



[<http://www.epa.gov/iaq/ciaq/index.html>]

THE NEXT CIAQ MEETING IS WEDNESDAY, OCTOBER 17TH 2007 (1:00-3:30 PM)

~ MEETING MINUTES ~

These minutes include: (A) the final agenda; (B) CIAQ News & Updates; (C) a synopsis of the member Agency updates; (D) presentation summaries; and (E) list of attendees.

(A) AGENDA

[Wednesday, October 17, 2007, 1:00 – 3:30 pm; EPA’s offices, Room 152, 1310 L St., NW, Washington, DC 20005-4113]

[**Teleconference: 1-866-299-3188, access code 3439431#**]

Welcome & CIAQ News-Updates, *Tom Kelly & Phil Jalbert*

Introductions/Roll Call

Updates from CIAQ Member Departments & Agencies

1-NIOSH-National Institutes of Occupational Safety & Health, *Ju-Hyeong Park*

*Respiratory Disease Studies IAQ-IEQ research activities

2-HUD-Housing & Urban Development, *Peter Ashley*

3-USDA-U.S. Department of Agriculture, *Joseph Wysocki*

*Introducing a new educational tool for assessing the indoor environment.

4-GSA-General Services Administration, *David Marciniak*

5-CPSC-Consumer Product Safety Commission), *Joanna Matheson*

*Ozone-generating air cleaners; portable generator safety; defining strong sensitizer

6-NIST-National Institute for Standards & Technology, *Cindy Reed*

7-DOE-Department of Energy, *Terry Logee*

8-EPA-Environmental Protection Agency, *Tom Kelly*

*Asthma; new Guide to Air Cleaners; IAQ Tools for Schools Symposium; EPA National Risk Management Research Laboratory newsletter; etc.

Presentations (see Section D. of these minutes)

NEXT MEETING: Wednesday, **February 13th 2008** (1:00–3:30 pm).

Meeting Directions: Visit the CIAQ website <http://www.epa.gov/iaq/ciaq/index.html>, or contact Philip Jalbert, EPA Indoor Environments Division (IED), Office of Radiation and Indoor Air (ciaq@epa.gov, 202.343.9431). Meetings are usually held in Room 152 of EPA’s offices at 1310 L St., NW, Washington, DC 20005-4113.

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**(B) CIAQ NEWS-UPDATES**, (*Phil Jalbert, CIAQ@epa.gov*)

1. An updated version of the software tool *Healthy Seat* (Version 2) is due out soon; check the website for details <http://www.epa.gov/schools/healthyseat/index.html>. (POC: Bob Axelrad, [axelrad.bob@epa.gov](mailto:axelrad.bob@epa.gov), 202-343-9315)

2. The *NRMRL News* is a monthly summary of research activities, new publications, and upcoming meetings provided by the U.S. Environmental Protection Agency's (EPA) National Risk Management Research Laboratory. Additional information about NRMRL can be found at: <http://www.epa.gov/ORD/NRMRL/>. The Office of Research and Development's newsletter offers information on current research, collaborations and projects that support the Agency's mission to protect human health and safeguard the natural environment.

To be notified of these activities, join the mailing list at <http://www.epa.gov/ORD/htm/RandDserv.htm>. To subscribe, go to [https://lists.epa.gov/read/all\\_forums/subscribe?name=nrml](https://lists.epa.gov/read/all_forums/subscribe?name=nrml). Enter the following information: your e-mail address, your name (optional) and a password (optional). Click Subscribe. A Subscribe requested verification page appears. Click OK. You will receive a verification e-mail from the system. Reply to the verification e-mail. You will then receive a Welcome e-mail with account information; save it for future reference. (POC: Patricia Schultz, [schultz.patricia@epa.gov](mailto:schultz.patricia@epa.gov), 513-569-7966; NRMRL Office of Public Affairs).

**(C) DEPARTMENT & AGENCY UPDATES**

1-NIOSH-National Institutes of Occupational Safety & Health, *Ju-Hyeong Park*

2-HUD-Housing & Urban Development, *Peter Ashley*

3-USDA-U.S. Department of Agriculture, *Joseph Wysocki*

4-GSA-General Services Administration, *David Marciniak*

5-CPSC-Consumer Product Safety Commission), *Joanna Matheson*

6-NIST-National Institute for Standards & Technology, *Cindy Reed*

7-DOE-Department of Energy, *Terry Logee*

8-EPA-Environmental Protection Agency, *Tom Kelly*

**1 - NIOSH, National Institute of Occupational Safety & Health**

(POC: Ju-Hyeong Park, [gzp8@cdc.gov](mailto:gzp8@cdc.gov), 304-285-5967; Jean Cox-Ganser, [jjc8@cdc.gov](mailto:jjc8@cdc.gov); Division of Respiratory Disease Studies, Field Studies Branch).

**1.1 - Major research activities.**

1.1.1 - During the last week of June, the National Institute for Occupational Safety and Health's (NIOSH) Division of Respiratory Disease Studies (DRDS) conducted an environmental survey at the Vermont State office building in Bennington (N=136). The office building, with a history of and current water damage, had a cluster of physician-diagnosed sarcoidosis cases. Sarcoidosis is a granulomatous disease of unknown etiology.

We collected floor dust samples to examine the levels of microbial agents in dust and to compare the profile of fungal species and other microbes, such as Actinomycetes, bacteria, and mycobacteria, to those found in condensate drainage system for heat pumps. We had found that the heat pump systems might be a potential microbial reservoir and source of bioaerosol exposure in occupants. We are currently receiving the results of various analyses from laboratories.

1.1.2 - In the last week of August 2007, NIOSH/DRDS conducted a cross-sectional survey as a part of a follow-up investigation of a large Connecticut office building (N~1,300) with a long history of water damage. NIOSH had conducted surveys in 2001-2, 2004, and 2005, as well. The survey included a web-based health questionnaire survey and an environmental survey. In our 2001 and 2002 surveys, we found that the prevalence of lower respiratory symptoms were 2-3 times higher than those in national data (NHANES and BASE).

The incidence rate of adult-onset asthma after building occupancy was 7.5 times higher than before occupancy. The respiratory and other symptoms, and physician-diagnosed post-occupancy asthma were significantly associated with exposure to fungi and endotoxin. The associations of health symptoms with exposure to culturable fungi were mostly explained by water-loving (hydrophilic) fungi. Even though the building had gone through extensive remediation in 2002 and 2003, the burden of illnesses was not lessened. This year's study is a final one at the building to evaluate changes of occupants' health status and the levels of environmental microbial agents. Currently we are working on the questionnaire dataset and analyzing various microbial agents in floor dust samples such as culturable fungi, culturable bacteria, endotoxin, glucan, ergosterol, 3-hydroxy fatty acid, and allergens. A manuscript including some of the recently found results above was accepted and published online in Environmental Health Perspectives on October 9, 2007.

## **1.2 - Other activities.**

1.2.1 We are currently developing an indoor environmental quality website as a response to the exceedingly high numbers of incoming hazard evaluation requests we receive concerning IEQ issues. Our goal is to develop a tool to both educate and give practical guidance for employees and management based on current research. At this time, we are only in the initial phase of collecting and reviewing content.

1.2.2 - We also working on preparing "NIOSH Alert: Preventing Lung Disease from Damp Indoor Environments." This Alert will provide the most recent scientific information on the relationships between exposures to damp indoor environments and respiratory symptoms, rhinitis/sinusitis, asthma, and hypersensitivity pneumonitis. It will present in a current, concise, and compelling manner (1) scientific information from NIOSH research and research of others concerning health effects attributed to exposures to damp indoor environments, (2) case clusters of asthma and cases of hypersensitivity pneumonitis, and (3) recommendations on how to respond to damp indoor environments.

1.2.3 - NIOSH issued a final report for Schreiner Label Tech (HETA 2006-0343-3045) in August 2007.

## **2 - HUD, Office of Healthy Homes and Lead Hazard Control**

**2.1 - Fiscal Year 2007 Healthy Homes Grant Awards.** The OHHLHC announced its Fiscal Year 2007 grant awards on September 13, 2007. Abstracts for all of the awards (arranged by state) can be found on the web at: <http://www.hud.gov/utilities/intercept.cfm?/news/releases/projectsummaries07.pdf>

The following are abstracts for grants awarded under HUD's Healthy Homes (HH) Technical Studies and Demonstration Grant Programs. The overall purpose of the Technical Studies program is to improve and develop cost effective methods to assess and control residential health and safety hazards in high risk housing. The major purpose of the Demonstration program is to develop, demonstrate, and promote cost-effective, preventive measures to correct multiple residential safety and health hazards with a particular focus on protecting young children living in low income households.

**2.1.1 - Healthy Homes Technical Studies Grants (~ \$2M)**  
(POC: Peter Ashley, peter.j.ashley@hud.gov, 202-402-7595)

2.1.1.1 - The **University of Cincinnati** will be awarded up to \$785,148 in Healthy Homes Technical Studies funds to conduct a study to identify a method that is most predictive for the adverse health effects caused by residential mold exposure, especially the development of asthma and allergic rhinitis. The

study will test two newly developed concepts for the evaluation of moldy buildings: 1) the Relative Moldiness Index (RMI) based on data analyzed by the Mold Specific Quantitative Polymerase Chain Reaction (MQPCR) assay, and 2) the fungal fragment sampling (in combination of two newly-developed assay methods). These methods will be tested in a population-based study using the existing birth cohort of the NIEHS-funded Cincinnati Childhood Allergy and Air Pollution Study.

**POC:** Tiina Reponen, PhD, Principal Investigator, (513)-558-0571, or REPONETA@ucmail.uc.edu

2.1.1.2 - The **Boston Medical Center** will be awarded up to \$855,655 under the Healthy Homes Technical Studies program to investigate three leading allergen sampling methods to determine which one(s) correlate best with asthma clinical status, in order to provide field evidence needed for method standardization. The Center would accomplish this by conducting robust standardized clinical assessments of 200 children with asthma, together with side-by-side allergen sampling in their homes, using three dust collection methods and two metrics (allergen surface loading and concentration in dust). The National Center for Healthy Housing is the major sub grantee in this proposal. Contact: Megan Sandel, M.D, Principal Investigator; Megan.Sandel@bmc.org.

2.1.1.3 - **Case Western Reserve University** will be awarded up to \$359,197 in Healthy Homes Technical Studies funds to continue the previous studies performed under the HUD-funded Urban Moisture and Mold Program (UMMP; awarded to Cuyahoga County). The goal is to obtain longitudinal data on both the participants and on the homes that were remediated as part of the original grant in order to ascertain the sustainability of both the health and housing improvements. In addition the University proposes to analyze archived serum and house dust samples for the mold *Stachybotrys chartarum* and related mycotoxins, and analyze these data in the context of the clinical symptom profiles previously gathered on the study participants. Contact: Dorr Dearborn, M.D., PhD; Principal Investigator; Dorr.dearborn@case.edu.

### **2.1.2 - Healthy Homes Demonstration Grants (~ \$5M)**

**(POC:** Emily Williams, 336.547.4002, x2067)

2.1.2.1 - The **American Lung Association of the Upper Midwest** will be awarded up to \$999,769 in Healthy Homes Demonstration grant funds to identify 125 homes, enroll 58 homes, assess and conduct remediation in 50 homes on 3 tribal reservations in Minnesota. Project staff will train tribal housing members to test and carry out the remediation. Project staff will assess units for indoor air quality, mold and allergens using active and passive mold sampling, air sampling, infrared meters, moisture meters and biological testing for allergens. As a part of the training, the development of work specifications will evolve over the life of the project gradually transferring from American Lung Association of Minnesota Health House staff to tribal housing staff. Contact: Mr. Dan Johnston, Director, ALA Health House, (651) 268-7614.

2.1.2.2 - **Children's Mercy Hospital** will be awarded up to \$987,918 in Healthy Homes Demonstration grant funds to support the Kansas City Safe and Healthy Homes Partnership (KCSHHP) to reduce environmental contaminants and allergens in 300 homes of families with chronically ill children. In addition, KCSHHP will increase the knowledge of safe and healthy home issues for the 300 participating families in Kansas City; and will demonstrate the effectiveness of low-cost remediation in the improvement of the health of 300 children. The KCSHHP will also increase the capacity to address healthy homes issues by training and certifying 200 individuals as "Healthy Homes Specialists," by increasing the knowledge of 130 healthcare professionals regarding

environmental health and asthma, and by providing healthy homes education programs to the general public. Contact: Ms. Anna L. Roberts, Grants Specialist, (816) 234-3977.

2.1.2.3 - The **City of San Diego** will be awarded up to \$999,913 under the Healthy Homes Demonstration program to enroll 225 families with a child under the age of six or pregnant women (owner-occupied or rental units with low-or very low-income families) in 83 high-risk census tracts in the City of San Diego, CA. The project team will evaluate health and safety hazards in the homes using an environmental checklist and visual assessment. After the evaluation, they will develop a remediation plan and collect baseline health data. Remediation costs will range from \$250-\$5,000 per unit and may include minor to substantial repairs, carpet replacement, specialized cleaning, Integrated Pest Management treatments, and mold abatement and as well as the provision of cleaning kits, allergy mattress/pillow covers and injury prevention supplies. Contact: Mr. Alan Johanns, (858) 573-1262.

2.1.2.4 - The **Coalition to End Childhood Lead Poisoning** will be awarded up to \$1,000,000 under the Healthy Homes Demonstration program to assist 100 families in East and West Baltimore, Maryland by conducting healthy homes interventions to reduce dust-borne and other allergens in these units. The healthy homes interventions will include Integrated Pest Management, healthy homes maintenance kits, HEPA vacuums and indoor allergen testing. Fifty units will receive basic healthy homes safety maintenance kit installation and in-home education. In addition, the applicant proposes to reduce asthma episodes in at least 100 asthma-diagnosed children living in those units. Project activities include providing 100 intensive healthy home hazard reduction interventions, including environmental assessments, indoor allergen reduction, moisture control, mold cleaning and in-home health education. Healthy Homes outreach and training activities are expected to reach approximately 5,000 residents, healthy care providers, property owners and contractors. Contact: Ms. Ruth Ann Norton, Executive Director, (410) 534-6447.

2.1.2.5 - The **National Center for Healthy Housing** will be awarded up to \$999,374 under the Healthy Homes Demonstration program to recruit families in 113 units in Southeast Washington, DC and enroll the units for green rehabilitation using healthy homes principles. Of the 113 units enrolled, up to 50 will be enrolled for health outcome screening; 25 units will be selected for random dust sampling; 50 families will receive HH education through door-to-door outreach; and 30 individuals (maintenance workers, contractors, architects and property management staff) will be trained in healthy homes principles. After one year, the 50 units enrolled for health outcome screening will have follow-up housing and health assessments and allergen sampling. Contact: Ms. Jill Breysse, (443) 539-4155.

## **2.2 - American Healthy Homes Survey (AHHS) (Joint HUD/EPA project)**

The AHHS, a follow-up to the National Survey of Lead and Allergens in Housing (NSLAH) conducted from 1997 through 2000, is aimed at monitoring the change in level of health hazards in homes over time and in refining its understanding of certain patterns identified in the NSLAH. Of particular interest are lead-based paint hazards, arsenic in dust and soil, allergens, endotoxin and fungi in dust, and pesticide residues. Data collection was completed in early Spring of 2006. A total of 1134 dwelling units, a representative sample of U.S. housing, were recruited and sampled. The EPA has completed analysis of vacuum dust samples for mold using quantitative polymerase chain reaction (PCR) methods and an “environmental relative moldiness index (ERMI)” value was derived for each sample based on concentrations of 39 mold species. A paper with these results has been published (J Occup Environ Med. 2007;49:829-833). A final report on lead based paint hazards and arsenic in dust and soil is scheduled for May, 2008. EPA has preliminary pesticide results for 490 homes.

Contacts: Eugene Pinzer, HUD/OHHLHC: 202.402.7685 (lead/general questions)  
Dr. Peter Ashley, HUD/OHHLHC: 202.402.7595 (lead/general questions)  
Dr. Steve Vesper, EPA/ORD: 513.569.7367 (mold PCR analysis/ERMI index)  
Dr. Karen Bradham, EPA/ORD: 919.541.9414 (pesticides, arsenic)

### **2.3 - National Healthy Homes Conference**

(POC: Paul Diegelman, Paul.Diegelman@hud.gov, 216.522.4058 ext7232)

HUD OHHLHC is planning a national healthy homes conference with its federal partners for September, 2008 in Baltimore, MD. Sessions will cover a wide range of topics related to the identification and control of residential environmental health and safety hazards, with a focus on high risk housing.

### **3 - USDA, U.S. Department of Agriculture**

(POC: Joseph Wysocki, jwysocki@csrees.usda.gov, 202-401-4980)

**3.1 - Healthy Homes.** The publication *Help Yourself to a Healthy Home* (56 pages) is now available in Bosnian, Hmong and Vietnamese in addition to English and Spanish. This consumer-oriented self-help publication covers the following topics: IAQ, Asthma and Allergies, Mold and Moisture, Carbon Monoxide, Lead, Drinking Water, Hazardous Household Products, Pesticides and Home Safety. Translations are also underway in Arabic, Korean and a version for Native Americans. For information about copies, visit [www.healthyhomespartnership.net](http://www.healthyhomespartnership.net), the Healthy Homes website or contact Laura Booth (334-844-5638; boothlb@auburn.edu) at Auburn University. This publication is a partnership between USDA/CSREES and USHUD.

**3.2 - Healthy Homes DVD.** A 24-minute DVD *Healthy Homes: Assessing Your Indoor Environment* and a *User's Guide* to the DVD are available in English and Spanish. The DVD focuses on a rental home and an elderly person's home and the improvements that can be made to create safer and healthier living environments. Copies of the 90 page user's guide and DVD are available from Dr. Joseph Laquatra (jl27@cornell.edu), Cornell University.

### **4 - GSA, General Services Administration**

(POC: David Marciniak, david.marciniak@gsa.gov, 202-538-9029)

(Note: David S. Marciniak, PE, CSP, is the Health and Safety Manager, Public Buildings Service)

**4.1 - ASHRAE.** The US General Services Administration was a Gold Level sponsor of ASHRAE's IAQ 2007 "Healthy and Sustainable Buildings" conference held October 14-17 in Baltimore MD. Representatives from GSA's headquarters offices of environmental health, sustainability, applied research and engineering participated in the conference. In this partnership GSA strives to provide feedback in the way of lessons learned and best practices derived from our design, construction and operational experience. In return, GSA obtains valuable insight on emerging technologies for potential application to our building portfolio. GSA supports the following ASHRAE Technical Committees and Resource Groups:

SPC-188 Legionella  
SPC-189 Sustainability  
SPC-185 UVGI Test Methods  
TC2.9 UVGI  
TRG7 UFAD  
ASHRAE IAQ Design Guide

**4.2 - GSA Schedule/IAQ Services.** GSA intends to develop a standardized approach to IAQ surveys and investigations using an IAQ consultant. Since the initial contract was small (<\$100K) and difficult to define (investigative) - GSA decided to solicit based on best value, IDIQ. The 899 Schedule (environmental) was utilized to find qualified contractors and labor rates.

**4.3 - Applied Research.** GSA has adapted the University of California at Berkeley web-based indoor environmental quality survey and piloted a 200+ building survey. The intent of the project is to evaluate whether the system is a more robust and cost effective substitute for the paper-based International Facility Management Association (IFMA) survey administered by Gallup. In addition, the web-based system can provide near real time satisfaction diagnostics for GSA building managers. A production system would support GSA's commitment to providing superior workplaces by incorporating occupant feedback in both the design and operation of federal workplaces. The principal laboratory is the University of California at Berkeley. The project is near completion.

GSA is developing a process to perform on-site physical measurement of acoustic, air quality, lighting and thermal conditions in accordance with published standards. The intent of this project is to obtain snapshots of the current workplace environment in federal buildings and provide recommendations for workplace improvement to achieve increased federal employee satisfaction and retention. The principal laboratory is Carnegie-Mellon University. Expected completion date is March 2008.

In addition to the above mentioned portfolio-wide survey tools GSA has embarked on several building-specific post-occupancy evaluations (POEs). A primary purpose of the POE effort is to evaluate occupant satisfaction (including IAQ) in LEED and other buildings employing energy-saving and sustainable technologies.

GSA continues to investigate IAQ HVAC technologies such as under-floor air distribution (UFAD) systems. UFAD has the potential to provide improved IAQ through room air stratification and increased ventilation effectiveness. The use of UFAD is dependent on costs and GSA is developing modeling software to compare the cost of UFAD systems to conventional air distribution systems on a first cost and life-cycle cost basis. The principal laboratory is the University of California at Berkeley. The project is near completion.

GSA has encountered air leakage, thermal gain and plenum contamination with several UFAD projects. For this reason GSA will only consider ducted UFAD systems until these design and installation issues are resolved. GSA is a voting member of ASHRAE's TRG7 - the group charged with re-writing ASHRAE's UFAD design guide.

**5 - CPSC, Consumer Product Safety Commission.**  
(POC: Joanna Matheson, jmatheson@cpsc.gov, 301.504.7043)

**5.1 - Ozone-generating Air Cleaners.** CPSC staff is currently reviewing the public comments received on the contractor and staff reports. The comments received focused on the health effects of ozone and modeling. (POC Treye Thomas, 301.504.7738).

**5.2 - Defining 'strong sensitizer'.** The draft technical report is undergoing external peer review which should be completed by the end of the year. A staff report will be presented to the commission by early 2008 (POC Joanna Matheson, 301.504.7043).

**5.3 - Portable generator safety.** Staff's goal is to develop performance-based requirements to protect consumers from CO poisoning that can result in death or in serious and/or lasting adverse health effects if a generator is inadvertently operated in an improper location. We feel the most effective way to minimize the CO hazard is to limit the amount of CO produced. We are determining if existing technologies can be applied to reduce a

generator engine's CO emission rate. We awarded a contract to University of Alabama in September 2006 to demonstrate technical feasibility of a low-CO emission generator with a target of 92% reduction in the CO emission rate. This work is on-going through FY08:

- Prototype is based on modification of a standard 5 kW generator
- UA currently integrating catalyst, engine control unit into prototype

In order to predict the health effects and survivability when a generator is improperly operated, we will do the following in FY08 and FY09:

- Chamber testing (done by CPSC in one of our environmental chambers) to determine the engine's CO generation rate and oxygen consumption rate at reduced ambient oxygen levels. These rates are used as inputs to an indoor air quality (IAQ) model.
- Field testing (done by NIST in two test facilities, one of which is a one-room "shed" and the other is a garage attached to a "test house") to verify, where possible, the chamber-derived CO generation rate and O<sub>2</sub> consumption rate as well as validate CONTAM's modeling results by comparing with measured data.
- IAQ modeling (done by NIST using CONTAM) to predict CO infiltration throughout a house in which a generator is improperly operated. CO time course profiles for each room are used in health effects model.
- Health effects modeling (done by CPSC) to estimate health consequences to persons located in different rooms of the house exposed to CO time course profiles throughout the entire period of generator operation. (POC Janet Buyer, 301.504.7542).

## **6 - NIST, National Institute of Standards & Technology**

(POC: Andy Persily, [andyp@nist.gov](mailto:andyp@nist.gov), 301-975-6418; Cindy Reed, [chreed@nist.gov](mailto:chreed@nist.gov), 301-975-8423)

**6.1 - Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Time Course Carbon Monoxide Profiles:** NIST is conducting a project for CPSC to examine the potential levels of CO emitted by portable generators and the distribution of CO within residences if they are operated in attached garages. This effort includes both measurements in a test shed and an attached garage at the NIST IAQ test house and CONTAM simulations of a variety of building, generator operation and ambient conditions. Test shed measurements are currently underway and measurements in the attached garage will follow.

### **6.2 - Measurement of Ultrafine Particles Generated by Indoor Combustion and Electric Appliances:**

Several studies have reported the concentration of ultrafine particles indoors due to sources such as combustion and electric appliances. These previous studies, however, have only measured ultrafine concentrations for particles as small as 10 nm. The advancement of particle measurement technology now makes it possible to measure particles as small as 2 nm.

As a result, NIST is conducting a study to measure the source strengths of several indoor combustion and electric appliances to include counts of particles from 2 nm to 64 nm. Experiments are being conducted in NIST's test house that is equipped to semi-continuously measure air change rates, carbon monoxide levels, gas/electricity usage, environmental conditions (e.g., indoor/outdoor pressure differences, temperature, relative humidity, etc.), and local weather conditions. Ultrafine particles are being measured in multiple locations every 2.5 min to 5 min with a scanning mobility particle sizer equipped with a nano-differential mobility analyzer.

Ultrafine particle sources studied to date include a gas stove, electric stove, hair dryer, electric toaster, electric mixer and electric heater. Size distributions are measured in two rooms, a source room (kitchen) and a receptor room (master bedroom). Preliminary results for the gas stove show the peak concentration occurring at a particle size of approximately 5 nm to 8 nm and total concentrations to be about 10 times greater than reported in previous studies of particles greater than 10 nm. These results suggest that ultrafine number concentrations previously

reported for combustion appliances, and perhaps electric appliances, may be significantly underestimated.

**ASHRAE STANDARD 62, Environmental Health Committee AND RELATED ISSUES:**

SSPC 62.2 continues to work on potential addenda addressing various issues including requirements for low-rise multifamily residential buildings, transport of contaminants from garages to living spaces, and changes to the infiltration credit. The draft companion guideline to Standard 62.2 is now available for public review at [www.ashrae.org](http://www.ashrae.org). The committee voted to submit new change proposals to incorporate portions of the Standard into the International Residential Code.

The ASHRAE Environmental Health Committee is continuing work on two position documents for ASHRAE. The first is on airborne infectious diseases and the second is on unvented combustion appliances. The Committee is also starting the revision process for ASHRAE's IAQ position document.

The committee has completed and approved 1-page summary documents on several emerging environmental health issues including:

- Biological Agents in Context of Globalization and Pandemic Influenza and Airborne Transmission
- Emerging Technologies without Clinical Evidence of Efficacy (air cleaners and ionizers)
- Increasing Litigation for Legionellosis Cases Associated with Buildings
- Dynamic Building Pressurization Control
- Energy Efficient Humidity Control in Hot-Humid Climates
- Plasticizers

For 2007-2008, EHC has begun work on a new emerging issue brief titled "Unintended Consequences of Efforts to Achieve Sustainability on Indoor Environments and Health". For more information on the emerging issue briefs or other EHC topics, contact Steven Emmerich at 301 975-6459, [steven.emmerich@nist.gov](mailto:steven.emmerich@nist.gov).

ASHRAE's IAQ 2007 conference was held earlier this week in Baltimore, with a conference theme for Healthy and Sustainable Buildings. Over 300 people registered for the meeting and there were about 40 technical papers and 5 workshops covering topics such as material emissions, natural ventilation and lessons learned from the EPA BASE study. A post-conference CD will be available with the final papers and other material from the conference.

ASHRAE is continuing to work on an Advanced IAQ Design Guide under a cooperative agreement with EPA. This effort is being pursued as a joint effort with AIA, BOMA, SMACNA and USGBC. The goal of the document is to provide guidance on best practices for achieving good IAQ in commercial and institutional buildings. For more information, contact Andy Persily, who is chairing the steering committee overseeing this effort, at 301 975-6418, [andyp@nist.gov](mailto:andyp@nist.gov).

**7 – DOE, Department of Energy**

(POC: Terry Logee, [terry.logee@ee.doe.gov](mailto:terry.logee@ee.doe.gov), 202-586-1689).

**7.1 - UVPCO Project:** The project has moved into the field testing phase with the field test to take place at the Pratt & Whitney Rocketdyne facility in Los Angeles. The UVPCO unit with a downstream chemisorbent filter will be tested for one year providing air cleaning for one floor of the building. Concurrently with the full scale field test, Lawrence Berkeley National Laboratory will test some small scale units for chemisorbent and photocatalyst life. Hodgson, A.T.; Destailats, H.; Hotchi, T.; Fisk, W.J. "Evaluation of a Combined Ultraviolet Photocatalytic Oxidation (UVPCO) / Chemisorbent Air Cleaner for Indoor Air Applications." 2007. LBNL-62203.

**7.2 - Lawrence Berkeley National Laboratory.** LBNL just published a paper at the AIVC meeting in Europe on ventilation air distribution. This was a formal treatment of the proposal to the ASHRAE 62.2 committee that identified several draft coefficients to characterize the effects of ventilation distribution based on the type of system used. A fully ducted ventilation air supply and exhaust system would get a coefficient of one. Exhaust only ventilation would get a much higher coefficient based on preliminary measurements using a multi-zone tracer gas approach.

Sherman, M.H.; Walker, I.S. "Air distribution effectiveness for different mechanical ventilation systems." 28th AIVC Conference, INIVE, Brussels, Belgium. . 2007. LBNL-62700.

**7.3 – NCEMBT.** During FY '07, the National Center for Energy Management and Buildings Technology completed several reports.

Brian J. Landsberger, L. Tan, D. Novosel. 2007. *National Center For Energy Management And Building Technologies Task 3: Comparing VAV Duct Designs – Final Report.* Report NCEMBT-070315. Alexandria, Virginia: National Center for Energy Management and Building Technologies.

Sweetser, R., D. Novosel. 2007. *National Center for Energy Management And Building Technologies Task 05-14: Market Transformation Of The Built Environment Interactive Seminar Results – Final Report.* NCEMBT-070525. Alexandria, Virginia: National Center for Energy Management and Building Technologies.

Hsieh, S., Kwan, K., Stetzenbach, L.D., and Novosel, D., *Construction of a Knowledge-based Management System for Organizing Energy Management and Indoor Environmental Quality (IEQ) Related Data.* Information Resource Management Association (IRMA) Meeting, Vancouver, British Columbia, Canada, May 19-23, 2007.

## **8 - EPA, Environmental Protection Agency**

**8.1 - Asthma.** EPA is building a nationwide network of community-based asthma programs, with the aim of accelerating progress in asthma care. Launched in May 2006, and now including over 200 programs and the organizations and individuals that support them, the Network aims to foster learning and action to improve health outcomes for asthma. Best practices and key drivers of success, derived from the landmark Asthma Health Outcomes Project, are brought to life through the profiles of successful programs. The Network also includes learning and sharing opportunities such as on-line seminars, messages boards, a mentor program, and awards and recognition ([www.asthmacommunitynetwork.org](http://www.asthmacommunitynetwork.org)).

(POC: Alisa Smith, [Smith.Alisa@epa.gov](mailto:Smith.Alisa@epa.gov) 202-343-9372)

**8.2 - Secondhand Smoke.** U.S. Surgeon General Media Event on Children and Secondhand Smoke: On September 18, Acting U.S. Surgeon General Kenneth P. Moritsugu held a press event to highlight the release of Children and Secondhand Smoke Exposure, an excerpt from the 2006 Surgeon General's Report on health risks to children. ORIA Office Director Elizabeth Cotsworth, HHS Acting Assistant Secretary Daniel Schneider, and American Academy of Pediatrics President Jay Berkelhamer were speakers during the event in the Edward C. Mazique Head Start Center in Washington DC.

(POC: Alison Freeman, [freeman.alison@epa.gov](mailto:freeman.alison@epa.gov), 202-343-9455)

**8.3 - Air Cleaners.** *Guide to Air Cleaners in the Home* (EPA 402-F-07-018, October 2007; [www.epa.gov/iaq/aircleaners.html](http://www.epa.gov/iaq/aircleaners.html)).

This brochure is written in easy-to-understand language for the general consumer interested in the technical differences among the various air cleaners available. The brochure provides types of indoor air pollutants and air cleaning devices; performance of air cleaning devices in removing



indoor air pollutants; general information on the health effects of indoor air pollutants; and additional factors to consider when deciding whether to use an air cleaning device. This brochure replaces *Residential Air Cleaners - Indoor Air Facts No. 7* (EPA 20A-4001, February 1990).

(POC: Christopher Patkowski, patkowski.christopher@epa.gov, 202-343-9016)

**[Related Action by California on Regulation of Air Cleaners.** The California Air Resources Board (ARB) voted unanimously September 27th to impose a 0.050 ppm ozone emission concentration limit for air cleaners sold in California. The regulation should become final in about April 2008. Manufacturers will have 24 months to have their air cleaners tested by a Nationally Recognized Testing Laboratory and then certified by the ARB. So, 24 months from the effective date, there cannot be any non-compliant air cleaners sold in California. There are a few exemptions (such as for in-duct air cleaners). See the ARB regulation webpage (<http://www.arb.ca.gov/research/indoor/aircleaners/aircleaners.htm>) for details. This notice submitted by Peggy Jenkins (mjenkins@arb.ca.gov; October 4, 2007). ]

**8.4 - Partnership for a Clean Indoor Air (PCIA).** EPA sponsored two regional workshops "*Measuring Change: Indoor Air Pollution and Household Energy Monitoring*" to build the capacity of more than 70 household energy and health experts to monitor the health, socioeconomic, and environmental impact of their improved cookstove programs. During interactive and hands-on sessions, participants learned how to select study design, calculate sample size, administer socioeconomic impact surveys, and collect and analyze carbon monoxide and particulate matter samples. At the Asia regional workshop in Hanoi, Vietnam August 7 to 11, 2007, twenty-three organizations from ten Asian countries developed and presented monitoring plans. The Africa regional workshop will be held in Pretoria, South Africa on October 29 to November 2, 2007.

(POC: Brenda Doroski, doroski.brenda@epa.gov, 202-343-9764)

**8.5 - Tools for Schools - 8<sup>th</sup> Annual Indoor Air Quality Tools for Schools National Symposium.** The *IAQ Tools for Schools* National Symposium will be held in Washington, DC on December 6-8, 2007. Over 500 participants representing school districts from across the nation are expected to attend. Participants will network and learn from their peers about the importance of IAQ in schools and the simple, low-cost measures they can take to implement proactive IAQ management plans. The Symposium will also honor school districts for their achievements and innovative approaches to integrating IAQ issues into their curriculum and institutionalizing comprehensive IAQ management programs.

(POC: Jennifer Lemon, lemon.jennifer@epa.gov, 202-343-9608)

If you work with school districts, please encourage them to attend the Symposium. Space is limited. Register on-line at [www.iaqsymposium.com](http://www.iaqsymposium.com).

Additional Information:

- Registration fee: \$330/person
- Hotel: Grand Hyatt Hotel at Metro Center  
1000 H Street, NW  
Washington, DC 20001
- Government Per Diem Rate: \$179 + tax/single room; \$204 + tax/double room - available until November 21<sup>st</sup> 2007)

**8.6 - Energy Star with Indoor Air Package.** EEBA Conference Presentation on EPA Indoor Air Package program. The EPA Indoor Air Package (IAP) program training module for new homes was offered at the Energy and Environmental Building Association (EEBA) annual conference on October 9-11 in St. Paul Minnesota. David Price reviewed and presented the pilot training module on indoor air quality (IAQ) and "green" homebuilding. The purpose was to help recruit builders to the program and have them qualify for the IAQ label as part of an ORIA cooperative agreement with EEBA.

(POC: David Price, price.david@epa.gov, 202-343-9447)

**8.7 - ELI State Indoor Air Quality Workshop.** The Environmental Law Institute (ELI), in cooperation with the ORIA Indoor Environments Division, sponsored the seventh ELI State Indoor Air Quality (IAQ) Workshop on October 12-13 in Washington DC. ORIA Office Director Elizabeth Cotsworth and Indoor Environments Division staff joined with officials representing state, local, and tribal IAQ programs. They discussed issues which reflect common priorities and increased knowledge to advance policies consistent with EPA's program and best practices. (POC: Mike Holloway, holloway.mike@epa.gov, 202-343-9426).

8.8 - Radon. IED launched the "Radon Leaders Saving Lives" campaign at the 17<sup>th</sup> National Radon Conference, Jacksonville, FL. The campaign's goal is over the next 5 years to double the lives we've saved over the past 20 years. This goal was shared by EPA, the Conference of State Radiation Control Program Directors (CRCPD), and the American Association of Radon Scientists and Technologists (AARST). (POC: Bill Long, long.bill@epa.gov, 202-343-9733).

### **(D) PRESENTATION SUMMARIES**

**Presentation 1. Photo Catalytic Oxidation (PCO).** Genesis Air/Government Scientific discussed the potential that Photo Catalytic Oxidation (PCO) as an emerging technology in the HVAC industry has to significantly improve indoor air quality. PCO also has the potential to limit the intake of outdoor air with a significant energy savings over classical designs. This new layered GAPTM PCO (Patents Pending) methodology uses cost-effective, non-ozone producing UVC Germicidal Irradiation, in combination with titanium dioxide coated mesh, to aggressively oxidize and reduce all carbon-based VOC's, airborne mold, bacteria, viruses, and hydrocarbons found in indoor environments. Layered PCO methodology is categorized in ANSI/ASHRAE Standard 62.1 as an IAQ procedure, which allows the design professional the opportunity to chose an alternative to the prescriptive Ventilation Rate Procedure method. GAPTM technology can be used as a stand alone system or incorporated into existing or new HVAC systems. The presentation is available at [http://www.govsci.com/promotions/gap/Genesis\\_Air.ppt](http://www.govsci.com/promotions/gap/Genesis_Air.ppt). (POC: Dan Briggs, dbriggs@genesissair.com, 806-745-7000).

**Presentation 2. ASD Moisture Reduction.** Brad Turk of Environmental Building Sciences and the Southern Regional Radon Training Center (Auburn University) presented findings from an exploratory study on the impact of active soil depressurization (ASD) on moisture levels in basements. ASD systems are commonly installed to control indoor radon levels. The field study, conducted in three Pennsylvania homes, found that the systems caused significant seasonal reductions in basement moisture and changed air flow patterns within the houses. Topics on the conceptual modeling, technical approach, and analysis of data were discussed. (POC: Brad Turk, TurkEBSI@aol.com, Environmental Building Sciences Inc.).

### **(E) LIST OF ATTENDEES** (only meeting room participants that signed in).

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