

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

Minutes of the Wednesday, October 7<sup>th</sup> 2015 Webinar-Meeting  
The next CIAQ Webinar-Meeting will be held on **Wednesday, February 10<sup>th</sup> 2016**

**Moderator:** Phil Jalbert  
**Attendance:** 102persons

**Seminar/meeting duration:** 172 minutes (2h, 52m)  
**Teleconference operator:** Melissa

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## Agenda

### **A-Welcome, introductions and announcements**, *Phil Jalbert, EPA*

NAS-National Academy of Sciences; “Workshop on Health Risks of Particulate Matter (PM) Indoors” *David Butler*  
[*See the Announcements below for details on upcoming events and webinars mentioned in the meeting*]

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

- 1-DOE-Department of Energy, Building Technologies Program, *Chris Early*
  - 2-NIST-National Institute of Standards and Technology, *Lisa Ng*
  - 3-CPSC-Consumer Product Safety Commission, *Dr Joanna Matheson*
  - 4-NIOSH-National Institute of Occupational Safety and Health, *Dr Ju-Hyeong Park*
- Q&A (on DOE, NIST, CPSC and NIOSH updates)

5-HUD-Department of Housing and Urban Development  
Office of Healthy Housing and Lead Hazard Control, *Dr Peter Ashley*

- 6-EPA-Environmental Protection Agency
  - 6.1-Environmentally Preferable Purchasing-Pilot projects (OCS&PP) *Holly Elwood*  
[*See the PPTX attached to the minutes on the website*]
  - 6.3-Indoor Environments Division (IED), *Alisa Smith*

Q&A (on HUD and EPA updates)

**C-Presentation:** Green Globes/Green Building Initiative, by Vicki Worden, Executive Director Green Building Initiative (GBI). Ms Worden has been instrumental in updating the Green Globes environmental assessment and certification programs for commercial buildings. She will provide a broad overview of Green Globes and the upcoming draft release. The ANSI GBI 01-2010 Standard forms the basis for the current version of Green Globes for New Construction (Green Globes NC), which was released in 2013.



Also, the Green Building Initiative (GBI) has released a draft of its GBI-01 Green Building Assessment Protocol for Commercial Buildings for public comment. The deadline for GBI receiving comments is Monday, October 26<sup>th</sup>. For the comment form and other information visit <http://www.thegbi.org/ansi>.

**Conclude** [the Webinar-meeting ended at 3:52 PM]

The next CIAQ Webinar-meeting will be held **Wednesday, February 10<sup>th</sup> 2016**. Presentation proposals:  
[CIAQ@epa.gov](mailto:CIAQ@epa.gov).

**Meeting location:** If attending in person, go to the EPA WJC-West building, at 1301 Constitution Ave., NW, Washington, D.C. 20004. After passing through security, you’ll be escorted to the meeting room. If using Metro-Rail, exit the system at the Federal Triangle station served by Silver, Orange and Blue line trains. WJC-West is part of the William Jefferson Clinton-Ronald Reagan International Trade Center, Federal Triangle Complex.

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## **Meeting Minutes**

### **A-Announcements, Phil Jalbert, EPA**

1-National Housing Conference (NHC) event/webinar on “EPA’s Clean Power Plan, potential for new resources for energy efficiency in affordable multifamily housing”; Thursday, October 15th, 3:00-4:30 p.m. EDT.

For more information: <http://www.nhc.org/#!webinars/d3tdi>

2-Clinical Directors Network (CDN) and National Nursing Centers Consortium (NNCC); “Asthma, Climate Change and Health”; Monday, October 19<sup>th</sup>, 12:00-1:30 p.m. EDT.

For more information: <https://attendee.gotowebinar.com/register/8723323313765064705>

3-National Institute of Environmental Health Sciences (NIEHS) and EPA Children’s Centers Annual Meeting: “Protecting Children’s Health for a Lifetime”; Thursday-Friday, October 29-30<sup>th</sup>, 2015 (free registration).

For more information: <http://www2.epa.gov/research-grants/october-niehsepa-childrens-centers-2015-webinar-series>

4-Department of the Interior (DOI)-National Park service (NPS). On September 10<sup>th</sup>, 2015 the NPS Director, Jonathan Jarvis, issued a policy memo (15-03) on Electronic Nicotine Delivery Systems (ENDS), aka e-cigarettes. The policy subjects ENDS to the same restrictions as tobacco smoking; ENDS use is banned in all Government owned or leased facilities and vehicles.

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

**NAS, National Academy of Sciences**, “Workshop on Health Risks of Particulate Matter (PM) Indoors”

POC: David Butler ([indoor-pm@nas.edu](mailto:indoor-pm@nas.edu))

#### **1-DOE, Department of Energy**

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

#### **National Retrospective Evaluation of the Weatherization Assistance Program:**

The DOE Weatherization and Intergovernmental Programs Office authorized the Oak Ridge National Laboratory to implement the national evaluation of the Weatherization Assistance Program. This evaluation addressed energy and cost savings, non-energy benefits, program cost-effectiveness, and program operations for program year 2008, called the Retrospective Evaluation, and for program year 2010, called the Recovery Act Evaluation. For questions or more information, contact [WAPevaluation@ee.doe.gov](mailto:WAPevaluation@ee.doe.gov). You can find the reports here: [http://weatherization.ornl.gov/evaluation\\_nr.shtml](http://weatherization.ornl.gov/evaluation_nr.shtml). A total of 36 reports document the overall Evaluation. These two reports in particular addressed health and indoor quality:

**“Exploring Potential Impacts of Weatherization and Healthy Homes Interventions on Asthma-related Medicaid Claims and Costs in a Small Cohort in Washington State.”**

[http://weatherization.ornl.gov/RecoveryActpdfs/ORNL\\_TM-2015\\_213.pdf](http://weatherization.ornl.gov/RecoveryActpdfs/ORNL_TM-2015_213.pdf). ORNL and the Opportunity Council, a Community Action Agency in Northwestern Washington State, partnered to collect and analyze caregiver-reported, field-collected, and health care records data to discern potential asthma-related benefits of these programs in the areas of improved dwelling quality, caregiver observed asthma morbidity, and direct health care utilization and costs. Comparing pre- and post-intervention data for the three study groups revealed that both weatherization (e.g., air sealing, insulation, heating equipment installation and maintenance) and healthy housing interventions (e.g., flooring replacement, ventilation, dust mite mattress and pillow covers, education) were impactful with respect to improving dwelling quality and reducing home-source asthma triggers.

**“Weatherization and Indoor Air Quality: Measured Impacts in Single-Family Homes under the Weatherization Assistance Program”** [http://weatherization.ornl.gov/Retrospectivepdfs/ORNL\\_TM-2014\\_170.pdf](http://weatherization.ornl.gov/Retrospectivepdfs/ORNL_TM-2014_170.pdf). The study involved testing and monitoring in 514 single-family homes (including mobile homes)

located in 35 states and served by 88 local weatherization agencies. The study focused on the following five indoor environmental quality parameters: Carbon monoxide, Radon, Formaldehyde, Indoor temperature and humidity, and Indoor moisture.

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

Building America issued a Request for Information on three draft Building America Technology to Market Roadmaps in April 2015, 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. Comments received were evaluated and will be used to inform future Building America team funding announcements. Building America also held three expert meetings in May-June 2015, including one focused on the IAQ and Smart Ventilation Roadmap, to help fine-tune the Building America program strategy. The plan and roadmaps are expected to be published in October, 2015.

**DOE Building America Program, Recently Published Reports:**

**“Evaluation of the Performance of Houses with and without Supplemental Dehumidification in a Hot-Humid Climate”** Philip Kerrigan Jr., PE. Building Science Corporation. February 2014

[http://apps1.eere.energy.gov/buildings/publications/pdfs/building\\_america/houses\\_supplemental\\_dehumidification.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/houses_supplemental_dehumidification.pdf). Understanding indoor humidity conditions in low energy homes in hot-humid climates is critical to promoting long term occupant comfort, indoor air quality and building durability. The results of this study were expected to inform the residential building community on whether supplemental dehumidification is a needed and effective investment to promote these long term standards. An analysis of the equipment operation did not show a clear correlation between energy use and humidity levels. The dehumidifiers did not negatively affect the capacity of the cooling system to adequately maintain setpoint.

**“Cold Climate Sealed Crawlspace with Integrated Whole-House Ventilation Technical Report”** William Zoeller, James Williamson, and Srikanth Puttagunta. Consortium for Advanced Residential Buildings. May 2015. [http://apps1.eere.energy.gov/buildings/publications/pdfs/building\\_america/sealed-crawl-space-whole-house-ventilation-cold.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/sealed-crawl-space-whole-house-ventilation-cold.pdf). CARB was interested in investigating a hybrid ventilation method that includes the exhaust air from the crawlspace as a portion of an ASHRAE 62.2 compliant whole-house ventilation strategy.

This hybrid ventilation method was evaluated through a series of long-term monitoring tests that observed temperature, humidity, and pressure conditions within the home and crawlspace. Additionally, CARB worked with NREL to perform multi-point tracer gas testing on six separate ventilation strategies – varying portions of 62.2 required flow supplied by the crawlspace fan and an upstairs bathroom fan. Long term monitoring showed that crawlspace moisture conditions were above 60 % RH from April through November. During the summer months, there were occasions with potential for condensate to collect on the vapor barrier at the crawlspace floor. The crawlspace can become positively pressurized with respect to the house when bathroom boosts, kitchen hoods, and/or dryer vents are used. There is the potential for radon to be pulled into the living space during these worst-case depressurization cases for the home. A potential code revision could incorporating the following guidance: An unvented crawlspace meeting code compliance through the use of an exhaust fan in the crawl and passive vent from the living space, should either have air-conditioning in the living space or the crawlspace floor should be insulated (along with the continuous vapor barrier) to minimize the potential for summer time condensation in the sealed crawlspace. It is important to note that these conclusions are formed based on results from two homes in the cold-climate region.

**Healthy Efficient Homes Program:** POC: Brett Singer, bcsinger@lbl.gov.

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. LBNL:

<http://www2.epa.gov/indoor-air-quality-iaq/federal-interagency-committee-indoor-air-quality>

- Presented a paper on laboratory measurements of range hood performance at Healthy Buildings 2015 Conference.
- Prepared kitchen range hood capture efficiency standard method of test for ASMT committee

**Highlights of recent LBNL support for ASHRAE 62.2:** POC: Iain Walker (vice-chair) [iswalker@lbl.gov](mailto:iswalker@lbl.gov). ASHRAE 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, is the national ventilation standard of design for all homes and up to three story multifamily buildings. DOE supports ASHRAE 62.2 through LBNL and direct participation of DOE staff as voting member of the committee. In recent months LBNL:

- Proposed changes for 62.2 - improved methods for combining natural infiltration and mechanical ventilation, adding equivalence calculations, and filtration options,
- Working on what to do about unvented heaters,
- Worked with ASHRAE 62.2 and 52 committee on development of new committee and potential standard for residential filtration – with the aim of having a PM2.5 metric useable by 62.2 and others.

## 2-NIST-National Institute of Standards and Technology

**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. In the area of IAQ, the house has a heat recovery ventilator sized to comply with ASHRAE Standard 62.2 and an extremely tight envelope. 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. This test began after a series of improvements were made to the heat pump control system, the HRV started running on an intermittent schedule, and a whole-house dehumidifier was used instead of the dedicated dehumidification mode available in the installed heat pump. Additional instrumentation was also added to the HRV, electrical system, and water distribution system to better quantify their performance. Tracer gas measurements of air change rates in July 2014, August 2014, and August 2015 were performed in order to validate the infiltration rates calculated by multizone airflow modeling. In 2016, a new round of tests will be commencing including the installation and testing of a small duct, high velocity distribution system. Its energy use, ability to handle latent loads, and effect on thermal comfort will be evaluated. Contact: Lisa Ng, 301-975-4853, [lisa.ng@nist.gov](mailto:lisa.ng@nist.gov).

**Improving the Reliability of Product Emissions Testing:** The use of building materials with low VOC emissions has obvious IAQ benefits and may also allow energy savings by lowering outdoor air ventilation requirements. In addition to these motivations for low VOC emissions, EPA has proposed rulemaking limiting formaldehyde emissions from wood products. To support improved labeling of low VOC products, NIST is developing a formaldehyde reference standard with known contaminant emissions profiles to ensure more accurate determination of product emission rates. A prototype formaldehyde reference material has been designed and constructed, and is currently being tested. Current investigations are focused on ensuring that multiple formaldehyde reference standards produce consistent formaldehyde emission profiles. Future work is planned to assess the stability and usability of the prototype formaldehyde emission reference standard. Contact: Dustin Poppendieck, 301-975-8423, [dustin.poppendieck@nist.gov](mailto:dustin.poppendieck@nist.gov).

### Improved handling of infiltration in energy modeling

NIST has developed new methods to incorporate airflow calculations into building energy calculations, which are more accurate than current approaches and easier to apply. Current approaches commonly ignore infiltration or assume a fixed rate, which do not reflect known dependencies of infiltration on outdoor weather and heating, ventilating and air conditioning (HVAC) system operation. The new strategies are based on a study of the relationships between infiltration rates calculated using multizone airflow models, weather conditions, and building characteristics, including envelope airtightness and HVAC system operation. NIST Technical Note 1829 (<http://dx.doi.org/10.6028/NIST.TN.1829>) provides a detailed description of a building-specific and a generalized strategy for calculating infiltration in a commonly-used energy simulation tool, EnergyPlus. Articles on this work were published in *Energy and Buildings* (<http://dx.doi.org/10.1016/j.enbuild.2014.11.078>) and the ASHRAE Journal's July 2014 issue. The method has been incorporated in Open Studio's Building Component Library (<https://bcl.nrel.gov/node/83101>) for easier application within EnergyPlus. In FY 16, updates are planned for the infiltration tool. Interested parties can subscribe to updates by sending an email to [infiltration-request@nist.gov](mailto:infiltration-request@nist.gov) (subject: subscribe). A presentation on the tool was given at ASHRAE's Energy Modeling Conference in September 2015. Contact: Lisa Ng, 301-975-4853, [lisa.ng@nist.gov](mailto:lisa.ng@nist.gov).

### CONTAM Multizone Airflow and IAQ Model

NIST has released the latest version of its multizone airflow and contaminant transport software, CONTAM 3.2. The main enhancements of this version include the ability to couple directly with building energy simulation programs including EnergyPlus and TRNSYS. This capability enables consideration of the interaction between building airflow and heat transfer while bringing to bear the full indoor air quality analysis capabilities of the CONTAM program. This coupling utilizes the run-time exchange of airflows, temperatures and control signals between CONTAM and the energy analysis programs. A set of utilities enables the creation of coordinated, scaled building models on the coupled platforms in order to facilitate the data exchange between the coupled models and reduce user input error. Other enhancements to CONTAM include a ultra-violet germicidal irradiation (UVGI) filter model, the ability to output the mass of contaminant that exfiltrates the building envelope, and the ability to associate more flexible, year-long schedules with building components without the previous requirement of forming the association through graphical means via the CONTAM sketchpad. Contact: W. Stuart Dols, 301-975-5860.

### ASHRAE: Standard 62.2 and IAQ Position Document

The committee responsible for Standard 62.2 on residential ventilation and IAQ met June 26<sup>th</sup> and 27<sup>th</sup> in Atlanta, where several proposed changes to the standard were discussed. Multiple addenda are currently out for public review comments (<https://www.ashrae.org/standards-research--technology/public-review-drafts>) addressing topics such as filtration credit for reducing ventilation rates, changes to multifamily housing requirements, unvented combustion heater requirements, and revised intermittent ventilation requirements. SSPC 62.2 will meet in January in Orlando to continue working on these addenda and other potential changes to the standard. The IAQ Position Document Committee will also meet in January in Orlando as they continue to work on updating that document. Contact: Steven Emmerich, 301 975-6459, [steven.emmerich@nist.gov](mailto:steven.emmerich@nist.gov).

### 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. In the area of indoor environmental quality, the most relevant revisions being discussed include the following: indoor use of unvented combustion devices and HVAC controls to manage indoor humidity levels for the same reason. An addendum with requirements related to envelope design to reduce the likelihood of condensation and resulting microbial growth was recently approved for publication.

A User's Manual for the 2014 version of the standard is being developed by a contractor to ASHRAE. This document will explain the requirements in the standard, provide relevant background information and present

examples of how to comply with the requirements. The Users Manual is expected to be available at the January 2016 ASHRAE meeting.

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](mailto:andyp@nist.gov).

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

ASTM D22.05 Subcommittee on Indoor Air met in Anaheim in April and will meet in Tampa in October. Major ballot items that were discussed in Anaheim and will be discussed in Tampa include the revisions of D6196 Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air and D5197 Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology). In addition, there is a strong effort within the subcommittee to finalize WK40293 New Standard Estimating Chemical Emissions from Spray Polyurethane Foam (SPF) Insulation using Micro-Scale Environmental Test Chambers. This summer the SPF workgroup has reached a consensus on a majority of the experimental parameters in the method. Outstanding issues that remain to be resolved include the list of example chemicals that the method can quantify and the inclusion of precision and bias data for the resulting emission rates. NIST studies have contributed to this effort by showing emissions from SPF in micro-chambers are temperature, flow, foam and chemical dependent. Recent NIST efforts have also shown that the size of the micro-chamber can impact the emission of flame retardants from SPF. More information regarding these efforts, as well as existing ASTM IAQ standards can be found at [www.astm.org/COMMIT/SUBCOMMIT/D2205.htm](http://www.astm.org/COMMIT/SUBCOMMIT/D2205.htm). Contact: Dustin Poppendieck, 301-975-8423, [dustin.poppendieck@nist.gov](mailto:dustin.poppendieck@nist.gov).

### **3-CPSC, Consumer Product Safety Commission**

(POC, Joanna Matheson, 301.987.2564, [jmatheson@cpsc.gov](mailto:jmatheson@cpsc.gov))

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](mailto:tthomas@cpsc.gov)).

Portable generator safety: As a recap from the last 2 CIAQ meetings, last January 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. The group has held numerous teleconferences to date and is making significant progress in developing an improved test method, relative to the one recommended in the letter, for measuring CO emission rates from a generator. In parallel with staff's work on the task group, staff is in the process of developing a draft notice of proposed rulemaking for the Commission's consideration. (POC Janet Buyer, 301.987.2293, [jbuyer@cpsc.gov](mailto:jbuyer@cpsc.gov)).

**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 (POCs Treye Thomas, 301.987.2560, [tthomas@cpsc.gov](mailto:tthomas@cpsc.gov); Melanie Biggs, 301-987-2593, [mbiggs@cpsc.gov](mailto:mbiggs@cpsc.gov)).

**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](mailto:mbiggs@cpsc.gov)).

**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. (POC Kent Carlson, 301.987.2578, [kcarlson@cpsc.gov](mailto:kcarlson@cpsc.gov)).

#### **4-NIOSH-National Institute of Occupational Safety and Health**

**Public School Study:** An epidemiologic study of 50 elementary schools in a large urban school district was conducted during the spring and early summer of 2015. The study included health and environmental surveys. Over a two-month period, NIOSH invited all school staff via email to take the health survey. The email included a personal and secure link to a health questionnaire hosted on a secure CDC website. NIOSH will repeat the questionnaire invite in the fall to collect health information from those that did not participate in spring.

For the environmental survey, we used the NIOSH Dampness and Mold Assessment Tool (DMAT) to evaluate more than 7,000 indoor spaces in the 50 schools, including classrooms, offices, closets, mechanical rooms, rest rooms, hallways, and other spaces. The NIOSH DMAT software was installed on a portable laptop computer that was carried by observers, who electronically collected dampness and mold related information. We also collected 500 floor dust samples from selected classrooms (10 samples per school). The dust has been processed and homogenized, and will be analyzed for various microbial agents. During late October or early November, NIOSH will also monitor CO2 levels in the 500 classrooms between 7am to 3:30pm to estimate ventilation rates.  
POC: Ju-Hyeong Park ([gzp8@cdc.gov](mailto:gzp8@cdc.gov))

#### **5-HUD-Department of Housing and Urban Development; Office of Healthy Housing and Lead Hazard Control.** POC: Eugene Pinzer ([Eugene.a.pinzer@hud.gov](mailto:Eugene.a.pinzer@hud.gov))

### 5.1-Lead Hazard Control Grant Awards

On 8/27/15, HUD announced the award of approximately \$101 million to 32 city, county and state governments. The grant recipients will target lead and other health hazards in over 6,000 low-income homes. The individual grants included approximately \$1.5 - \$3M for lead hazard control and approximately \$200,000 in Healthy Homes Supplemental funding to address other health and safety hazards in target homes.

HUD contact: Eric Hornbuckle, [Eric.W.Hornbuckle@hud.gov](mailto:Eric.W.Hornbuckle@hud.gov)

### 5.2-Healthy Homes Technical Studies Grant Awards

On 9/30/15, HUD announced the award of approximately \$2 M in Healthy Homes Technical Studies Grants to improve methods for detecting and mitigating residential health and safety hazards. Three grants were awarded (see abstracts below):

**Sinai Health System** was awarded \$677,658 to evaluate the sustained effect of a community health worker-led healthy homes asthma interventions for adults over a 24-month post-enrollment period. Sinai will randomize 135 participants into either a low-intensity intervention or a no-additional-intervention control group at the completion of the 12-month intervention phase. The participants will be followed prospectively for 12 months. In addition, Sinai will assess the costs and benefits of implementing a low-intensity maintenance phase following the initial intervention. This study will evaluate progress towards the objectives of: 1) improving asthma control; 2) decreasing urgent health resource utilization; and, 3) improving asthma-related Quality of Life.

**HUD Contact:** Rachel Riley [Rachel.M.Riley@hud.gov](mailto:Rachel.M.Riley@hud.gov) ; P.I.: Helen Margellos-Anast, MPH.

**The Trustees of Columbia University in the City of New York** (with partners the Little Sisters of Assumption Family Health Service and The New York Academy of Medicine) was awarded \$672,158 to conduct an intervention study to evaluate low cost methods for preventing and controlling mold and excess moisture in the homes of New York City children with asthma. The study will focus on the East Harlem neighborhood, a low-income, primarily Latino neighborhood with high asthma prevalence. Methods will be employed to identify and quantify mold in homes before and after remediation, providing the evidence for intervention effectiveness in the short (1 year) and long term (2-5 years). Researchers will also examine the associations between presence of mold and health status, health care use and quality of life among the children with asthma.

**HUD Contact:** Kofi Berko [J.Kofi.Berko@hud.gov](mailto:J.Kofi.Berko@hud.gov) ; P.I.: Matthew Perzanowski, PhD

**San Diego State University Foundation** was awarded \$699,867 to work with the Environmental Health Coalition and the City of San Diego Lead Safety and Healthy Homes Program to study the distribution of third-hand (THS) smoke residue in 200 low income homes. THS residue refers to nicotine and other toxic chemicals such as lead and tobacco-specific carcinogens, which settle on surfaces within a home. The study will also examine factors that affect THS levels in the tested homes (e.g., the presence or absence of a smoke-free housing policy), and will also assess the efficacy of three different approaches to cleaning the THS residue. THS residue samples will be collected immediately after and again in three months to assess the persistence of residue removal. HUD Contact: Gene Pinzer, [Eugene.A.Pinzer@hud.gov](mailto:Eugene.A.Pinzer@hud.gov); P.I. - Georg Matt, PhD

### 5.3-Lead Clearance Study

HUD sponsored a study to determine dust-lead levels that HUD lead hazard control programs are typically attaining when units are "cleared" (i.e., dust-tested) following interventions. The Lead Clearance Study, conducted by QuanTech, Inc. is under final review at OLHCHH. For final floor clearance, an estimated 85% were at or below 10 µg/ft<sup>2</sup>. This study supports the feasibility of a possible reduction in the current federal lead hazard standards.

HUD contact: Gene Pinzer, [Eugene.A.Pinzer@hud.gov](mailto:Eugene.A.Pinzer@hud.gov)

### 5.4-Potential HUD Rule on Smoking in Public Housing

HUD is preparing a proposed rule that would prohibit the smoking of combustible tobacco products in federally-supported public housing. We expect the proposed rule to be published this calendar year for a 60-day comment period. HUD contact: Peter Ashley: [Peter.J.Ashley@hud.gov](mailto:Peter.J.Ashley@hud.gov)

## **6-EPA-Environmental Protection Agency**

### **6.1-Health, Energy and Climate: Comprehensive IAQ Protections in Homes and Schools**

EPA is working on several fronts to address IAQ issues in the context of energy efficiency measures and other climate change mitigation and adaption efforts:

- New protocols for single family homes, multifamily homes and schools are now available that provide guidance on how to do energy efficiency upgrades and retrofits while maintaining or improving IAQ.
- We'll be ramping up our marketing and outreach efforts this fall with the aim of embedding this guidance at the national, state and local levels.
- EPA's Indoor airPLUS label promotes healthy IAQ in new homes and is integrated with the Energy Star new homes program. More on that below.
- *Moisture Control Guidance for Building Design, Construction and Maintenance* was released last year. The voluntary guide was developed for professionals who design buildings, erect buildings and operate, repair and maintain buildings.
- EPA has teamed with HUD, FEMA, OSHA and CDC to develop moisture and mold guidance for disaster preparedness and recovery.
- EPA is teamed with DOE and HUD to support research by LBNL on ventilation to support a health based ventilation standard.

### **6.2-Indoor airPLUS**

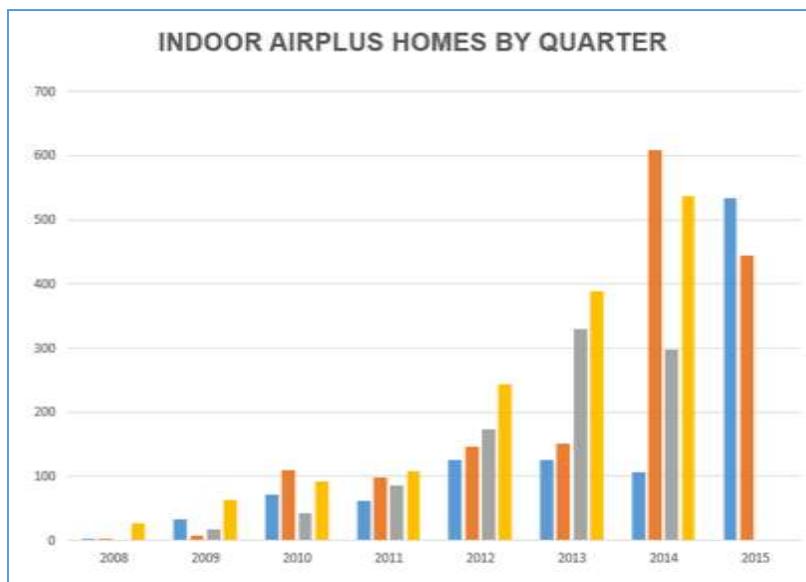
Indoor airPLUS is beginning to gain traction with major production builders interested in taking the next step in differentiating themselves from the competition by offering healthier homes. Four of the top ten production builders are now building Indoor airPLUS homes in some markets.

Indoor airPLUS released a new update to its construction specifications just this past Monday (October 5, 2015). This revision adjusts the specifications to maintain alignment with the recent ENERGY STAR Certified Home Version 3, Rev. 08 program update. The IAP update also includes a new alternative pathway for compliance with IAP water management requirements for "gut" (major) rehabs and the addition of new advisories on multifamily unit compartmentalization pressure testing and use of low-emitting adhesives and sealants.

The program has also developed new resources for builder partners, including a resource to help them find Indoor airPLUS compliant low-emission materials and a sales training kit to help builders convey the value of Indoor airPLUS to prospective home buyers. The program also works closely with DOE's Zero Energy Ready Home program, which now incorporates Indoor airPLUS as a prerequisite, as well as EPA's ENERGY STAR Certified Home and WaterSense programs to communicate the value of adopting these government-backed labels for new homes.

Indoor airPLUS, like other EPA programs, has just migrated its web site to a new system with new web addresses. The new construction specifications and other resources can now be found at:

<http://www2.epa.gov/indoorairplus>



### 6.3-Healthy School Environments

Indoor Air Quality and Energy Efficiency Guidance for Schools. IED continues to take advantage of the growing interest in green buildings and renovation. As school districts begin the process of building new schools or renovating existing schools EPA is making it easier for them to ensure protecting IAQ is part of the process. The Energy Savings Plus Health: Indoor Air Quality Guidelines for School Building Upgrades guidance is designed to help K-12 school districts navigate the construction and renovation process using an integrated approach with indoor air quality, energy efficiency, occupant health and safety protections. 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.

As part of this effort, IED is working with the Maine Indoor Air Quality Council (MIAQC) to implement a pilot study to build the capacity of school energy managers, facility managers and IAQ coordinators on the guidance. During the two-year project, MIAQC and IED will collaborate with five schools to assess the impacts of integrating IAQ protections into building energy upgrades.

Stay tuned for more information on the Maine IAQ Council project and please share this guidance, the Checklist Generator, and other resources linking the benefits of integrating IAQ management with energy efficiency upgrades with your stakeholders. It is available on EPA's website at <http://www2.epa.gov/iaq-schools/iaq-guidelines-school-building-upgrades-energy-savings-plus-health>.

POC: Michele Curreri at [curreri.michele@epa.gov](mailto:curreri.michele@epa.gov)

School IAQ Assessment Mobile App. Last month IED launched a new mobile application to assist schools with conducting comprehensive IAQ assessments based on the resources, recommended actions and checklists from EPA's IAQ Tools for Schools Action Kit, Framework for Effective IAQ Schools Programs and Technical Solutions. So far, the app has been downloaded by more than 600 users.

<http://www2.epa.gov/indoor-air-quality-iaq/federal-interagency-committee-indoor-air-quality>

Many schools and school districts are operating with reduced budgets for facility operation, maintenance and assessment. The intent of this free mobile application is to provide a state of the art resource for schools to track, manage and prioritize their efforts related to school IAQ management. Users will be able to complete IAQ assessment checklists on their smart devices and, when connected to the internet, email completed IAQ checklists to their designated school IAQ coordinator. Check out the website and download the mobile app today on your smart device by visiting <http://www2.epa.gov/iaq-schools/school-iaq-assessment-mobile-app>

POC: Jennifer Lemon at [lemon.jennifer@epa.gov](mailto:lemon.jennifer@epa.gov)

IAQ Master Class Webinar Series. 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. During these tough economic times school districts are looking for ways to provide staff development and technical training opportunities. IED recently completed the 2015 IAQ Master Class Professional Training Webinar Series, 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. Over the past year, over 1400 school district, state and industry representatives, representing over 520 school districts in 48 states, have completed the training.

Anyone can take advantage of this free resource and view the entire IAQ Master Class Professional Webinars series "on demand" at <http://www2.epa.gov/iaq-schools/indoor-air-quality-schools-master-class-webinar-series>. Become a member of the IAQ Master Class by viewing all 10 webinars and gain recognition for your increased knowledge and commitment to action through certificates of completion and CEUs. Share this information with your networks and contacts and encourage them to view the "on demand" IAQ Master Class Professional Webinars. POC: Tracy Enger at [enger.tracy@epa.gov](mailto:enger.tracy@epa.gov)

#### **6.4-Radon Risk Reduction**

EPA continues to push for more action on radon risk reduction.

EPA is part of a team led by the American Lung Association (ALA) and other NGOs and private sector groups to expand the Federal Radon Action Plan beyond the reach of the federal government only. ALA is managing this effort through a cooperative agreement with EPA.

The National Radon Action Plan was released in October.

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 Working with DoD to address radon in their on-base housing
  - o Working with the Dept of Treasury to get radon included under health savings accounts
  - 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
- Pushing for more radon action in state cancer control plans, in collaboration with CDC.
- Refreshing our numbers
  - o updating our risk assessment
  - o a cost/benefit analysis of radon intervention

<http://www2.epa.gov/indoor-air-quality-iaq/federal-interagency-committee-indoor-air-quality>

- getting radon data into CDC's Environmental Health Tracking Network
  - Pushing for code changes
  - Investing in partnerships (KSU, CRCPD, ALA)
- POC: Bill Long at [long.bill@epa.gov](mailto:long.bill@epa.gov)

### **6.5-Reducing Disparities in Asthma Outcomes**

- As most of you know, over the past year, we have taken great strides to support community and state level efforts aimed at ensuring children and their families have access to home and school-based services.
- In particular, EPA has partnered with HUD to support Regional summits that bring together state medicaid, healthy homes and asthma control programs to identify sustainable funding sources for home-based environmental interventions. Summits have been held in Cleveland, Kansas City, Denver, Baltimore, Philadelphia, and most recently, in Los Angeles.
- Each of these Summits has gotten us one step closer to identifying solutions that ensure low income and minority children and their families have continuous access to the care they need. Individualized care that extends beyond the clinical setting and addresses the role of housing in improving health.
- EPA remains committed to providing access to technical assistance, best practices and resources through [www.asthmacommunitynetwork.org](http://www.asthmacommunitynetwork.org). We encourage you to join today, if you are not already a member, and engage with over 3400 stakeholders through this platform as well as to share your expertise.
- We currently host materials from past HUD reimbursement summits along with webinars, podcasts, and many other tools that can help advance work in this area including a database of existing Community Health Worker training and curricula programs, and materials to help programs develop their value proposition when pitching potential funders. POC: Katrin Kral at [kral.katrin@epa.gov](mailto:kral.katrin@epa.gov)

### **C-Presentation** *[see the PPTX attached to these minutes on the CIAQ website]*

Vicki Worden, Executive Director of GBI, will provide an update on how the Green Building Initiative (GBI) has evolved since its launch in 2004, including a review of its product offerings and technical criteria relating to IAQ. Vicki has facilitated development of the technical criteria within Green Globes through its ANSI consensus process. She will discuss this process and provide a broad overview of Green Globes, as well as the proposed changes to the Indoor Environment criteria. ANSI/GBI 01-2010 is the basis of Green Globes for New Construction today.

The proposed revisions she will review are open for public comment until 10/26/15 and will become the compliance criteria for the next version of Green Globes for New Construction. For the comment form and other information visit <http://www.thegbi.org/ansi>.

Background: The Green Building Initiative, provider of Green Globes® and Guiding Principles Compliance (GPC) Certification in the U.S., has diversified its offerings since its launch in 2004. It's Board of Directors is comprised of A/E firms, universities, non-profits, and representatives of major brands such as Whole Foods and Amazon. GBI's user pool is also diverse and includes federal agencies, universities, and a variety of corporate portfolio managers. GBI became an accredited Standard Developing Organization (SDO) through the American National Standards Institute (ANSI) in 2005 and completed its first American National Standard for commercial green building in 2010.

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