subscribers regularly receive announcements of upcoming trainings, webinars and events, as well as practical tips and information resources to improve IAQ. Subscribers can choose among 20 topics such as mold, air cleaners, radon, environmental asthma, air quality in schools, and IAQ emergency preparedness and response. Many topics are also presented in Spanish. Subscriptions can be cancelled easily at any time.