Federal Interagency Committee on Indoor Air Quality (CIAQ)
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~ Past CIAQ Presentations ~

22-Building Air Quality-An Update [15-October-2008].
Presented by Ed Light, CIH (Elight@building-dynamics.com, 301.924.6264).

Trends in IAQ investigations were considered, along with more recently published work addressing resolution of occupant complaints. Also, implementation of the pioneering EPA/NIOSH Guide since its 1991 publication was reviewed. Visit the CIAQ website for this meeting's minutes and presentation, or contact the presenter for copies of the presentation and a supplement to the presentation, or for further information.

21-ASHRAE's Ventilation Standard 62.1 [11-June-2008].
Three presentations on ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality were made: (1) an overview by **Andy Persily** (NIST; andyp@nist.gov) on the standard; (2) on the Ventilation Rate Procedure (VRP) by **Dennis Stanke** (Trane; dstanke@trane.com); and (3) on the Indoor Air Quality Procedure (IAQP) by **Chris Muller** (Purafil; cmuller@purafil.com). During the course of the discussion, Alexandra Sullivan (Sullivan.alexandra@epa.gov) of EPA's Office of Atmospheric Programs (OAP)/Climate Protection, gave a brief description of the Energy Star program and noted that one of the most commonly asked questions concerned the IAQP and its application. Subsequent to the meeting, Ryan Colker (ASHRAE) provided a list of resources on using ASHRAE 62.1; see attachment "62 Resources RColker 18-JUN-08" on the CIAQ website.

20-Ozone Impacts in the Indoor Environment [13-February-2008].
Presented by Greg Brunner (brunner.gregory@epa.gov, 202-343-9052, EPA/IED).

Ozone is a common outdoor air pollutant that can migrate indoors where it can react with chemicals commonly found in the indoor environment and form harmful and irritating by-products. The sources for these reactive indoor chemicals are ubiquitous and include occupants, building materials, and cleaning products. This presentation will present highlights from a growing body of literature on this topic, including several analyses recently completed by scientists at the Lawrence Berkeley National Laboratory (LBNL) with data from EPA's Building Assessment Survey and Evaluation (BASE) study of indoor air quality in office buildings.

19-Layered GAPTM Photo Catalytic Oxidation (PCO) [17-October-2007].
Presented by Dan Briggs (dbriggs@genesisair.com, 806-745-7000).

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 VOCs, 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. See the presentation at http://www.govsci.com/promotions/gap/Genesis_Air.ppt.

18-Radon ASD Moisture Study **[17-October-2007].** Presented by Brad Turk (TurkEBSI@aol.com, Environmental Building Sciences Inc.).

Brad Turk of Environmental Building Sciences and the Southern Regional Radon Training Center (SRRTC, 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 modelling, technical approach, and analysis of data were discussed. The presentation is included in the minutes for this meeting.

17-Greenguard's Indoor Air Quality Product Certification and Labeling Programs **[6-June-2007].** Presented by Carl Smith, CEO (1-800-427-9681, csmith@greenguard.org, www.greenguard.org), GREENGUARD Environmental Institute.

This presentation discussed the basic requirements that a "low emitting" products certification/labeling program must address. Greenguard's Certification Program for Children and Schools/Cleaning Products was 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.

16-Reduced Energy Use Through Reduced Indoor Contamination in Residential Buildings **[6-June-2007].** Presented by Davor Novosel, Chief Technology Officer (703-299-5633, dnovosel@ncembt.org, http://www.ncembt.org/index.html) National Center for Energy Management and Building Technology (NCEMBT).

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.

15-Indoor Environmental Quality Report (NIBS), and National Building Information Model Standard (NIBS) **[7-February-2007]**

(1) NIBS Indoor Environmental Quality Report. Presented by Nanne Davis Eliot, NIBS Project Manager **(**202-289-7800, ext.125, neliot@nibs.org**).**

The U.S. Access Board contracted with the National Institute of Building Sciences (NIBS) to develop an IEQ report on the factors that limit access to buildings for individuals with sensitivities to chemicals and electromagnetic fields. The IEQ Report addresses: (1) Operations & Maintenance; (2) Design of "Cleaner Air Rooms"; (3) Design & Construction; and (4) Building Products & Materials. The CIAQ presentation covered the entire report, with a focus on building design, construction, products, and materials. For more information, visit www.nibs.org.

(2) NASA to strengthen the Indoor Health and Productivity component of its "Sustainability" course for facilities Staff. Presented by Bill Brodt, NASA Facilities Engineering/Real Property Division, (202-358-1117, wbrodt@nasa.gov).

Bill discussed the National Building Information Model Standard and its Construction Operations Building information Exchange component, including changes in the Unified Facilities Guide Specifications. These standards/specifications affect IAQ as contractual requirements and business practices by which information essential to facilities O&M is passed from the designer, constructor, and manufacturer to the owner, operator and maintainer. It's the beginning of a revolution within the building industry which can be of tremendous support to those with interest in IHP/IEQ/IAQ. For more information, visit www.nibs.org.

14-Update on Community Action for a Renewed Environment (CARE) **[9 July 2006]**

Presented by Dennis O'Connor ((202-343-9213, Oconnor.dennis@epa.gov, EPA/ORIA) (for more information about CARE, visit www.epa.gov/care).

13-NCEMBT Program on Filtration and Air Cleaning **[19 April 2006]**

For more information contact Dr. Douglas Kosar, dkosar@uic.edu, 312.413.2646, www.erc.uic.edu, Dr. James. Freihaut, jdf11@psu.edu, 814.863.0083, www.engr.psu.edu/ae/iec, or Dr. J. Zhang, jszhang@syr.edu, 315.443.1366, www.energysystems.syr.edu. For more information on NCEMBT visit http://www.ncembt.org/index.html.

The National Center for Energy Management and Building Technology (NCEMBT), in conjunction with three of its university partners, University of Illinois at Chicago (UIC), Penn State University (PSU), and Syracuse University (SU), has a significant research program underway in filtration and air cleaning. Specifically, SU has completed an initial series of contaminant (particulate and VOC) "pull down" tests on six portable and two in-duct air cleaning devices in its existing environmental chambers.

12-IEQ & Kennedy Space Center **(KSC)** [**18 January 2006**]

Bill Brodt (202-358-1117, Brodt.William@nasa.gov, NASA Facilities Engineering & Real Property Division)

Bill discussed NASA's program to increase the health & productivity of building occupants & related current NASA activities. Sub-topics included sustainability, life-cycle facility costs, best practices, maintenance guidance & NASA's Reliability Centered Maintenance program. Bill also outlined the KSC's joint base operating systems contract approach to Indoor Air Quality (IAQ).

11-Healthy School Environments Assessment Tool **(HealthySEAT)**

[**19 October 2005**] Bob Axelrad (202-343-9315, axelrad.bob@epa.gov, EPA/IED)

Bob described & demonstrated a new software tool designed to help school systems conduct voluntary self-assessments of their schools for all environmental, health and safety hazards & track the status of facility conditions school by school. The software is available on EPA's Healthy School Environments web site (www.epa.gov/schools). The tool also includes content from other Federal agencies, including the NIOSH Safety Checklist Program for Schools, CPSC's playground safety guidance, CDC/DASH's School Health Index, & the Department of Education's Office of Safe and Drugfree Schools Crisis Planning guidance, among others.

10-Building Assessment Survey and Evaluation (BASE) *Ventilation Data*

[**20 July 2005**] Dr. Andrew Persily (301-975-6418, andyp@nist.gov, National Institute of Standards & Technology (NIST)

Andy discussed his analysis of the ventilation data produced by EPA's Building Assessment Survey & Evaluation (BASE) study. EPA's BASE study included a range of measurements in 100 randomly selected U.S. office buildings. Among other things, BASE characterized the ventilation systems & made selected measurements of ventilation performance. The NIST analysis assessed ventilation performance parameters (e.g., outdoor air intake, supply airflow), produced a comparison of parameters determined by different methods & a comparison of parameters to design values & industry standards.

9-Program Needs for Indoor Environments Research (PNIER) [**28 April 2005**] John Girman (202-343-9317, girman.john@epa.gov, Senior Science Advisor, Indoor Environments Division (IED), EPA)

John discussed IED's document describing EPA's research needs for the indoor environment; he also reviewed the development of the PNIER document. PNIER is a comprehensive document that addresses a wide range of indoor air quality and indoor environments topics. Visit http://www.epa.gov/iaq/index.html for more information about PNIER.

8-Creating a More Healthful, Less Toxic Built Environment [**24 February 2005**] Dr. Arthur Weissman (202.872.6400, aweissman@greenseal.org, President/CEO Green Seal, Inc., www.greenseal.org)

Arthur outlined Green Seal's origins & mission & discussed its focus on promoting the purchase & production of products, services, purchasing choices & operations to reduce the impact on the environment. Arthur discussed the relationship between toxins, non-toxic alternatives, the importance of standards, and worker health & safety & Green Seal's product certification program. He also described Green Seal's green facilities & audit/assistance programs.

7-The NCEMBT Agenda on IEQ Research [**20 October 2004**] John Wimer (703-299-5633, jwimer@ncembt.org, COO/National Center for Energy Management and Building Technologies (NCEMBT))

The National Center for Energy Management & Building Technologies (Center) was established in 2003 by the National Energy Management Institute (NEMI) & the University of Nevada Las Vegas, with support from EPA & DOE. Its research mission is to improve the efficiency, productivity & security in new & existing U.S. buildings. The Center develops & disseminates

synergistic & complementary solutions to issues involving energy management, indoor environmental quality (IEQ) & security.

6-HUD's Weatherization Plus Health Protocol [**21 July 2004**] Ellen Taylor (202-755-1785, Office of Healthy Homes & Lead Hazard Control (OHHLHC), HUD)

The Weatherization *Plus* Health (WPH) program utilizes the existing structure of weatherization programs to implement an enhanced weatherization service in combination with improvements for healthier residential living conditions & higher overall quality of service. The WHP adds two levels of service to core weatherization programs ('do no harm' & 'improve IEQ').

5-Radon in Large Buildings [**21 April 2004**] David Wilson, (865-435-9890, Oak Ridge National Laboratory (ORNL)

David outlined the scientific basis of ORNL's non-residential protocol, & the lessons learned. Since 1988, the Oak Ridge National Laboratory Radon Program has collected over 80,000 radon measurements & performed hundreds of mitigation in large nonresidential buildings. Analyses & modeling of the testing, diagnostic & mitigation data led to the development of a proposed nonresidential protocol to guide testing & approaches for successful mitigation.

4-DOE's Humidity Control Technology Showcase Trailer: 2003 Experiences w/ORNL & 2004 Opportunities for CIAQ [**21 January 2004**] Douglas Kosar (312-413-2646, dkosar@uic.edu, University of Illinois at Chicago (UIC).

3-EPA's ORD-IAQ Research Program [**22 October 2003**] Jim Jetter (919-541-4830, jetter.jim@epa.gov, Air Pollution Prevention and Control Division, National Risk Management Research Laboratory, RTP)

In addition to general background information on the NRMRL's mission & organization, Jim outlined the lab's principal research areas, including: (1) indoor source characterization; (2) IAQ modeling; (3) risk management; (4) bio-contaminants; & (5) building security. Jim also discussed the lab's IAQ research test house, chamber testing facility/capability & and their various evaluation, investigation & testing activities.

2-Revision of ASHRAE Standard 62: Ventilation for Acceptable Indoor Air Quality [**23 July 2003**] Dr. Andrew Persily (301-975-6418, andyp@nist.gov, National Institute of Standards & Technology (NIST))

Andy discussed the revisions to ASHRAE Standard 62. His overview included: (1) the "State of the Standard" (and Addenda); (2) related efforts (smoking, space design guide & Standard 62.2); (3) Addendum 62n (Ventilation Rate Procedure); and (4) ASHRAE IAQ Applications.

1-Anti-microbial Pesticide Use in HVAC Systems, & Strategy for Controlling & Inhibiting Indoor Mold Growth [**23 April 2003**] Tracy Lantz (703-308-6415, lantz.tracy@epa.gov & Laura Bailey (703-308-6212, bailey.laura@epa.gov),

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EPA/Office of Pesticide Programs (OPP).

Tracy outlined OPP's Strategy on Anti-microbial Pesticide Use in HVAC Systems.
Laura outlined OPP's Strategy for Controlling & Inhibiting Indoor Mold Growth.