



[<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; (E) list of attachments; and (F) list of attendees. In addition to the Agency updates reported at the meeting, these minutes include items submitted outside the meeting from the Tennessee Valley Authority (TVA) on a UVGI project, and the Veteran's Health Administration (VHA), Department of Veteran's Affairs (VA); see items 11 and 12 in Section (C), respectively.

(A) AGENDA

[Wednesday, June 6, 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, *Phil Jalbert - Anna Duncan*

* New members and agency POCs (NSA, FOH, NIOSH, OSHA)

* Federal Acquisition of IAQ-IEQ Services; Website upgrade

* Guests: Camfil Farr, Govt. Scientific Source/Genesis Air, Pure Air Control Svcs., Greenguard, NCEMBT.

Introductions/Roll Call

Updates from CIAQ Member Departments & Agencies

1-**GAO Mold Team**, *Ben Howe*, (Boston, [see GAO Note below](#))

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

ASHRAE 62, Building for Environment & Economic Sustainability (BEES, 4.0v)

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

3.1-Ozone-generating air cleaners, 'Sensitizers', portable generator safety

4-**DOE**-Department of Energy, the NCEMBT presentation (#2) by *Davor Novosel*

5-**HUD**-Housing & Urban Development, *Emily Williams - Peter Ashley*

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

6.1-Update on UVGI in-duct efficacy; National IEQ services contract

7-**NIOSH**-National Institutes of Occupational Safety & Health, *Jean Cox-Ganser*

7.1-Update on Respiratory Disease Studies IAQ-IEQ activities

8-**OSHA**-Occupational Safety & Health Administration, *Jason Einertson - Deborah Crawford*

9-**DOI**-Department of the Interior, *Ian Rosenblum*

10-**EPA**-Environmental Protection Agency

10.1-Office of Research & Development, *Bob Thompson*

10.2-Indoor Environments Division, *Anna Duncan*

NOTE: Today EPA's IED released a contractor report on *Criteria for Evaluating Programs that Assess Materials/Products to Determine Impacts on Indoor Air Quality*. For details see Section (D) item 10-2.8 or visit http://www.epa.gov/iaq/pdfs/tichenor_report.pdf.

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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**Presentations** (see Section C. of these minutes)

**(B) CIAQ NEWS-UPDATES**, (Phil Jalbert, [CIAQ@epa.gov](mailto:CIAQ@epa.gov))

**1 - Several new agencies participated in the meeting, or updated their designated POCs:**

1.1 - NSA, National Security Agency;

Paul K. Buckmaster, 443-479-0625, [pkbuckm@nsa.gov](mailto:pkbuckm@nsa.gov)

Technical Leader, Occupational Health, Environmental & Safety Services

1.2 - FOH, Federal Occupational Health; updated POC

Lt. Robert Gibbs, [RGibbs@psc.gov](mailto:RGibbs@psc.gov)

1.3 - NIOSH, National Institute of Health & Safety, updated POC

Ju-Hyeong Park, ScD, MPH, CIH (304-285-5967, [gzp8@cdc.gov](mailto:gzp8@cdc.gov))

Division of Respiratory Disease Studies, Field Studies Branch (FSB)

1095 Willowdale Road, Morgantown, WV 26505

1.4 - OSHA, Occupational Safety & Health Administration; updated POCs

Deborah Crawford, OSHA (Labor), [Crawford.deborah@dol.gov](mailto:Crawford.deborah@dol.gov), 202-693-1932

Jason Einertson, OSHA (Labor), [Einertson.jason@dol.gov](mailto:Einertson.jason@dol.gov), 202-693-2554

2 - **Federal Acquisition of IAQ-IEQ Services**; CIAQ Website upgrade. Several agencies responded in detail to Phil's CIAQ Listserve request for information on how Federal agencies acquire IAQ-IEQ services, including the Navy, GSA, FOH, and NASA. This information will be combined and vetted with the submitters prior to being added to the CIAQ website in the near future.

3 - **1989 Report to Congress (RTC) on Indoor Air Quality** (Req. Sec.403(e) SARA 1986)

This four volume report is now available in PDF on CD. The *Executive Summary* will be posted to the CIAQ website in the near future. Inquiries should be sent to [CIAQ@epa.gov](mailto:CIAQ@epa.gov).

EPA 400-1-89-001A *Executive Summary & Recommendations* (25 pages)

EPA 400-1-89-001B Volume I – *Federal Programs Addressing Indoor Air Quality* (81 pages)

EPA 400-1-89-001C Volume II – *Assessment & Control of Indoor Air Pollution* (236 pages)

EPA 400-1-89-001D Volume III – *Indoor Air Pollution Research Needs Statement* (44 pages)

**(C) DEPARTMENT & AGENCY UPDATES**

**1 - GAO – Government Accountability Office** (POC: Ben Howe ([IndoorMoldTeam@gao.gov](mailto:IndoorMoldTeam@gao.gov)))

In addition to the Agency updates and presentations, GAO made a guest appearance. The Government

Accountability Office (GAO) has been asked by Congress to review Federal efforts related to minimizing and mitigating the health effects of exposure to indoor mold. The GAO team is interested in learning more about what efforts Federal agencies have underway related to indoor mold, and in identifying agency contacts that can provide details about such efforts.

**2 - NIST (and ASHRAE Standard 62)** (POC: Andy Persily, [andyp@nist.gov](mailto:andyp@nist.gov), 301 975-6418)

**2.1 NIST - Emissions Testing Standards for Volatile Organic Compounds:** NIST is working on a project to develop standard reference materials and associated measurement techniques for consistent determination of volatile organic compound emissions from indoor materials and products. NIST is currently working with Virginia Tech to develop a prototype reference material for emissions testing. Virginia Tech has developed the capability to load a simple polymer with VOCs that would have an emission profile similar to a typical “dry” building material. By measuring the VOC-loaded polymer properties, it is possible to independently determine its emission rate, making it a good candidate for a reference material. This summer, NIST will be using its two stainless steel chambers to characterize the emission properties of the reference material and develop an associated test method to calibrate emissions test chambers.

In the past year, two workshops on improving the reliability of emissions measurements have been held in conjunction with ASTM’s D22.05 Indoor Air Quality subcommittee that develops product emissions testing standards. Over 40 stakeholders attended each of these workshops to help define the current state of product emissions testing, stakeholder needs, potential strategies to improve the consistency and accuracy of product emissions testing, and a standards development plan for ASTM D22.05. More detailed summaries of both ASTM/NIST workshops are available from Cindy Reed at (301) 975-8423, [chreed@nist.gov](mailto:chreed@nist.gov).

**2.2 NIST - Building for Environmental & Economic Sustainability (BEES v4.0).**

(POC: Bobbie Lippiatt (301-975-6133, [barbara.lippiatt@nist.gov](mailto:barbara.lippiatt@nist.gov))

**BEES 4.0 Press Release:** BEES 4.0) evaluates both the environmental and economic performance of building products with life-cycle assessment and costing techniques developed respectively by the International Organization of Standardization (ISO) and ASTM International. With BEES a user can ascertain, for instance, the environmental impact of a product at any stage of its existence - raw material acquisition, manufacture, transportation, installation, use, and recycling and waste management. The environmental ramifications of the product at each of these stages is provided for each of 12 categories: global warming, acidification, eutrophication, fossil fuel depletion, indoor air quality, habitat alteration, human health, ecological toxicity, ozone depletion, smog, criteria air pollutants and water intake.

BEES 4.0, the new version of NIST’s software tool, provides updated data on more than 200 products and adds 30 new products for review. BEES 4.0 includes a number of new non-biobased products, including carpeting from several manufacturers who agree to purchase carbon credits to offset the product’s life-cycle greenhouse gas emissions. These and other products, such as biobased carpets, roof coatings, building maintenance products and fertilizers that qualify for a government “green” preferential purchase program, could increase builder participation in the nation’s green building drive. The new version also includes new consensus weights for scoring the environmental impact of individual building products.

Visit [www.bfrl.nist.gov/oa/software/bees.html](http://www.bfrl.nist.gov/oa/software/bees.html) for more on BEES 4.0; download it for free.

**2.3 ASHRAE STANDARD 62 AND RELATED ISSUES:**

SSPC 62.2 will meet on June 22<sup>nd</sup> and 23<sup>rd</sup> and will consider 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 committee continues to work on the companion guideline to Standard 62.2 and is also developing new change proposals to incorporate portions of the Standard into the International Residential Code.

The ASHRAE Environmental Health Committee is setting up committees to develop two position documents for ASHRAE. The first is on airborne infectious diseases and the second is on un-vented combustion appliances. The committee is also drafting 1-page summary documents on several emerging issues including:

- Biological agents in context of globalization and Pandemic influenza and airborne transmission
- Plasticizers
- Energy efficient humidity control in hot-humid climates
- Emerging technologies without clinical evidence of efficacy (air cleaners, ionizers, humidifiers)
- Increasing litigation for Legionellosis, and
- Building pressurization issues

The International Code Council recently approved an ASHRAE proposal to incorporate the prescriptive Ventilation Rate Procedure (VRP) from ANSI/ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality, into the International Mechanical Code (IMC). The IMC establishes minimum requirements for mechanical systems in new buildings and is adopted and implemented by Federal, state and local government agencies. The change, which incorporates the prescriptive ventilation rate calculation procedure from the standard, will be included in the 2007 IMC Supplement.

Also, the 2007 versions of Standards 62.1 and 62.2 have been published and are available from ASHRAE.

Planning continues for ASHRAE's IAQ 2007 conference scheduled for this October in Baltimore. Over 100 abstracts have been submitted and acceptance notification is currently in progress. The conference theme is Healthy and Sustainable Buildings, and more information can be found at [www.iaq2007.org](http://www.iaq2007.org).

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).

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

(POC: Joanna Matheson, 301.504.7043, [jmatheson@cpsc.gov](mailto:jmatheson@cpsc.gov))

**3.1 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).

**3.2 Defining 'strong sensitizer'.** The draft technical report is undergoing federal partner agency review which will be followed by external peer review. No comments were received from the posting on the agency website. (POC Joanna Matheson, 301.504.7043).

**3.3 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. A prototype is based on modification of a standard 5 kW generator and the UA is currently integrating catalyst, engine control unit into the prototype (POC Janet Buyer, 301.504.7542).

In order to predict the health effects and survivability when a generator is improperly operated, the following is planned:

- 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.
- 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 those CO time course profiles throughout the entire period of generator operation.

#### **4 – DOE, Department of Energy** (see Presentation (2) in Section (D)).

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

(POC: Peter Ashley, 202-402-7595, peter.j.ashley@hud.gov)

##### **5.1 Healthy Homes Notices of Funding Availability (NOFAs)**

The deadline for submission of FY 2007 NOFA applications for Healthy Homes Demonstration and Healthy Homes Technical Studies programs is June 15, 2007.

##### **5.2 Healthy Homes for Healthy Kids Campaign Events**

HUD will deliver 2 Healthy Homes for Healthy Kids events in Washington, DC in June.

The first event will be held in conjunction with the Barbecue Battle on Pennsylvania Avenue, June 23-24. The Healthy Homes for Healthy Kids Pavilion (photo attached) will be constructed between the NBA exhibit and the Disney exhibit. HUD is enthusiastic about the event because of its potential for attracting families with children. Parents may tour the Pavilion to learn about the relationship between housing and health.

The second event will be on June 27 at the main HUD Building, 451 7<sup>th</sup> Street, SW. The Pavilion will be constructed in conjunction with FHA Day at HUD. OHHLHC staff will serve as guides in the Pavilion, providing information and outreach materials about Healthy Homes issues.

##### **5.3 2008 National Healthy Homes Conference**

HUD is working with the Centers for Disease Control and Prevention, the United States Environmental Protection Agency and the United States Department of Agriculture to plan and deliver a National Healthy Homes Conference in Summer, 2008. Keynote addresses in the Conference will discuss the Surgeon General's Call to Action for Healthy Housing. The Conference is tentatively scheduled for July 14-16, 2008 in Baltimore.

#### **6 - GSA, General Services Administration.** (POC: David Marciniak, 202-538-9029, david.marciniak@gsa.gov)

GSA is planning to perform a study to determine the efficacy of in-duct UVGI with regard to energy savings, reduced coil maintenance and improved IEQ. GSA is also ready to go out with a national contract for IEQ

services and will be using the GSA schedules to make a best value buy. After the contractor(s) is selected this information will be shared with the CIAQ community, including a "how to do it" account of our experience. (Note: David S. Marciniak, PE, CSP, is the Health and Safety Manager, Public Buildings Service)

## **7- NIOSH, National Institute of Occupational Safety & Health**

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

**7.1 NIOSH Alert.** An Alert titled "Preventing Lung Disease Caused by Exposure to Damp Indoor Environments" is in the initial stages of preparation. The 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.

**7.2 Work-related asthma in relation to damp indoor environments.** We have ongoing projects in schools in Maine and in an office building in Connecticut in relation to damp environments and asthma and respiratory symptoms.

## **7.3 Publications and presentations in 2007 relating to indoor environmental quality**

Nancy M. Sahakian, Sandra K.White, Ju-Hyeong Park, Jean M. Cox-Ganser, Kathleen Kreiss. 2007 Identification of Mold and Dampness-associated Respiratory Morbidity in Two Schools: Comparison of Questionnaire Survey Responses to National Data. Journal of School Health (In press).

Cummings KJ, Cox-Ganser J, Riggs, MA, Edwards N, Kreiss K. 2007 Respirator donning in post-hurricane New Orleans: Implications for protecting the public from airborne hazards. Emerging Infectious Disease [serial on the Internet]. Available from <http://www.cdc.gov/EID/content/13/5/06-1490.htm>

Cummings KJ, Cox-Ganser J, Riggs MA, Edwards N, Hobbs G, Kreiss K. 2007 Health Effects of Exposure to Water-Damaged Homes Six Months after Hurricane Katrina—New Orleans, Louisiana, March 2006. [Platform] EIS Conference, Atlanta, GA.

Park J, Cox-Ganser J. 2007 Does Observational Assessment of Building Rooms for Mold and Dampness Correlate with Microbial Concentrations in Dust Samples? [Poster] American Industrial Hygiene Conference & Exposition, Philadelphia, PA.

Pierce TA, Calvert CC, Williams NC, Ham JE, Wells JR, Coffey CC. 2007 Volatile Organic Compounds produced by molds grown on different substrates. [Platform] American Industrial Hygiene Conference & Exposition, Philadelphia, PA.

## **8 - OSHA, Occupational Safety & Health Administration** (report pending)

(Deborah Crawford, 202-693-1932, [crawford.deborah@dol.gov](mailto:crawford.deborah@dol.gov))

## **9 - DOI, Department of the Interior** (report pending)

(Ian Rosenblum, 202-208-5795, [ian-m-rosenblum@nbc.gov](mailto:ian-m-rosenblum@nbc.gov))

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

**10.1 Indoor Environment Management Branch (IEMB),** report pending

(Bob Thompson, 919-541-1904, Thompson.Bob@epa.gov)

Visit <http://www.epa.gov/appcdwww/iemb/facilities.htm> for more on IEMB and the National Risk Management Research Laboratory (NRMRL), Research Triangle Park (RTP), North Carolina.

## **10.2 Indoor Environments Division (IED)**

Reported by Anna Duncan, John Girman, Eric Werling and Phil Jalbert

### **10.2.1 - Exploratory Study of Basement Moisture During Operation of ASD Radon Control Systems**

The primary finding of this study is that active soil depressurization (ASD) systems, normally used for indoor radon control, caused significant and beneficial reductions in moisture levels and dampness (along with radon) in the basements of three Pennsylvania houses. The final report was delivered to EPA by the principal investigator on June 5, 2006.

ASD is the technique most commonly used to control radon in buildings. It was investigated for its impact on basement moisture levels and ventilation. As part of an exploratory study, three houses near Harrisburg, Pennsylvania were intensively monitored over an 18-month period for moisture indicators, radon levels, building operations, and other environmental parameters. During this time, ASD systems were cycled on and off. A modeling framework suggested that the ASD systems might cause important changes in basement ventilation and inter-zonal air flows. Consequently, inter-zonal air flows were periodically measured.

Moisture levels were measured in basement foundation walls and slab floors, indoor and outdoor air, surrounding soil. The subject houses have unfinished basements: one having poured foundation walls, and the others having foundation walls of open and partially-filled concrete block. Results from these three houses indicate that ASD operation caused significant moisture reductions in the basement air and walls, and the predicted changes in air flow patterns.

Moisture reductions were diminished somewhat during the warm and humid summer months. The findings are consistent with anecdotal reports of drying and odor improvement in basements during ASD operation, and suggest that microbial growth may also be reduced. These effects may be different in other climates and house construction types.

(POCs: Brad Turk, Environmental Building Sciences, Inc., 505-426-0723, TurkeBSI@aol.com, [www.environmentalbuildingsciences.com](http://www.environmentalbuildingsciences.com), or Eugene Fisher, EPA/IED, 202-343-9418, [fisher.eugene@epa.gov](mailto:fisher.eugene@epa.gov)).

### **10.2.2 – An Advanced Indoor Air Quality (IAQ) Design Guide Under Development.**

EPA is collaborating with leading professional organizations to develop advanced IAQ design guidance for the building industry. Initiated through an EPA-funded cooperative agreement with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and formalized with a memorandum of understanding, this collaboration includes ASHRAE, EPA, the American Institute of Architects (AIA), the Building Owners and Managers Association (BOMA) International, the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), and the U.S. Green Building Council (USGBC). This collaboration includes the development of a book and a professional development course on an integrated process for achieving improved IAQ in all elements of a building, which are expected to be available in 2009.

(POC: Eric Werling, 202-343-9495, [werling.eric@epa.gov](mailto:werling.eric@epa.gov)).

*Here is the text of ASHRAE's May 30, 2007 press release.*

**Organizations Collaborate to Provide IAQ Guidance.** ATLANTA – Six organizations related to the built

environment are collaborating to provide advanced indoor air quality (IAQ) design guidance for the industry. The collaboration will develop a book and professional development course that will describe an integrated process for achieving improved IAQ in all elements of a building. Participating organizations are the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE, [www.ashrae.org](http://www.ashrae.org)), the American Institute of Architects (AIA, [www.aia.org](http://www.aia.org)), the Building Owners and Managers Association (BOMA, [www.boma.org](http://www.boma.org)), the U.S. Environmental Protection Agency (EPA, [www.epa.gov](http://www.epa.gov)), the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA, [www.smacna.org](http://www.smacna.org)), and the U.S. Green Building Council (USGBC, [www.usgbc.org](http://www.usgbc.org)).

The groups recently formalized the collaboration through a memorandum of understanding. "The book and course will give guidance to designers and builders so that buildings may be constructed, operated and maintained to improve IAQ without constraining the building function or the comfort and productivity of the occupants," said Andrew Persily, chair of the steering committee overseeing the project. Last year, ASHRAE was awarded a \$510,000 three-year cooperative agreement with the EPA to develop the Advanced Indoor Air Quality (IAQ) Design Guide for Non-Residential Buildings. The book will assist building professionals in implementing high-performance designs and improving building IAQ performance in a broad range of buildings. The book is expected to be published in April 2009 and followed later in the year by the course.

(ASHRAE POC: Jodi Dunlop, 678-539-1140, [jdunlop@ashrae.org](mailto:jdunlop@ashrae.org), 1791 Tullie Circle NE, Atlanta, GA 30329)

#### **10.2.3 - Indoor Air Package for ENERGY STAR Homes - Pilot Program.**

This program was established to promote ENERGY STAR new homes that qualify for an additional Indoor Air Quality label. The program is managed jointly by EPA's Office of Radiation and Indoor Air and Office of Atmospheric Programs.

We're pleased to announce the completion of the revised specifications and verification checklist for the ENERGY STAR Indoor Air Package (see link below). This version addresses the lessons learned from our first pilot in Denver and most of the excellent comments we received over the past several months. The Indoor Air Package is available for all interested ENERGY STAR Partners as of April 19th, 2007. [http://www.energystar.gov/index.cfm?c=bldrs\\_lenders\\_raters.nh\\_iap](http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_iap).

(POC: Eric Werling, IED, 202-343-9495, [werling.eric@epa.gov](mailto:werling.eric@epa.gov)).

#### **10.2.4 - Green Building Research Funding: An Assessment of Current Activity in the United States\***

This report is a thorough analysis of recent federal, state and trade association contributions to green building research funding; including IEQ research. The overwhelming majority of research identified was related to energy, atmosphere and ambient air issues. IAQ research ranked a distant fourth. The report found that research related to high-performance green building practices and technologies amounts to only 0.2% of all Federally funded research; an average of \$193 million per year (2002-2005) and only 0.02% of the estimated value of annual U.S. building construction. This report is the initial product of the cooperative agreement between USGBC and IED. The longer-term goal of this agreement is to develop a Green Building Research Agenda. Visit <http://www.usgbc.org/ShowFile.aspx?DocumentID=2465> or <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=78&> to view or download the report.

This effort is being managed by the USGBC Research Committee, which includes Ken Sandler (EPA liaison) as well as Dru Crawley (DOE elected member).

(POC: Ken Sandler IED, 202-343-9406, [sandler.ken@epa.gov](mailto:sandler.ken@epa.gov))

\*USGBC Research Committee, 2007, 37 pages.

**10.2.5 - Asthma Forum, May 31 - June 1, 2007.**

In the spirit of Asthma Awareness Month (May), the Office of Radiation and Indoor Air hosted the second Communities in Action for Asthma Friendly Environments National Forum. Acting Surgeon General Rear Admiral Kenneth Moritsugu gave the keynote address and actively participated in the morning sessions. The Forum facilitates the replication of effective community-based approaches addressing asthma by showcasing model programs from across the country and empowering community teams to develop strategic action plans that replicate these models. As part of the Forum, EPA hosted an awards ceremony where Elizabeth Cotsworth and Bill Wehrum honored the 2007 winners of the National Environmental Leadership Award in Asthma Management.

(POC: Alisa Smith, IED, 202-343-9372, smith.alisa@eoaa.gov).

**10.2.6 - Studies Link Dampness & Mold to Significant Respiratory Problems & to High Costs of Medical Treatment.**

Two studies to be published in the journal *Indoor Air* have quantified the considerable public health risks and economic consequences in the United States from building dampness and mold. A new study by scientists at Lawrence Berkeley National Laboratory (LBNL) and funded by the EPA concludes building dampness and mold are associated with increases in respiratory and asthma-related health outcomes. A second study by EPA and Berkeley Lab scientists links almost one-quarter of the nation's asthma cases to dampness and mold in homes, and estimates the annual national cost of treating those cases at about \$3.5 billion.

The studies, *Meta-Analyses of the Associations of Respiratory Health Effects with Dampness and Mold in Homes and Public Health and Economic Impact of Dampness and Mold*, ([D. Mudarri](#) and [W. J. Fisk](#), pages 226–235), are being published in upcoming issues of the journal *Indoor Air* (the latter publication is already available on the journal's web site at <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1600-0668.2007.00474.x> ). The studies strongly support EPA's asthma and mold programs, which urge steps to control or reduce exposures to asthma triggers including mold in indoor air and which encourage quick action to clean and dry moldy surfaces and to take steps to reduce indoor moisture that can lead to mold growth.

(POC: Laura Kolb, IED, 202-343-9438, Kolb.Laura@epa.gov).

(LBNL press contacts: (a) study author, William Fisk, Senior Scientist (510-486-5910); (b) press officer, Allan Chen (510-486-4210).

View the press release at <http://www.lbl.gov/Science-Articles/Archive/EETD-mold-risk.html>.

**10.2.7 - Partnership for Clean Indoor Air (PCIA) Hosts One of the World's Largest Forums on Household Energy and Health: Bangalore, India, March 20–23, 2007**

In 2002, the World Health Organization (WHO) estimated that 3 billion people were burning traditional biomass fuels and coal indoors in un-vented and inefficient cooking and heating devices. Since 2003, PCIA partner organizations have succeeded in influencing 1.3 million households to adopt clean and efficient cooking and/or heating practices; resulting in 11 million people with reduced exposure to harmful indoor air pollution.

More than 120 energy and health experts representing 25 countries attended the 3rd Biennial Partnership for Clean Indoor Air Forum. USEPA led a series of PCIA events that preceded the Forum, including a media workshop on March 19 in New Delhi in conjunction with the Shell Foundation, and local Indian partners, and The Energy Research Institute (ERI) on the health and socio-economic impacts of household energy use. For more on the PCIA visit <http://www.epa.gov/iaq/pcia.html>.

PCIA Presents Stove Testing Results. On May 30th Jim Jetter (EPA-ORD) presented the preliminary results of testing solid-fuel stoves to senior OAR, ORD and ORIA staff. This testing was a close collaboration between ORD and the ORIA-IED team that manages the PCIA Partnership. Jim's work represents one of the most extensive tests of cook stoves ever performed, and we are very excited to see his results.

(POCs: Brenda Doroski, IED, 202-343-99764, doroski.brenda@epa.gov, and John Mitchell, IED, 202-343-9446, Mitchell.john@epa.gov).

**10.2.8 – EPA/IED Releases Criteria for Evaluating Programs that Assess Materials/Products to Determine Impacts on Indoor Air Quality** (154 pages, [http://www.epa.gov/iaq/pdfs/tichenor\\_report.pdf](http://www.epa.gov/iaq/pdfs/tichenor_report.pdf))

[The U.S. EPA Indoor Environments Division (IED) approved this report for release on June 6th 2007]

Contractor Report on *Criteria for Evaluating Programs that Assess Materials/Products to Determine Impacts on Indoor Air Quality*. Chemical emissions from products and materials can contribute significantly to poor indoor air quality, with potentially serious impacts on the health and productivity of building occupants. Characterizing the sources of these emissions for their potential contribution to indoor air pollution can inform guidance on how to select products and materials that are less polluting, as well as how to modify them to reduce their emissions.

EPA's Indoor Environments Division commissioned a report under contract with Bruce Tichenor in order to: (1) gain a better understanding of private-sector, commercial programs which currently provide labels or certifications related to products and materials used indoors; and (2) provide the basis for strategic discussions of product/material emissions testing. Because it is a contractor's report, it presents the findings, recommendations and views of its author, and not necessarily those of EPA, regarding emissions from indoor sources.

Because the report contains so much valuable and timely information, EPA chooses to release this contractor's report in its current form in the belief that other organizations, e.g., industry associations, standard-setting organizations and government agencies, will benefit from the information it offers. EPA believes that the information contained in the report will stimulate constructive discussion and promote further progress in this important area.

(Note: Please direct inquiries on the report to the author, Bruce Tichenor, 252-257-1408, tichenor2@earthlink.net, or to Laureen Burton, IED, 202-343-9032, burton.laureen@epa.gov).

**11 - Tennessee Valley Authority (TVA)**

(POC: John O. Richardson, Jr., 423-751-7392, jorichardson@tva.gov)

Catherine Shea (TVA) submitted the following information ex post facto the CIAQ meeting in the hope that it might be of some interest to the wider CIAQ community.

Past UVGI Project in Memphis, Tennessee. A 2001 project was conducted by David Salladay (TVA, retired), John Richardson (TVA), EPRI, Memphis Light Gas & Water, and Charlie Dunn (Lumalier) in an effort to help control TB at the Memphis/Shelby county jail (Salladay UVGI; and TB jail). Later it was also installed at the TVA distributor's office in Memphis.

My (Shea's) understanding from discussions at that time, is that TB has features that make it a particularly good candidate for UVGI treatment of air. The approach was discussed in terms of a subsequent mold project at the time, but for fungi the air would also need to be filtered. I have been unable to find data on the TB rate in prisoners and guards pre vs. post-installation of UVGI for this specific site, but the recent (2006) CDC report on

controlling TB (control TB) indicates UVGI is useful.

John O. Richardson sent along the following information on Chuck Dunn of Lumalier. Lumalier was/is the manufacturer of the systems installed in the jail. Chuck Dunn is chairing a session at the ASHRAE meeting in Long Beach, i.e.,

*UVGI Installations in Government Buildings: Exploring the Knowns, Unknowns, and Gaps Regarding Potential Benefits For Public Health, Employee Safety and Energy Efficiency*, ASHRAE, Long Beach, CA; Wednesday, June 27, 2007 12:15 p.m. - 1:45 p.m.

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Sponsor: TG2.UVAS Ultraviolet Air and Surface Treatment

Chair: Chuck Dunn, Member, Lumalier, Memphis, TN

Confusion and uncertainty surround the application of ultraviolet germicidal irradiation (UVGI) systems. Today, government agencies are interested in UV applications designed to improve indoor air quality and prevent the spread of airborne infectious diseases, while also improving the energy efficiency and cleanliness of HVAC systems. This seminar outlines the current best practice for the use and maintenance of UVGI systems; describes benefits from large-scale applications in various government buildings to reduce the transmission of tuberculosis; and addresses the gaps and unknowns that currently preclude more wide-spread integration of UVGI technologies into HVAC and building systems.

1. Current Best Practices; Stephen B. Martin, Jr., P.E., Member, CDC/NIOSH, Morgantown, WV
2. Best Practice Put to the Test, Part 1; Shawn Siegrist, Sacramento County, CA, Mather, CA
3. Best Practice Put to the Test, Part 2; Thomas V. Williams, Jr., Sacramento County, CA, Sacramento, CA
4. What Information Is Needed to Best Apply the Technology?; David S. Marciniak, P.E., Member, U.S. General Services Administration, Washington, D.C.

## **12- VA, Department of Veteran's Affairs**

(POC: Hodgson, Michael, M.D., M.P.H., Michael.Hodgson@va.gov)

A recent LBL paper, funded by EPA (as I remember) in Indoor Air on the population-attributable risk of asthma from building moisture estimates the fraction at 25%. These numbers are similar to estimates in 1997 at the Bethesda Healthy Buildings conference, so this is likely a major issue. Some time ago the Veteran's Health Administration (VHA) presented such a structured algorithm on moisture and mold. It was modified from something developed by Kaiser Permanente in California.

## **(D) PRESENTATIONS**

### **Presentation (1): GREENGUARD'S INDOOR AIR QUALITY PRODUCT CERTIFICATION AND LABELING**



**PROGRAMS.** This presentation will discuss the basic requirements that a "low emitting" products certification/labeling program must address. Greenguard's Certification Program for Children and Schools/Cleaning Products will be used as a case study. Indoor Air Quality product certification and labeling programs must fulfill a number of requirements in order to pronounce a product or group of products as "low emitting". Fundamental principles must be established, including: testing methodology; emission criteria; laboratory qualification; sample selection; frequency of testing; control measures; and accountability.

**Presented by:** Carl Smith, CEO (1-800-427-9681, [csmith@greenguard.org](mailto:csmith@greenguard.org), [www.greenguard.org](http://www.greenguard.org)), GREENGUARD Environmental Institute.

Also, for more information on low-emitting materials see the following California CHPS resources:

- (1) [http://www.chps.net/manual/lem\\_table.htm](http://www.chps.net/manual/lem_table.htm), and
- (2) [http://www.ciwmb.ca.gov/GreenBuilding/Specs/Section01350/default.htm#Criteria\\_](http://www.ciwmb.ca.gov/GreenBuilding/Specs/Section01350/default.htm#Criteria_)

**Presentation (2): REDUCED ENERGY USE THROUGH REDUCED INDOOR CONTAMINATION IN RESIDENTIAL BUILDINGS.**



The information available to consumers on the effectiveness of air cleaners is limited, especially for the combined removal of volatile organic compounds (VOCs) and particulates. A standard method of test for the removal efficiency of air cleaning devices under such conditions is lacking as well. This project evaluated six “off the shelf” portable and two in-duct air cleaning devices. The tested products utilize different technologies for gas and particulate removal including sorption, media filtration, ultraviolet-photo catalytic oxidation (UV-PCO), electronic precipitation and air ionization. The potential effectiveness and energy benefit of using such devices to clean re-circulated air to decrease the outdoor air intake and reduce the ventilation-related energy costs are briefly discussed and

compared.

**Presented by: Davor Novosel, Chief Technology Officer, National Center for Energy Management & Building Technology (NCEMBT), (703-299-5633, [dnovosel@ncembt.org](mailto:dnovosel@ncembt.org), <http://www.ncembt.org/index.html>).**

**(E) LIST OF ATTACHMENTS**

Items related to Section (B) #1.1 NSA:

*What’s Growing in Your HVAC System?*, Paul Buckmaster, 2004(?) (8 pages)

Items related to Section (C) #10.2.3 Energy Star w/IAQ Package:

*Announcing the Energy Star Indoor Air Package Label* (Fact Sheet, 1 page)

Items related to Section (C) #11 TVA:

*UVGI: Ultraviolet Light versus Germs*, Public Power Institute (PPI); 1 page, July 2002

*Controlling Tuberculosis in the U.S.*, American Journal of Respiratory and Critical Care Medicine (American Thoracic Society Documents); Vol. 172, p1169-1172, 2005.

*Transmission of Tuberculosis in a Jail*, Annals of Internal Medicine, Jones, T.F., et al, 19-October-1999, Vol. 131.

**(F) LIST OF ATTENDEES** (only meeting room participants that signed in; no data on phone participants).

|                     |                       |                                                                            |                    |
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