



<http://www.epa.gov/indoor-air-quality-iaq/federal-interagency-committee-indoor-air-quality>

1301 Constitution Avenue, NW,
Washington, DC 20005-4113

Minutes of the Wednesday, February 3rd 2016 Webinar-Meeting
The next CIAQ Webinar-Meeting will be held on **Wednesday, June 8th 2016**

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Moderator: Philip Jalbert
Attendance: 121 persons (Registered: 380)

Duration: 64 minutes (1h, 4m)
Teleconference operator: Stephanie

A-Agenda

Welcome, introductions and announcements, *Phil Jalbert, EPA*

Updates on IAQ & IEQ activities from Federal CIAQ Member Agencies

1-National Academies of Science (NAS), Engineering and Medicine; Institute of Medicine (IOM)
"Workshop on Health Risks of Particulate Matter (PM) Indoors", *Dr Guruprasad Madhavan*

2-DOE-Department of Energy, Building Technologies Program, *Chris Early*

3-NIST-National Institute of Standards and Technology, *Lisa Ng*

4-CPSC-Consumer Product Safety Commission, *Dr Joanna Matheson*

5-CDC-Centers for Disease Control, ONDIEH/NCEH, *Dr Ginger Chew*
Home Assessment Tool (under development)

Q&A (on NAS, DOE, NIST, CPSC and CDC updates)

7-HUD-Department of Housing and Urban Development, *Dr Peter Ashley*
Office of Healthy Housing and Lead Hazard Control (OHHLHC)

8-EPA-Environmental Protection Agency, *Dr Alisa Smith*
Indoor Environments Division (IED)

Q&A (on HUD and EPA updates)

Presentation: There is no presentation for today's webinar-meeting.

B-Updates on IAQ & IEQ activities from Federal CIAQ Member Agencies

1 – NAS, National Academies of Sciences, Engineering and Medicine

"Workshop: Health Risks of Indoor Exposure to Particulate Matter"

Dr Guruprasad Madhavan

Human exposure to particulate matter (PM) indoors is gaining attention as a potential source of adverse health effects. The Institute of Medicine (IOM) of the National Academies of Sciences, Engineering, and Medicine has been tasked by EPA's Indoor Environments Division (IED) to convene a workshop to explore the latest research regarding the health risks of indoor exposures to PM.

You are cordially invited to join the live webcast of the workshop on February 10-11th 2016, at 8:30AM (Eastern). The workshop will feature invited presentations and discussions regarding:

- Health conditions that are most affected by PM;
- Attributes of the exposures that are of greatest concern;
- Exposure modifiers;
- Vulnerable populations;

- Exposure assessment and risk management; and,
- Gaps in the science.

To *register* or for more information visit the NAS website:

<http://iom.nationalacademies.org/Activities/PublicHealth/Health-Risks-Indoor-Exposure-ParticulateMatter.aspx>

If you have other colleagues or friends that may be interested in this work, we would appreciate if you would forward this invite to them. POC: indoor-pm@nas.edu. Thank you.

OUTLINE of PM WORKSHOP SESSIONS AND SPEAKERS

February 10-11, 2016 at 8:30 AM Eastern

Venue: Keck Center of the National Academies, Washington DC, with live webcast at iom.nationalacademies.org

Session I: Sources of Indoor Particulate Matter

- 1.1-Brandon Boor, Assistant Professor of Civil Engineering, Purdue University
- 1.2-Lynn Hildemann, Professor of Civil and Environmental Engineering, Stanford University
- 1.3-Brent Stephens, Assistant Professor of Architectural Engineering, Illinois Institute of Technology

Session II: Particulate Dynamics and Chemistry

- 2.1-Glenn Morrison, Professor of Civil, Architectural, and Environmental Engineering, Missouri University of Science and Technology
- 2.2-Jeffrey Siegel, Associate Professor of Civil, Architectural, and Environmental Engineering, University of Texas at Austin
- 2.3-Charles Weschler, Adjunct Professor, Rutgers University; Visiting Professor, Technical University of Denmark and Tsinghua University

Session III: Exposure Levels and Characterization

- 3.1-Gary Adamkiewicz, Assistant Professor of Environmental Health and Exposure Disparities, Harvard T.H. Chan School of Public Health
- 3.2-Roy Harrison, Queen Elizabeth II Birmingham Centenary Professor of Environmental Health, University of Birmingham
- 3.3-Barbara Turpin, Professor of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill Gillings School of Global Public Health

Session IV: Exposure Mitigation

- 4.1-William Fisk, Senior Scientist and Leader, Indoor Environment Group, E.O. Lawrence Berkeley National Laboratory

4.2-Sergey Grinshpun, Professor of Environmental Health, University of Cincinnati College of Medicine

4.3-Brett Singer, Staff Scientist, Residential Building Systems, Indoor Environment Group, E.O. Lawrence Berkeley National Laboratory

Session V: Identified and Emerging Health Concerns

5.1-Ryan W. Allen, Associate Professor, Faculty of Health Sciences, Simon Fraser University.

5.2-David Rich, Associate Professor of Public Health Sciences, University of Rochester Medical Center

5.3-Marc Weisskopf, Associate Professor of Environmental and Occupational Epidemiology, Harvard T.H. Chan School of Public Health

Session VI: Interventions and Risk Communication

6.1-George Gray, Professor of Environmental and Occupational Health, Milken Institute School of Public Health, George Washington University

6.2-William Hallman, Professor and Chair, Department of Human Ecology, Rutgers University

6.3-LeeAnn Kahlor, Associate Professor, Moody College of Communication, University of Texas at Austin

2--DOE, Department of Energy

POC: Chris Early, chris.early@ee.doe.gov, 202-586-0514

2.1--Building America recently developed an IAQ and Smart Ventilation Roadmap as part of its new program strategy:

In November 2015 Building America published Building America Research-to-Market Plan, focused on solving the biggest remaining challenges to market scale adoption of high performance homes: 1) Moisture Managed High Performance Envelopes, 2) Optimal Comfort Systems for Low-Load Homes, and 3) IAQ and Smart Ventilation Solutions. One of the Roadmaps in the Plan is Optimal Ventilation and IAQ Solutions.

The Roadmap seeks to guide research, development and deployment to ensure that the development of best practices, specifications, and standards for existing home retrofits and high-performance new home construction accounts for the effects that the building and its systems may have on the health of occupants and the durability of the building itself, while minimizing energy usage. The roadmap provides more detailed objectives by focusing on improving technologies and industry standards in the following three areas:

- Targeted pollutant solutions that better control known indoor contaminants of concern, to allow for improved IAQ without increasing dilution ventilation requirements.
- Smart ventilation technology solutions that optimize the balance between IAW and energy.

- IAQ valuation that facilitates standardized, quantified assessments of home IAQ. One promising approach being considered is the development of a standardized scale for scoring home IAQ, similar to energy scores (e.g. Home Energy Rating System Index).

You can read the Plan here:

<http://energy.gov/sites/prod/files/2015/11/f27/Building%20America%20Research%20to%20Market%20Plan-111715.pdf>

2.2--DOE Building America Program, Recently Published Reports:

“Combustion Safety Simplified Test Protocol Field Study” by L. Brand, D. Cautley, D. Bohad, P. Francisco, L. Sen, S. Gloss of PARR and NorthernSTAR, September 2015.

http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/combustion-safety-protocol-field.pdf

Combustion safety testing is an important step in the process of upgrading homes for energy efficiency. Field practitioners use several approaches based on published standards. Researchers have indicated that the test procedures in use are complex to implement in the field and provide too many false positives – i.e., too many failures that do not relate to long-term problems in the home.

Failures often mean that money is diverted from energy-efficiency measures – or upgrades may not be made at all – if the program does not include remediation of safety issues. In this report the U.S. Department of Energy provides a simplified test procedure that is easier to implement and should produce fewer false positives. The report includes a survey of state weatherization agencies on combustion safety issues, details of a field data collection instrumentation package, summary of data collected over 7 months, data analysis, and results.

“Low-Cost Radon Reduction Pilot Study” by William B. Rose, Paul W. Francisco, and Zachary Merrin for the Partnership for Advanced Residential Retrofit, September 2015.

<http://www.gastechnology.org/Solutions/Documents/BAPARR-Reports/Low-Cost-Radon-Reduction-Pilot-Study.pdf>

The U.S. Department of Energy’s Building America research team Partnership for Advanced Residential Retrofits conducted a primary scoping study on the impact of air sealing between the foundation and the living space on radon transport reduction across the foundation and living space floor assembly. Fifteen homes in the Champaign, Illinois, area participated in the study. This increased isolation did not cause a statistically significant change in living-level average radon. No changes in either direction could be directly attributed to the treatments. They did not show a strong change, as hypothesized, toward a higher foundation average together with the average from the lower living level as a consequence of increased isolation between the two zones. The study showed a rather strong correlation between outdoor air temperature and foundation radon levels in which lower outdoor air temperatures correlated to lowered foundation radon levels. Possible reasons for this correlation are discussed. Relations between barometric pressure and radon levels were also seen.

2.3--Healthy Efficient Homes Program: POC: Brett Singer, bcsinger@lbl.gov; and Ian Walker.

The Healthy Efficient Homes program is a multi-agency supported effort to conduct the research needed to support improvements in both the energy and health performance of the US housing stock. It is directly supported by DOE's Building America Program, EPA's Indoor Environments Division, and HUD's Office of Healthy Homes and Lead Hazard Control. Synergistic project support is provided by the California Energy Commission. The research is conducted by Lawrence Berkeley Laboratory working with various partners and collaborators. Recently LBNL continued:

- Testing kitchen range hoods for their air flow and exhaust efficiency. This is partly to develop a 2019 Zero Energy Home Code for kitchen ventilation.
- Developing Smart Ventilation and Humidity control systems (with additional funding from Bonneville Power Administration)
- Determining IAQ Benefits and Energy Costs of various Filtration and Air Cleaning Strategies
- Developing a report on how to value and score IAQ

Lawrence Berkeley National Lab, Recently Published Reports for DOE, California Energy Commission, Department of Housing and Urban Development, the Environmental Protection Agency, and others:

"Assessment of Literature Related to Combustion Appliance Venting Systems" Rapp, Vi H., Brett C. Singer, J. Chris Stratton, Craig P. Wray, and Brennan Less, revised February 2015, for CEC and DOE

[http://eetd.lbl.gov/sites/all/files/vi_rapp_-](http://eetd.lbl.gov/sites/all/files/vi_rapp_-_assessment_of_literature_related_to_combustion_appliance_venting_systems_revision_0.pdf)

[_assessment_of_literature_related_to_combustion_appliance_venting_systems_revision_0.pdf](http://eetd.lbl.gov/sites/all/files/vi_rapp_-_assessment_of_literature_related_to_combustion_appliance_venting_systems_revision_0.pdf)

"Cooking-related PM2.5 and acrolein measured in grocery stores and comparison with other retail types" Chan, Wanyu R., Meera A. Sidheswaran, Douglas P. Sullivan, and William J. Fisk 05/2015.

<http://eetd.lbl.gov/publications/cooking-related-pm25-and-acrolein-mea>.

"Estimated effect of ventilation and filtration on chronic health risks in U.S. offices, schools, and retail stores"

Chan, Wanyu R., Srinandini Parthasarathy, William J. Fisk, and Thomas E. McKone 02/2015.

<http://eetd.lbl.gov/publications/estimated-effect-of-ventilation-and-f>

2.4--LBNL support for the California Energy Commission:

HENGH is short for Healthy, Efficient, New Gas Homes. <https://hengh.lbl.gov/>. Lawrence Berkeley National Laboratory is conducting this research project, funded by the California Energy Commission. The project is expected to be completed in early 2018. HENGH is designed to collect and analyze indoor air quality (IAQ) related field data and occupant perceptions from new natural gas homes in California, in order to answer two key questions.

- How are homes built to the Title 24 2008 standards performing with respect to ventilation-related criteria?
- How can adequate ventilation and good IAQ be provided while reducing infiltration and its related energy use?

This project aims to remove barriers to energy efficiency and help protect the health, safety, and comfort of new homes in California. HENGH has three major activities:

- Occupant survey;
- Field monitoring of new homes;
- Simulation and analysis.

3–NIST, National Institute for Science and Technology

3.1--NIST Net-zero House: The NIST Net Zero Energy Research Test Facility (NZERTF) is a two-story, four-bedroom house incorporating energy-efficient construction, space conditioning systems and appliances, as well as solar water heating and solar photovoltaics to meet the house's energy needs. For more information on the house in general, view the following video:

<http://www.youtube.com/watch?v=xSzu83fyQaQ>.

The design of the house also specified low-emitting materials, with particular emphasis on reducing sources of formaldehyde emissions such as composite woods containing conventional resins and sources of sensory irritants and odorants. These specifications have been updated and formalized into a detailed architectural specification intended for use in new residential construction and major renovations. The indoor air quality design specification is written in a manner so that it can be applied to any project and is now available for download in Word format at the NIST NZERTF web page

<http://www.nist.gov/el/nzertf/>. The report describing the specification in detail (GCR 14-980) can be found at <http://nvlpubs.nist.gov/nistpubs/gcr/2015/NIST.GCR.14-980.pdf>.

Results from the first year of energy monitoring were published in *Energy and Buildings* (<http://dx.doi.org/10.1016/j.enbuild.2015.05.002>). Results from the first year of indoor air testing were published in *Buildings and Environment* (<http://dx.doi.org/10.1016/j.buildenv.2015.07.001>). The house began a second year of testing commencing October 2014 and ended January 2016, extending past 12 months due to data loss in December 2014 and January 2015. Results from the second year of testing are forth-coming. Changes to the house for the second year of testing included: heat pump control system, intermittent operation of the HRV, and a whole-house dehumidifier instead of the dedicated dehumidification mode of the heat pump.

Tracer gas measurements of air change rates in the summers and winters of 2014 and 2015, and winter of 2016, were performed in order to validate the infiltration rates calculated by multizone airflow modeling. In February 2016, a new round of tests will be commencing including the installation and testing of a small duct, high velocity distribution system, evaluating its energy use and impacts on thermal comfort compared to the air-to-air heat pump.

Dr Ng mentioned a related article – here is the link: <http://dx.doi.org/10.1016/j.buildenv.2015.07.001>. Long Term Air Quality Monitoring in a Net-Zero Energy Residence Designed with Low Emitting Interior Products, *Building and Environment* 94 (1): 2015. All the Net-zero house related publications are listed here:

<http://www.nist.gov/el/nzertf/publications.cfm>.

Contact: Lisa Ng, 301-975-4853, lisa.ng@nist.gov.

3.2--CONTAM Multizone Airflow and IAQ Model: The CONTAM development team was recently awarded a Technology Transfer award from the Federal Laboratory Consortium for their work over the years in developing and applying CONTAM and supporting the wide range of users in the public and private sectors. Contact: W. Stuart Dols, 301-975-5860.

3.3--ASHRAE: Standard 62.2 and IAQ Position Document: The committee responsible for Standard 62.2 on residential ventilation and IAQ met in January in Orlando, where several proposed changes that may be included in the 2019 version of the standard were discussed. The 2016 version of the standard will be published in June. Topics being addressed include such as filtration credit for reducing ventilation rates, changes to multifamily housing requirements, kitchen hood capture efficiency, ventilation requirements for use of unvented combustion heaters, and ventilation distribution credit. SSPC 62.2 will meet in June in St. Louis to continue working on these addenda and other potential changes to the standard.

The IAQ Position Document Committee also met in January in Orlando as they continue to work on updating that document. A focus of the document is discussion of factors that inhibit that provision of better IAQ. The new version of the Position Document should be completed by June 2016. Contact: Steven Emmerich, 301 975-6459, steven.emmerich@nist.gov.

3.4--ASHRAE Standard 189.1: The committee responsible for ASHRAE/USGBC/IES SSPC 189.1, Standard for High-Performance Green Buildings Except Low-Rise Residential Buildings, is actively developing revisions that will be reflected in the 2017 version of the standard, which was last published in 2014. The committee met last week in Orlando. In the area of indoor environmental quality, the most relevant revisions being discussed include restrictions on the indoor use of unvented combustion devices. An addendum with requirements related to envelope design to reduce the likelihood of condensation and resulting microbial growth was recently approved for publication. Another addendum with requirements for HVAC controls to manage indoor humidity levels is close to final approval.

A User's Manual for the 2014 version of the standard has been developed by a contractor to ASHRAE. This document explains the requirements in the standard, provides relevant background information and presents examples of how to comply with the requirements. The User's Manual is available for purchase at the ASHRAE on-line bookstore.

An MOU between AIA, ASHRAE, ICC, IESNA, and USGBC is in place to align the development of Standard 189.1, the International Green Construction Code (IgCC) and the LEED Green Building Rating System. Part of this agreement is to have Standard 189.1 serve as the technical content of the IgCC, with the ICC developing the administrative and enforcement structure around the technical requirements. A steering committee has been formed to work out the details of how this agreement will be implemented.

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>. Contact: Andy Persily, 301-975-6418, andyp@nist.gov.

3.5--ASTM: D22.05 Subcommittee on Indoor Air: ASTM D22.05 Subcommittee on Indoor Air met in Tampa in October, 2015 and will meet in San Antonio in April, 2016. Al Hodgson has stepped down as

the subcommittee chair. Xiaoyu Liu, from the US EPA, is the incoming subcommittee chair. Ballot items that were discussed in the October Tampa meeting include approving the major efforts to revise D5466 Test Method for Determination of Volatile Organic Chemicals in Atmospheres (Canister Sampling Method) and D6196 Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air. Both standards were approved for publication.

The committee decided the revision of D5166 Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials will focus on the facilities and equipment section. There were two new work items approved: a Standard Test Method for Determinations of SVOC Emissions from Vinyl Flooring and Mattress Coverings using Small-scale Environmental Chamber and a Standard Practice for the Application of Publicly Available Indoor Emission and Fate Models to Guide Design of Lab Measurements and Field Monitoring Studies. Finally, there is a strong effort within the subcommittee to finalize WK40293 Estimating Chemical Emissions from Spray Polyurethane Foam (SPF) Insulation using Micro-Scale Environmental Test Chambers.

Recent NIST efforts have also shown that the size of the micro-chamber can impact the emission of chemicals from SPF. In addition, NIST is beginning investigations to determine the partition coefficient, diffusion coefficient, initial concentration and mass transfer coefficient of flame retardants in SPF. These values will make SPF emission models more accurate and reliable. More information regarding these efforts, as well as existing ASTM IAQ standards can be found at www.astm.org/COMMIT/SUBCOMMIT/D2205.htm.
Contact: Dustin Poppendieck, 301-975-8423, dustin.poppendieck@nist.gov.

4--CPSC, Consumer Product Safety Commission

(POC, Joanna Matheson, jmatheson@cpsc.gov)

4.1 – Nano material studies: Interagency activities with NIOSH continue including evaluation of nano silver in consumer products and additives for wood and wood coatings. Additional interagency projects evaluating the presence and potential release of nanomaterials from consumer products are also continuing, including work at NIST quantifying nanomaterial release from various matrices in the indoor environment, distinguishing engineered nanoparticles from those produced incidentally. Other interagency work involves the development of inhalation models as well as indoor air modeling for nanomaterials. Contact Treye to participate in the indoor air modeling efforts. Dr. Li Piin Sung and Andy Persily are working on the NIST studies (POC Treye Thomas, 301.987.2560, tthomas@cpsc.gov).

4.2 – Portable generator safety: As a recap from the last couple of CIAQ meetings, in January 2014 staff sent a letter to Underwriters Laboratories Inc. (UL) with a request for the formation of a task group and recommendations for requirements to address the CO hazard that could be used as a starting point for the task group to develop into specific proposals for the voluntary standard UL 2201, *Portable Engine-Generator Assemblies*. UL solicited for volunteers and formed the task group in April 2014. The group has held 23 teleconferences to date and is making significant progress in developing an improved test method, relative to the one recommended in the letter, for measuring engine CO emission rates that would be used to verify compliance to a requirement that limits the CO emission

rate from portable generators. In parallel with staff's work on the task group, CPSC staff is in the process of developing a draft notice of proposed rulemaking for the Commission's consideration in FY16. On 1/27/16, the Portable Generator Manufacturers Association (PGMA) announced that they will be hosting a technical summit on 3/17/16 in DC (exact location TBD) to discuss proposals for solutions to address the CO hazard. PGMA wants submissions of proposals and interested attendees

no later than February 12, 2016. For more information, contact pgma@pgmaonline.com (POC Janet Buyer, 301.987.2293, jbuyer@cpsc.gov).

4.3--Spray Polyurethane Foam (SPF) activities: EPA established a multi-agency work group to address several issues relating to SPF emissions. The agencies have received complaints regarding health effects including severe respiratory irritation, breathing difficulties, dizziness and nausea, resulting from the installation of SPF in homes. The work group has been working with industry on addressing issues such as the availability of consistent and accurate hazard communication on diisocyanates and other chemicals in the SPF insulation products; implementation of best practices that protect spray applicators, others in the work site, and occupants of residences, schools and other buildings; accurate marketing claims, and outlining of data gaps.

There are work items (ASTM WK40293, WK40292, WK43872, and WK46527) under the ASTM Air Quality/Indoor Air (D22.05) subcommittee to measure emissions from these SPF products using micro-scale environmental test chambers, emissions cells, or a large-scale spray booth, respectively. CPSC contracted with Versar, Inc to produce a toxicological profile of select amine catalysts commonly found in SPF (<http://www.cpsc.gov/PageFiles/129845/amine.pdf>).

Information from this report suggests that amine emissions may be the cause of these long term health effects. An interagency agreement was signed with NIST to conduct chamber testing of SPF samples. The study is to develop methods that will characterize and quantify releases of amines, isocyanates and other compounds to aid in ASTM standard development. CPSC has initiated a state-CPSC working group, the first meeting is in the planning stages, contact Melanie Biggs if interested in participating. (POCs Treye Thomas, 301.987.2560, tthomas@cpsc.gov; Melanie Biggs, 301-987-2593, mbiggs@cpsc.gov).

4.4--Mold Review: A contract was initiated with TERA to perform a review of epidemiologic and toxicological studies on the health risks of common mold species likely to be found in and around the home. The review should also describe mold-related morbidity and mortality statistics, particularly for susceptible populations. The draft documents are undergoing federal partner review (POC Melanie Biggs, 301.987.2593, mbiggs@cpsc.gov).

4.5--NSF/UL 440 - Health-based VOC Emissions Standard (Voluntary) for Building Products and Interior Furnishings: CPSC staff had been providing technical assistance on a monthly basis to both the Toxicology and Environments/Products task groups. There hasn't been new activity with these task groups since draft proposal language was distributed and some of the proposals were approved to

be balloted by the Joint Committee. The proposals cover chemical VOCs and toxicology endpoints, modeling scenarios and associated parameters, and other topics of interest. CPSC staff submitted comments regarding proposed revisions to the ANSI A208.1 (medium density fiberboard) and ANSI A208.2 (particleboard) standards. (POC Kent Carlson, 301.987.2578, kcarlson@cpsc.gov).

4.6 – Emerging Technologies/3D Printers: staff is interested in 3D printing and potential air contaminant release. Staff is participating in activities that seek to address health and safety questions, including the development of studies to quantify emissions. Federal agencies interested in sharing

information should contact CPSC (POC Treye Thomas 301.987.2560, tthomas@cpsc.gov, Kent Carlson, 301.987.2578, kcarlson@cpsc.gov).

5 – CDC, Centers for Disease Control

In a process that started a few years ago with many of our funded state grantees, we developed a tool that has a set of core questions on home characteristics and additional modules on dust mites, mold and moisture, and natural disasters that can be implemented in a home assessment. These questions were pulled from many of the questionnaires that our grantees and their local partners have used.

In addition, we used questions from surveys used by asthma and allergy researchers and national surveys that had their questions cognitively tested. Right now, we're working on bulleted action steps that can be cross-cutting across the entire country, but it's a difficult task. Plus, some of the recommendations for some indoor asthma triggers (washing sheets in hot water) have changed, so we intend to work with EPA and HUD to see if we can harmonize messages across agencies and co-brand a document which is based upon the EPA checklist action steps." POC: Dr Ginger L. Chew, ScD (GJC0@cdc.gov)

6 – HUD, Housing and Urban Development

6.1--HUD's Proposed Smoke-Free Housing Rule Published: On 11/17/15, HUD published a proposed rule that would prohibit the smoking of tobacco products inside all public housing apartments and offices (i.e., all federally funded public housing). A total of 1,061 comments were received at the end of the 60-day comment period on 1/19/16. HUD organized a convening at the White House on 1/6/16 to facilitate discussion of the proposed rules by individuals with different perspectives on the issue. HUD's goal is to publish a final rule in FY 2016. The proposed rule, regulatory impact analysis, public and comments can be accessed at:

<http://www.regulations.gov/#!/documentDetail;D=HUD-2015-0101-0001>

HUD contact: Peter Ashley: Peter.J.Ashley@hud.gov

6.2--Healthy Homes Seminar Series: HUD is sponsoring a series of webcast seminars on key healthy homes issues. The content of the seminars include summarization of research findings on the issue as well as guidance on prevention and/or problem mitigation and are geared for a general audience. The next seminar will be held on residential mold and moisture issues and will be held on February 9, 2016 from 1-2:30 pm; speakers include Terry Brennan from Camroden Associates and Dr. Tiina Reponen

from the University of Cincinnati. To access this webinar, go to <http://portal.hud.gov/hudportal/HUD?src=/webcasts/schedule> on February 9, 2016 at 1:00 EST and click on the name of the seminar. HUD contact: Rachel Riley: Rachel.M.Riley@hud.gov

7--U.S. EPA, Indoor Environments Division (IED)

7.1 – ASTHMA, *Asthma Sustainable Financing Initiative*

- EPA has created a [Financing In-Home Asthma Care](#) microsite on www.AsthmaCommunityNetwork.org to help communities nationwide improve the quality and outcomes of their asthma care. The highest quality asthma care includes targeted in-home
- asthma care services, including environmental asthma assessment and management. However, financing in-home asthma care often seems like the hardest part.
- The new microsite provides: information on a variety of financing opportunities, examples from reimbursed and funded programs, and strategies for engaging insurers and other payers; evidence of in-home asthma care's impact and tools to help convey its full value to financiers; and guidance and resources for building an in-home asthma care workforce ready for reimbursement.
- With your help, we will update the web pages as new policy developments, examples of success, and tools become available to support sustainable financing for in-home asthma care in all communities. Visit the microsite at <http://www.asthmacommunitynetwork.org/Financing> and send contributions to brown.sheila@epa.gov.

POC: Sheila Brown at brown.sheila@epa.gov

7.2 – SCHOOLS, *Healthy School Environments*

7.2.1--The School IAQ Assessment Mobile App: IED is excited to share information on the success of our new mobile app which is designed to assist schools with conducting comprehensive IAQ walkthroughs of their facilities using guidance from EPA's *IAQ Tools for Schools* Action Kit, Framework for Effective School IAQ Management and Technical Solutions. Since its launch five months ago, the mobile app has been downloaded by a 1,000 users, including employees from school districts, universities, state agencies and NGOs.

We are very aware that many schools and school districts are operating with reduced budgets for facility operation and maintenance. The intent of this free mobile app is to provide a state of the art resource for schools to track, manage and prioritize their efforts related to school IAQ management. Users can complete eleven walkthrough checklists on their smart devices and email them to their designated school IAQ Coordinator, along with pictures and detailed notes to help the Coordinator prioritize IAQ improvements.

We are eager to collaborate with you to promote the use of this valuable new tool in schools across the country. Please place a link to the School IAQ Assessment Mobile app on your website (<http://www.epa.gov/iaq-schools/school-iaq-assessment-mobile-app>) and contact us for promotional materials for your newsletters.

POC: Jennifer Lemon at lemon.jennifer@epa.gov

7.2.2--Indoor Air Quality and Energy Efficiency Guidance for Schools: IED continues to take advantage of the growing interest in green buildings and renovation. With spring right around the corner school districts are preparing to begin construction of new schools or renovation of existing buildings. EPA is making it easier for schools to ensure protecting IAQ is part of the process with the *Energy Savings Plus Health: Indoor Air Quality Guidelines for School Building Upgrades* guidance. The guidance is designed to help K-12 school districts navigate the construction and renovation process using an integrated approach to address indoor air quality, energy efficiency, occupant health, and worker safety. The Guide includes 23 IAQ priority issues and related assessment protocols, recommended and expanded actions, and resources and tools for project planning and communication. It is accompanied by a customizable and time-saving Checklist Generator that helps school districts

create IAQ checklists for specific upgrade or construction projects.

You can download the guidance, Checklist Generator, and other resources, including quarterly webinar trainings at EPA's website at <http://www.epa.gov/iaq-schools/iaq-guidelines-school-building-upgrades-energy-savings-plus-health>. Please share this information with your stakeholders, and remember, linking the benefits of integrating IAQ management with energy efficiency upgrades is a win-win for all. POC: Michele Curreri at curreri.michele@epa.gov

7.2.3--IAQ Master Class Webinar Series: IED's 2015 IAQ Master Class Professional Training Webinar Series is becoming the "go-to" training for the schools community who want to have the latest knowledge on maintaining a healthy school indoor environment. The professional training webinar series is comprised of ten 1-hour technical, web-based trainings designed to build the capacity of school district staff across the country to start, improve, or sustain an IAQ management program. To date over 1400 school district, state and industry representatives, representing over 520 school districts in 48 states, have completed the training. These numbers continue to grow. Creating healthy schools requires mastering the indoor environment using a comprehensive approach outlined in IED's IAQ Tools for Schools Action Kit and the Framework for Effective School IAQ Management, including the Key Drivers and Technical Solutions.

Anyone can take advantage of this free resource and view the entire IAQ Master Class Professional Webinars series "on demand" at <http://www.epa.gov/iaq-schools/indoor-air-quality-schools-master-class-webinar-series>. Share this information with your networks and contacts and encourage them to view the "on demand" IAQ Master Class Professional Webinars and gain recognition for their increased knowledge and commitment to action through certificates of completion and CEUs. POC: Tracy Enger at enger.tracy@epa.gov

7.3--RADON, *The Federal and National Radon Action Plans (FRAP, NRAP)*: Since launching the Federal Radon Action Plan (FRAP) in 2010, EPA continues to push for more action on radon risk reduction by federal agencies and looks for ways to encourage state and local actions.

When we look at the data, it reinforces the success of the FRAP. The latest data (2013 and 2014) shows the highest rates of radon mitigation and new construction ever recorded in the U.S. This February, partnering agencies will formally close-out the FRAP and celebrate its accomplishments, which

includes reaching an estimated 1.6M homes, schools and childcare facilities with federal guidance and incentives and, in 12.5% of those units, testing and mitigating when necessary. This only tells part of the story. We believe that testing and mitigations will continue to be generated as a result of FRAP actions.

Perhaps most significant, by shining a spotlight on radon and finding ways within existing federal policies and programs to address it, the FRAP agencies spurred a national ramp up in radon risk reduction. In order to leverage as much visibility, traction and activity as possible, 11 key players across the government (including HUD and HHS), industry and nonprofit sectors and led by the American Lung Association, began coordinating strategy on the National Radon Action Plan (NRAP) which was launched in November 2015.

The strategies outlined in the NRAP aim to incorporate radon testing, radon mitigation and radon-resistant construction into the systems that govern purchasing, financing, constructing and renovating homes and other buildings. To pace action and measure success, the group set a goal to reduce radon risk in 5 million homes and to save 3,200 lives annually by 2020. Impacts generated from the FRAP will continue to be tracked and attributed towards this goal.

EPA continues to make significant investments to reduce radon risk. Our primary emphasis in the coming year includes the following programmatic areas:

- The development and maintenance of standards of practice through the AARST Standards Consortium process under ANSI
- Making bold requests and collaborating with our federal partners to do more on radon in the federal government, including:
 - o Collaborating with DOE to address radon during weatherization projects
 - o Supporting HUD to take more action in the single family market: like they did for multifamily housing
 - o Collaborating with the VA to integrate radon risk reduction into their Minimum Property Requirements for new construction loan programs.
- Pushing for more radon action in state cancer control plans, in collaboration with CDC.
- Refreshing our numbers:
 - o An update to our risk assessment is in draft stages.
 - o We are close to completing a publishable cost/benefit analysis of radon intervention.
 - o We continue to work with CDC to incorporate radon data into their Environmental Health Tracking Network.
- Proposing and defending code changes for international building codes at the state and local levels as well as continued investment on the national level.
- Investing in partnerships (KSU, CRCPD, ALA) POC: Katrin Kral at kral.katrin@epa.gov

7.4--New Energy Savings Plus Health Indoor Air Quality Guidelines for Multifamily Building Upgrades

- Look for an announcement over the next few weeks on the availability of the third guidance document in our suite of Energy Savings Plus Health documents to help energy managers and others integrate IAQ health protections into energy retrofit or other building upgrades.
- The Healthy Indoor Environments protocols released in 2011 focused on single family homes and we released the Energy Savings Plus Health IAQ Guidelines for School Building Upgrades in 2014.
- The new multifamily building guidelines are organized, like the single family and school versions, around a set of priority issues that should be assessed prior to commencing energy or other building upgrade work; minimum actions to take to protect indoor air quality; and recommended actions to take to further improve IAQ, if resources permit.
- Like the Energy Savings Plus Health IAQ Guidelines for Schools, the multifamily guidelines include a verification checklist as well as a companion “checklist generator” to help users narrow the list of issues based on the type of building upgrade being undertaken.
- We will send out email notifications and a link to the new guidelines to a wide range of organizations shortly after they are posted on the web.

7.5--Recent News and Information Regarding Legionella

(for more information contact Henry Slack, EPA R4, Atlanta; slack.henry@epa.gov)

Legionella bacteria were discovered as the cause of Legionnaire’s Disease after 29 attendees at an American Legion meeting in Philadelphia died from pneumonia after the event. According to OSHA, the CDC has estimated as many as 25,000 cases of Legionnaire’s Disease in the US with 4,000 deaths (https://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_7.html#1).

The Legionella bacteria is widespread and can be lethal. Some cases of Legionella occur as outbreaks, such as the New York City cooling tower outbreak in 2015; such outbreaks can result in a mortality rate of 5-30%.

Legionella is not known to be a hazard when ingested, only when inhaled. However, we aerate water in different ways: showers, whirlpools, air washers, humidifiers, cooling towers, and misters. The Legionella bacteria live in the “bio-slime” in some parts of our drinking water system, and develops best within certain temperature ranges. Further, energy conservation efforts and anti-scalding efforts have both worked to reduce hot water temperatures, or to turn water systems off when not needed, resulting in water temperatures favorable to Legionella growth. Our water systems may also have reduced chlorine in parts of the system (dead-end pipe, for instance) which can also allow the bacteria to grow.

Two new documents on Legionella also increase the likelihood of greater attention. ASHRAE

(formerly known as the American Society of Heating, Refrigerating, and Air-conditioning Engineers) released Standard 188 in summer 2015. It may be adopted into law by any jurisdiction. It requires a HACCP (Hazard Analysis and Critical Control Point) approach: to have a team inventory building water systems, figure out where Legionella might grow, identify the critical points, and then install and use control measures. (<http://www.achrnews.com/articles/120400-legionella--haccp--and-ashrae-s-pending-standard-188>)

Meanwhile, the American Industrial Hygiene Association (AIHA) released its' own document: *Recognition, Evaluation, and Control of Legionella in Building Water Systems*. This document encourages "routine proactive assessment" (regular testing) <http://synergist.aiha.org/the-new-age-of-legionella>.

A CIAQ webinar attendee asked about any connection between Legionella and climate change; see the following WHO document <http://www.who.int/bulletin/volumes/93/6/14-142299/en/> that suggests there may be a link.