

NEWSLETTER CAPMETAL

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The banner for the 2014 AHR EXPO features a globe on the left with red and blue orbital lines and various HVAC components. The text reads: **2014 AHR EXPO®**, NEW YORK CITY / JAVITS CENTER / JAN 21-23. Below this, it lists CO-SPONSORS: ASHRAE, AHRI, and HONORARY SPONSOR: HRAI. At the bottom, it states 'THE WORLD'S LARGEST HVACR MARKETPLACE'. The background shows a city skyline with the Empire State Building on the right.

TOUR TECNOLÓGICO!

Prezado (a),

Em sua visita à Feira AHR EXPO 2014 em Nova York ao nosso [STAND 8205 CAPMETAL - ABRAVA](#), aproveite para sua estadia para visitar os engenhos mecânicos e arquitetônicos dos maiores projetos e construções da cidade, que oferece os seguintes [tours tecnológicos a seu alcance](#):



[A CAPMETAL INFORMA:](#)

ASHRAE 2014 Winter Conference

Jan. 18-22, 2014

New York City, New York

New York City's iconic skyline serves as the perfect backdrop for the 2014 Winter Conference. In one of the world's top cities for most skyscrapers—nearly 600—it's only appropriate that the Conference puts a special focus on the design, development and operation of tall buildings. And they say if you can make it in New York City you can make it *anywhere*, so ASHRAE is also taking a look at new and innovative *international* design strategies for meeting environmental, geographical and cultural factors. Join the Society—along with the ASHRAE co-sponsored AHR Expo—as it returns to the Big Apple for the 2014 Winter Conference.

Item of Interest:

The AHR Expo takes place Tuesday, Wednesday, Thursday (Jan. 21-23), vs. its traditional Monday, Tuesday and Wednesday.

[2014 New York Winter Conference Program](#)

[TC Meeting Request Form](#) | [SPC Meeting Request Form](#)

[Standing Committees Meetings \(PDF\)](#) | [Standing Committees Meetings \(.xlsx\)](#)

[Technical Committee Meetings \(PDF\)](#)

Participe da ASHRAE Conference technical tours para dar uma olhada em primeira mão na tecnologia organizada por membros ASHRAE para promoção desta indústria. Os tours incluem: Planta do distrito de resfriamento do Rockefeller Center, One Penn Plaza, New School University Center e o Hotel Hilton New York. Todas as visitas técnicas partem do Hotel Hilton New York via metrô ou a pé.

Rockefeller Center's District Cooling Plant (*Planta do distrito de resfriamento do Rockefeller Center*)

segunda-feira, 20 de Janeiro.

3:30- 5 p.m.

Cost: \$25

The Tishman Speyer Rockefeller Center central refrigeration plant, building management system and ice storage facility is cutting edge in commercial building refrigeration efficiency. The central refrigeration plant is the heart of the air-conditioning system and has 14,500 tons of cooling capacity. The overall system is capable of pumping 22,000 gallons per minute of chilled water which cools over 6 million square feet of commercial and retail space.

The central plant consists of three electrical drive units and one steam turbine driven system. These units create the chilled water which is pumped to over 560 independent air handlers across 12 buildings. All systems are continually monitored through a state of the art building management system that supervises every control point and alarm condition. The plant operates 24/7 to supply chilled water to the base building air systems and tenant supplemental cooling equipment for data centers and conference rooms. There are two 10,000 ton condenser water systems that support the

central plant.

In 2008 Rockefeller Center added an Ice Storage Chiller Plant to reduce overall electric peak demand at the property complex during prime operating hours. The ice making and storage plant is located in a former storage area within the Rockefeller Center loading dock. The ice plant operates during off peak hours creating approximately 750,000 lbs. of ice, in 41 storage vessels, providing over 8,000 ton hours of ice storage.

This tour is within walking distance.

One Penn Plaza Cogeneration Plant Tour (*Central de Cogeração*)

Segunda-feira, 20 de Janeiro

2:15-5 p.m.

Tuesday, Jan. 21

12:15-3 p.m.

Cost: \$25

Vornado Realty Trust's 6.2 MW cogeneration project at One Penn Plaza ("Peak Power One"), one of the largest cogeneration plants at an existing commercial office building in New York City, began operation in 2010.

The state-of-the-art combined heat and power (CHP) system consists of three 2.055 MW reciprocating engines, and three heat recovery steam generators (HRSGs), all housed in a sound-attenuated enclosure. The turnkey CHP system is installed on an open setback roof atop the low-rise portion of the building. The generators tie in to the main building electrical services. Waste heat from the engines are processed through the HRSGs to produce high pressure steam, which is then used to offset the building's steam load, used in summer months to cool the building using steam turbine chillers and in the winter months to preheat domestic water and condition the temperature of secondary water.

Peak Power One CHP produces 20-25 million kwh per year (approximately 50 percent of the electricity at peak) and 30 percent of the steam requirements. By capturing waste heat from the engine generators and reusing it to power both heating and cooling systems for the building, the system achieves a combined efficiency of more than 70 percent, approximately double the efficiency of conventional power supplied by the grid. The project helps meet NY State's initiative for a 15 percent energy reduction by 2015 (the New York State Energy Efficiency Portfolio Standard) and Mayor Bloomberg's PlaNYC 2030 mandate of 30 percent reduced greenhouse emissions by 2030, as well the goal to add 800 MW of distributed generation to New York City.

This tour will utilize the subway for transportation to the site. Subway tickets will be pre-purchased and an escort will go with the group on the subway.

The New School University Center

terça-feira, 21 de Janeiro.

12:15-2:45 p.m.

Cost: \$25

This project at 14th Street and 5th Avenue is a 370,000 square foot mixed use building in construction near Union Square. Several architectural, structural, façade and mechanical innovations and unique conditions are featured including ice storage, black-water treatment and a commercial building combined heat and power (CHP) system. The building is achieving 32 percent reductions

below 90.1-2007 (in design).

This tour will utilize the subway for transportation to the site. Subway tickets will be pre-purchased and an escort will go with the group on the subway.

Javits Convention Center

Terça-feira 21 de Janeiro

2:00-3:30 p.m.

Cost: \$15

After thirty years of intense use and deferred maintenance, the new Javits Center is now a revitalized, reinvigorated, state-of-the-art facility. The projected LEED Silver project includes a complete renovation and modernization, a northward expansion, and a comprehensive sustainability strategy. The building's appearance, systems, urban linkages, and day-to-day performance have been transformed, while the original space frame and overall functionality have been maintained. The Javits Center is not a structure that lends itself to easy modification since its components are either cast concrete or supported by the unalterable space frame. The team found innovative solutions to design concerns as well as creative approaches to State and City sustainability requirements. The renovated interior spaces have considerably more natural light, better indoor air quality, operational efficiency, and adaptability. The facility is projected to reduce energy consumption by more than 26%. A new high-performance curtain wall has simplified and lightened the aesthetics of the original façade by changing the façade's module from five-by-five-foot to five-by-ten-foot. This allowed for the introduction of more transparent glass with minimal, structurally glazed mullions. Solid stainless steel panels replaced the opaque portions of glass to better express the building's functionality. A 6.7-acre green roof—the second largest in the United States—mitigates the heat-island effect of the building, increases thermal performance, helps protect the roof membrane, reduces storm-water runoff by an average of 40 percent, enhances the aesthetics of the building when seen from above, and creates a natural wildlife habitat.

Bruce Fowle, Founding Principal at FXFOWLE Architects and David Choy, Senior Vice President, Building Systems, WSP, New York will lead the tour.

Shuttle pick-up will be from the 53rd Street entrance between 6th and 7th. Exit to 53rd from the exit near the hotel registration desk or the park garage. Shuttle service will run from 7am–7pm and will run approximately every 10 minutes.

New York Hilton

Domingo, 19 de Janeiro

3:30-4:30 p.m.

Segunda-feira 20 de Janeiro

2:30-3:30 p.m.

Treça-feira 21 de Janeiro

3-4 p.m.

Cost: \$15

Located at the heart of midtown, the Hilton is one of the largest hotels in New York City. It is supported by a 3,200 ton cooling system consisting of cooling towers, centrifugal chillers with a primary and secondary chilled/hot water distribution system to perimeter fan coil units and air handlers for common spaces. High pressure steam is delivered to the premise and the hotel steps it down to low pressure steam for domestic hot water and heating use. In the early 2000s, the Hilton installed a 150kW fuel cell to manage peak demand usage and in 2013 they installed a 1.6 MW CHP

system.

Hearst Tower

Student Technical Tour (*Tour Técnico para Estudante*)

Sunday, Jan. 19

2:30-5:00 p.m.

Cost: \$15

Hearst Tower is the first "green" high rise office building completed in New York City, with a number of environmental considerations built into the plan. The floor of the atrium is paved with heat conductive limestone. Polyethylene tubing is embedded under the floor and filled with circulating water for cooling in the summer and heating in the winter. Rain collected on the roof is stored in a tank in the basement for use in the cooling system, to irrigate plants and for the water sculpture in the main lobby. 85% of the building's structural steel contains recycled material. Overall, the building has been designed to use 26% less energy than the minimum requirements for the city of New York, and earned a gold designation from the United States Green Building Council's LEED certification program, becoming New York City's first LEED Gold skyscraper.

Members of the design team (Flack & Kurtz), the Chief Engineer and the Property Manager will be part of the tour. The building is centrally located within walking distance from the New York Hilton, ASHRAE's headquarter hotel.

PROGRAMA TÉCNICO!

A ASHRAE também está oferecendo programas técnicos, veja abaixo alguns escolhidos pela Capmetal para facilitar sua pesquisa. Para ver o programa completo, clique aqui.

Ozonation Air Purification Technology in HVAC Applications (NY-14-C004)

Sunday, January 19, 2014: 9:45 AM

Sutton North (New York Hilton)

Lexuan Zhong, Ph.D., Concordia University

Fariborz Haghighat, Ph.D., P.E., Concordia University

The conventional approach to improve indoor air quality is to ventilate a building with outdoor air. This is a costly and energy inefficient approach. Ozonation air cleaners have been suggested as an alternative and energy efficient method in HVAC applications. This paper presents details of an innovative ozonation system which employs ozone producing lamps as an ozone source to exam the ozonation performance. The objectives of this paper are intended to explore the role of ozone for removal of VOCs and to systematically evaluate ozonation air purification technology for improving indoor air quality (IAQ) in HVAC systems.

See more of: [Filter Media Performance](#)

ASHRAE 145.2 Efficiency and Capacity Test Results for Five Gas-Phase Air Cleaners (NY-14-C005)

Sunday, January 19, 2014: 10:05 AM

Sutton North (New York Hilton)

M. Kathleen Owen, Research Triangle Institute

Roger Pope, Research Triangle Institute

James T. Hanley, Research Triangle Institute

Gas-phase air cleaners are used to remove a wide variety of contaminants from the air. However, it is often difficult to judge which air cleaner works for which contaminants and, further, to determine which air cleaner is better for a given application. Most gas-phase air cleaners use sorbents to remove the contaminants from the air. Since sorbents vary in which contaminants they can remove and air cleaners contain different sorbents in various configurations, it is critical to have test data to document the performance of air cleaners. To meet this need, ASHRAE has published a new laboratory test standard giving the HVAC market its first gas-phase test standard for air cleaning devices. This method is ASHRAE 145.2-2011 "Laboratory Test Method for Assessing the Performance of Gas-Phase Air Cleaning Systems: Air Cleaning Devices." Four contaminants were chosen to include compounds that are undesirable in air but are commonly found in indoor air or outdoor air that is entering buildings. These compounds also serve to highlight the capabilities of the test method and the differences across types of air cleaners.

See more of: [Filter Media Performance](#)

The First Step of Demand Control Ventilation in an Animal Facility in Japan: Design and Commissioning for Flexible Ventilation (NY-14-C009)

Sunday, January 19, 2014: 10:25 AM

Sutton South (New York Hilton)

Masaya Ishihara, Azbil Corporation Building Systems Company

Energy saving is one of the most important issues of animal facilities because a lot of energy is used to provide good indoor air quality (IAQ). Demand control ventilation (DCV) is expected to save energy by reducing ventilation rates in accordance with animal occupancy and other IAQ variables. As "Guide for the Care and Use of Laboratory Animals 8th edition (2011)" says, valuable air volume (VAV) systems may offer advantages with respect to flexibility and energy conservation. However, there is much room to discuss regarding practical ways of DCV, such as from what measurement values (e.g., CO₂, particles, TVOC) do we estimate IAQ, what IAQ level is sufficient for each animal, what ventilation rates is sufficient to dilute gaseous and particle contaminants, and how to decide optimal ventilation rates for each animal room. Although both researchers and facility managers of an animal facility were interested in energy saving by DCV, they hesitated to implement automated DCV because above questions had not been solved. And so, as the first step of DCV, a VAV system which enable facility users to set ventilation rates of each room easily from terminal PCs of building automation systems (BAS) was installed. In order to provide flexible ventilation, accurate pressurization and long-period operation, advanced control logics in our VAV system were developed. These control methods and commissioning data are presented.

See more of: [Maintaining Occupant Comfort Levels while Minimizing Energy Impact](#)

Can Low Energy Buildings be Healthy for Occupants?

Sunday, January 19, 2014: 11:00 AM-12:30 PM

Sutton North (New York Hilton)

Chair: Lawrence Schoen, P.E.

This seminar presents highlights of ASHRAE's IAQ 2013 Conference, Environmental Health in Low Energy Buildings, which was held October 15 - 18, 2013 in Vancouver, British Columbia, Canada. Four high quality papers selected from among the hundreds submitted for this conference address topics of high interest in the design and operation of buildings that strive to be both highly sustainable while also achieving high Indoor Environmental Quality.

Learning Objectives:

1. Describe methods for assessing and quantifying specific measures of indoor environmental quality.
2. Explain how certain aspects of the indoor environment can be degraded or improved by energy conserving design and retrofits.
3. Distinguish between building operation measures that can degrade indoor environmental quality from those that can enhance it.

4. Explain how the indoor environment can be protected from pollutants in the outdoor environment.
5. Distinguish between green building ratings and actual building performance; provide examples of performance parameters.
6. Apply design strategies that make for robust buildings - those that achieve high indoor environmental quality and low energy use.

[Building Design and Operational Choices that Impact Indoor Exposures to Outdoor Particulate Matter Inside Residences](#)

Brent Stephens, Ph.D., *Illinois Institute of Technology*

[Indoor Environmental Quality, Occupants' Perception, Prevalence of SBS Symptoms and Sick Leave in a Green Mark Platinum versus a Non-Green Mark Rated Building](#)

Pawel Wargocki, Ph.D., *Technical University of Denmark, Lyngby, Denmark*

[Natural Ventilation in California Offices: Estimated Health Effects and Economic Consequences](#)

Spencer Dutton, Ph.D., *Lawrence Berkeley National Laboratory*

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Seminar](#)

IAQ in Low-Energy Homes: Avoiding Collateral Damage

Sunday, January 19, 2014: 1:30 PM-3:00 PM

Sutton North (New York Hilton)

Chair: Andrew K. Persily, Ph.D.

Great progress has been made in reducing residential energy consumption, with the latest buzzword being net-zero. Whether a home is net-zero or very low energy, it is critically important that energy efficiency measures do not compromise the indoor environment. Homes, and buildings in general, exist for the occupants, not to win energy efficiency competitions, and there is a perceived, and in some cases real, tension between the goals of energy efficiency and indoor air quality. As we move towards low-energy homes, we need to consider IAQ by providing low-energy homes that support and ideally improve the health and comfort of the occupants.

Learning Objectives:

1. Understand the importance of addressing indoor air quality while pursuing low-energy building design and operation.
2. Understand the approaches being used to address ventilation and indoor air quality in low-energy, high performance residential buildings.
3. Understand the key indoor contaminants of interest in residential buildings and the levels being measured in low-energy, high performance buildings.
4. Understand how the mantra of "build tight, ventilation right" is being implemented in practice.
5. Appreciate the fact that low-energy buildings are subject to the same issues of commissioning, operation and maintenance, and occupancy effects as any other building.
6. Describe the wide range of resources and programs available to designers and other practitioners to provide good indoor air quality and reduce energy use.

[Field Study of Airtightness, Ventilation and IAQ in 24 High Performance Green California Homes](#)

Brennan Less, *Residential Building Systems Group, Lawrence Berkeley National Laboratory*

[VOC and HCHO Measurements in New Homes](#)

Brett Singer, Ph.D., *Lawrence Berkeley National Laboratory*

[The Realities of Operation and Occupancy in Net-Zero Energy Homes: Two Case Studies](#)

Kurt Roth, Ph.D., *Fraunhofer Center for Sustainable Energy Systems*

[IAQ Specs in a Net-Zero Energy Research Home: How Well Did They Work?](#)

Andrew K. Persily, Ph.D., *National Institute of Standards and Technology*

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Seminar](#)

Indoor Air Quality: Impact of Variables

Monday, January 20, 2014: 8:00 AM-9:30 AM

Sutton North (New York Hilton)

Chair: John Dunlap

This session explores the impact of various air delivery methods, air filtration methods and air treatment technologies on indoor air quality. In addition, the role air systems and room variables play in the spread of air-borne contaminants is examined.

Learning Objectives:

1. x
2. x
3. x
4. x
5. x
6. x

[Breathing and Cross-Infection Risk in the Micro-Environment Around People \(NY-14-C020\)](#)

Peter V. Nielsen, Ph.D., *Aalborg University*; *Jan Zajac, Aalborg University*; *Michal Litewnicki, Aalborg University*; *Rasmus L. Jensen, Ph.D., Aalborg University*

[Effect of Chemical Reactions in the Personal Micro-Environment on Inhaled Air Quality \(NY-14-C021\)](#)

Jackie S. Russo, Ph.D., Carrier Corporation; **H. Ezzat Khalifa, Ph.D.**, *Syracuse University*

[Interpersonal Transport of Droplet Nuclei Among Three Manikins in a Full-Scale Test Room \(NY-14-C022\)](#)

Li Liu, Ph.D., *Department of Civil Engineering, Aalborg University*; *Peter V. Nielsen, Ph.D., Aalborg University*; *Rasmus L. Jensen, Ph.D., Aalborg University*; *Yuguo Li, Ph.D., Hong Kong University*

[Ultraviolet Germicidal Irradiation \(UVGI\) in Hospital HVAC Decreases Ventilator Associated Pneumonia \(NY-14-C023\)](#)

Robert Scheir, Ph.D., Steril-Aire; **Timothy Leach**, *Steril-Aire*

[Biowall: A Sustainable Approach to Indoor Air Quality \(NY-14-C024\)](#)

Brenton S. Dunham, *Purdue University*; *William Hutzel, P.E., Purdue University*; *Ian Hahus, Purdue University*

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Conference Paper Session](#)

High-Performance Building Design: Applications And Future Trends

Monday, January 20, 2014: 8:30 AM-11:30 AM

1C03 (Javits Convention Center)

Chair: T.M. Lawrence, Ph.D.

This course will present applications of new technologies and design concepts to achieve the goal of high-performance buildings, including net-zero or nearly net-zero energy buildings. The course discusses exactly what a high-performance building is from the perspective of various stakeholders. High performance is more than just energy efficiency, and this course addresses issues and methods for providing high performance in areas beyond energy efficiency, such as indoor environmental quality. The course also describes future trends

toward high-performance buildings across the globe, and quickly summarizes how ASHRAE Standards (existing and those in development) address these topics.

See more of: [ALI Courses](#)

The Human Factor - Better Understanding of Comfort, Environment, and Risks

Monday, January 20, 2014: 9:45 AM-10:45 AM

Sutton North (New York Hilton)

Chair: Michelle Contri, P.E.

Three presentations with a wide variety of information on different scopes of the HVAC industry. All at the same time relates to increasing the thermal comfort and understanding environmental impacts in a building. The first presentation looks at the effects of second hand smoking in outdoor areas in relation to the weather. Data was collected indoors and outdoors for second hand smoke concentration levels. The second presentation looks at risk assessment methodologies. The case study was detailed on a threat-based approach, but also overviews a vulnerability approach. The third presentation details the thermal comfort of an Underfloor Air Distribution System with an overview of the field study prior to design.

Learning Objectives:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

[Effects of Outdoor Smoking Areas and Weather Conditions on Indoor Air Quality \(NY-14-C034\)](#)

Terry Sullivan, Ph.D., Brookhaven National Laboratory; **John Heiser**, Brookhaven National Laboratory; **Tom Watson, Ph.D.**, Brookhaven National Laboratory; **Paul Kalb**, Brookhaven National Laboratory

[Evaluation of Building-Specific Threat-Based Security Metrics \(NY-14-C035\)](#)

Ponkamon Aumpansub, Havtech Inc.; **William P. Bahnfleth, Ph.D., P.E.**, Pennsylvania State University; **Jason W. DeGraw, Ph.D.**, Pennsylvania State University

[A Field Study of Occupant Thermal Comfort in a LEED Platinum Office Building With an Underfloor Air Distribution System \(NY-14-C036\)](#)

Chad Miller, Portland State University; **Zachary Heise**, Portland State University; **Huafen Hu, Ph.D.**, Portland State University

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Conference Paper Session](#)

Designs for Thermal Comfort and Energy Savings: Real Practices in School and Office Buildings

Monday, January 20, 2014: 11:00 AM-12:00 PM

Sutton North (New York Hilton)

Chair: Liangzhu (Leon) Wang, Ph.D.

School and office buildings are characterized by diverse needs for thermal comfort, air qualities, and dynamic changes of thermal loads. How to balance thermal comfort and energy saving needs by viable solutions remain a challenge. This session presents three practical designs and analyses for achieving both thermal comfort and energy savings in school and office buildings: a case study combining heat recovery and mechanical ventilation systems in a school building; an application of CO₂-based demand-controlled

ventilation integrated with economizers in schools; and the evaluation of thermal comfort response of hydronic radiant ceiling systems under increasing thermal loads in office spaces.

Learning Objectives:

1. x
2. x
3. x
4. x
5. x
6. x

[Indoor Air Environment and Heat Recovery Ventilation in a Passive School Building: A Case Study for Winter Condition \(NY-14-C046\)](#)

Yang Wang, *Division of Technology for Energy Systems and Renewable Energy, Bavarian Center for Applied Energy Research; Tech. Uni. Munich*; **Jens Kuckelkorn**, *Division of Technology for Energy Systems and Renewable Energy, Bavarian Center for Applied Energy Research*; **Fu-Yun Zhao**, *Faculty of Civil Engineering and Geodesy, Technical University Munich*; **School of Power and Mechanical Engineering, Wuhan Uni.**; **Hartmut Spliethoff**, *Chair for Energy Systems, Faculty of Mechanical Engineering, Technical University Munich*

[Energy Analysis of CO₂-Based Demand Controlled Ventilation and Economizer for Air Source Heat Pump in Schools \(NY-14-C047\)](#)

Nabil Nassif, Ph.D., P.E., *North Carolina A&T State University*; **Nihal Al Razi**, *North Carolina A&T State University*

[Experimental Evaluation of the Thermal Comfort in an Occupied Office Under Transient Conditions using a Hydronic Radiant Ceiling Cooling System \(NY-14-C048\)](#)

Manuel Ruiz de Adana, Ph.D., *University of Córdoba*; **Ines Olmedo, Ph.D.**, *University of Córdoba*; **Fernando Peci, Ph.D.**, *University of Córdoba*

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Conference Paper Session](#)

A Comprehensive Look at Infectious Disease and Air Filtration in Healthcare Facilities: Energy Saving, IAQ Performance, and What Makes You Sick

Tuesday, January 21, 2014: 8:00 AM-9:30 AM

Sutton North (New York Hilton)

Chair: Zied Driss

Contaminants and transmission of pathogens in healthcare facilities have been known to cause many serious infectious diseases. This seminar sheds light on the important contaminants known today and will provide up-to-date control strategies to meet indoor air quality (IAQ) requirements. The speakers provide real-life examples and strategies.

Learning Objectives:

1. Describe the steps involved in transmission of microorganisms within healthcare facilities
2. Understand risk factors and overall prevalence of healthcare associated infections (HAIs) in U.S. healthcare facilities
3. List at least one strategy aimed at prevention of HAIs involving environmental reservoirs of microorganisms in air, water and on surfaces.
4. Learn up-to-date control strategies and indoor air quality (IAQ)
5. Learn about life cycle costs analysis for air filters in healthcare facilities, including real-life example of operating cost savings in health care facilities.
6. Comprehend types of issues and requirements that impact selection of air cleaning technologies.

[Interstate Highways of Cross Transmission of Microorganisms in Healthcare Facilities: Air, Water and Surfaces - Which is the Most Important?](#)

Russ Olmsted, *Trinity Health*

[Exceeding Standards for Internal Air Quality while Reducing Energy Consumption and Operating Costs](#)

John Ellis, *Intermountain Healthcare*

[Utilizing the Existing Air Handler Component for Improvement of the IAQ in Health Care Facilities Without Compromising the Energy Consumption](#)

Phil Maybe, *The Filter Man Ltd.*

[A Survey of Filtration Applications and Considerations in Healthcare](#)

Matt Middlebrooks, *Filtration Group*

[Building Science Measurements for the Hospital Microbiome Project](#)

Brent Stephens, Ph.D., *Illinois Institute of Technology*

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Seminar](#)

European Union: Practical Benchmarking of HVAC System Energy Efficiency

Tuesday, January 21, 2014: 11:00 AM-12:30 PM

Sutton South (New York Hilton)

Chair: Karel Kabele, Dr.Ing.

Systems used to condition and create indoor climate in buildings, including heating, ventilation and cooling, stand for more than one third of the energy consumption in developed countries, and this is where the energy savings are searched for in buildings. Since 2006, the European Energy Performance of Buildings Directive (EPBD-2002) has been implemented in building codes on a national level. For new and existing buildings, this requires a calculation of the energy performance of the building, including heating, ventilation, cooling, and lighting systems. It is, however, extremely important that the reduction in energy demand is made without reducing the indoor environmental quality (IEQ), because it will undermine the underlying need for healthy and safe living conditions indoors. This seminar is dedicated to explaining how information technologies and other tools are being used in Europe and by REHVA associated member countries to find the best compromises between HVAC systems, energy efficiency, and IEQ.

Learning Objectives:

1. Identify innovative solutions being applied in Europe
2. Describe the right strategies to enhance the sustainability of a building based upon the design, installation, exploitation and commissioning of HVAC systems.
3. Define why, where, when and how to perform IEQ and Energy audits in buildings
4. Identify the benefits of using continuous web-based monitoring systems for the assessment of energy demand and IEQ in buildings
5. Explain the strategy that has been mounted in the framework of the ISERV project to get a picture of the energy efficiency of HVAC systems at a European level.
6. Describe the benchmark data gathered by the ISERV project and the main pathways for new energy policies arising from this project.

[HVAC in Sustainable Office Buildings](#)

Frank Hovorka, *Service Developpement Durable*

[Assessment of IEQ and Energy Efficiency in Buildings](#)

Manuel Gameiro da Silva, Ph.D., *Universidade de Coimbra - Pólo II*

[The Practical Benchmarking of HVAC Systems Energy Efficiency in Use](#)
Zoltan Magyar, Ph.D., *Budapest University of Technology and Economics*
See more of: [International Design](#)
See more of: [Seminar](#)

Advances in Measurement and Modeling of Indoor Environmental Quality of Animal Buildings

Wednesday, January 22, 2014: 9:45 AM-10:45 AM

Beekman (New York Hilton)

Chair: J. Patrick Carpenter, P.E.

Concentrated, large-scale animal feeding operations create significant challenges in controlling air emissions and maintaining indoor environmental quality. Many ASHRAE members are involved in design and troubleshooting of environmental quality systems for animal facilities, and research developments in these areas have been ongoing efforts. This technical paper session, sponsored by ASHRAE TC2.2 Plant and Animal Environment, includes papers related to advances in measurement, modeling, and mitigation technologies for indoor environmental quality of animal facilities.

Learning Objectives:

1. Provide an overview of how pollutants vary spatially in a mechanically ventilated animal building
2. Design a sampling strategy for evaluating the effectiveness of ventilation systems in an occupied animal building.
3. Explain how an electrostatic precipitator works and define the factors affecting electrostatic precipitator performance
4. Explain why design improvements are needed to collect particulate matter emissions from poultry facilities
5. x
6. x

[Quantification of Ventilation Effectiveness for Air Quality Control in Animal Buildings \(NY-14-042\)](#)
Sheryll Jerez, *Stephen F. Austin State University*

[Heat and Moisture Production of Modern Swine \(NY-14-043\)](#)
Tami M. Brown-Brandl, Ph.D., *USDA-ARS-MARC*

[An Optimized Electrostatic Precipitator for Air Cleaning of Particulate Emissions from Poultry Facilities \(NY-14-044\)](#)

Roderick Manuzon, Ph.D., *The Ohio State University*; **Lingying Zhao, Ph.D.**, *The Ohio State University*;
Christopher Gecik, *The Ohio State University*

See more of: [Fundamentals and Applications](#)

See more of: [Technical Paper Session](#)

Impact of Unvented Combustion on Indoor Air Quality

Wednesday, January 22, 2014: 11:00 AM-12:30 PM

Sutton Center (New York Hilton)

Chair: David Delaquila

As new home construction methods and weatherization programs strive to tighten the building envelope to conserve energy, concerns for achieving acceptable indoor air quality (IAQ) continue to be an important topic of discussion and debate. Emissions from the use of unvented combustion space heating and cooking appliances are a few of the top concerns for impacting acceptable IAQ. This seminar seeks to present the results from relevant research and offer the perspective from both advocates and critics alike.

Learning Objectives:

1. Describe the primary emissions of concern from unvented combustion devices, i.e., carbon monoxide, nitrogen dioxide and water vapor.
2. Provide an overview of the results from the relevant research conducted on the emissions from unvented combustion appliances.
3. Distinguish the various levels of the primary emissions of concern adopted by various national and world health organizations and understand what the health risks are.
4. Explain the ventilation effectiveness of various types of exhaust hoods used with unvented cooking appliances.
5. Describe the safety devices and the level of allowable emissions from the product safety standards for unvented space heating appliances.
6. Describe the national model building code requirements and the importance of providing adequate combustion, ventilation and make up air for the proper operation of unvented combustion appliances.

Product Safety and IAQ from Industry Experience

Donald W. Denton, *Vent-Free Gas Products Alliance Section of AHRI*

Indoor Pollutant Concentrations from Using Unvented Space Heaters

Paul W. Francisco, *University of Illinois*

Ventilating Combustion Indoors? Why and How We Should

Shelly L. Miller, Ph.D., *University of Colorado at Boulder*

Impact of Vent-Free Gas Heater on IAQ from a Toxicologist's Perspective

Gary K. Whitmyre, *toXel, LLC*

See more of: [Indoor Environmental Health/Indoor Environmental Quality](#)

See more of: [Seminar](#)

ASHRAE 2014 Winter Conference!

<i>unday, January 19, 2014</i>	12:00 AM <i>Sutton North</i>	Indoor Air Quality in High-Performing Building Case Studies: A Wealth of Intent, A Dearth of Data <i>Andrew K. Persily, Ph.D., Kevin Teichman, Ph.D., Steven Emmerich</i>
	10:05 AM <i>Sutton North</i>	ASHRAE 145.2 Efficiency and Capacity Test Results for Five Gas-Phase Air Cleaners (NY-14-C005) <i>M. Kathleen Owen, Roger Pope, James T. Hanley</i>
	10:25 AM <i>Sutton South</i>	The First Step of Demand Control Ventilation in an Animal Facility in Japan: Design and Commissioning for Flexible Ventilation (NY-14-C009) <i>Masaya Ishihara</i>
	11:00 AM - 12:30 PM <i>Sutton North</i>	Can Low Energy Buildings be Healthy for Occupants? Lawrence Schoen, P.E.
	11:20 AM	Building Design and Operational Choices that Impact Indoor Exposures to Outdoor Particulate Matter Inside Residences <i>Brent Stephens, Ph.D.</i>
	11:40 AM	Indoor Environmental Quality, Occupants' Perception, Prevalence of SBS Symptoms and Sick Leave in a Green Mark Platinum versus a Non-Green Mark Rated Building <i>Pawel Wargocki, Ph.D.</i>

	12:00 PM	Natural Ventilation in California Offices: Estimated Health Effects and Economic Consequences <i>Spencer Dutton, Ph.D.</i>
	01:30 PM <i>Sutton North</i>	Field Study of Airtightness, Ventilation and IAQ in 24 High Performance Green California Homes <i>Brennan Less</i>
	01:30 PM - 03:00 PM	IAQ in Low-Energy Homes: Avoiding Collateral Damage <i>Andrew K. Persily, Ph.D.</i>
	01:50 PM	VOC and HCHO Measurements in New Homes <i>Brett Singer, Ph.D.</i>
	02:10 PM	The Realities of Operation and Occupancy in Net-Zero Energy Homes: Two Case Studies <i>Kurt Roth, Ph.D.</i>
	02:30 PM	IAQ Specs in a Net-Zero Energy Research Home: How Well Did They Work? <i>Andrew K. Persily, Ph.D.</i>
<i>Monday, January 20, 2014</i>	08:00 AM <i>Sutton North</i>	Breathing and Cross-Infection Risk in the Micro-Environment Around People (NY-14-C020) <i>Peter V. Nielsen, Ph.D., Jan Zajac, Michal Litewnicki, Rasmus L. Jensen, Ph.D.</i>
	08:00 AM - 09:30 AM	Indoor Air Quality: Impact of Variables <i>John Dunlap</i>
	08:20 AM	Effect of Chemical Reactions in the Personal Micro-Environment on Inhaled Air Quality (NY-14-C021) <i>Jackie S. Russo, Ph.D., H. Ezzat Khalifa, Ph.D.</i>
	08:30 AM - 11:30 AM <i>1C03</i>	High-Performance Building Design: Applications And Future Trends <i>T.M. Lawrence, Ph.D.</i>
	08:40 AM <i>Sutton North</i>	Interpersonal Transport of Droplet Nuclei Among Three Manikins in a Full-Scale Test Room (NY-14-C022) <i>Li Liu, Ph.D., Peter V. Nielsen, Ph.D., Rasmus L. Jensen, Ph.D., Yuguo Li, Ph.D.</i>
	09:00 AM	Ultraviolet Germicidal Irradiation (UVGI) in Hospital HVAC Decreases Ventilator Associated Pneumonia (NY-14-C023) <i>Robert Scheir, Ph.D., Timothy Leach</i>
	09:20 AM	Biowall: A Sustainable Approach to Indoor Air Quality (NY-14-C024) <i>Brenton S. Dunham, William Hutzler, P.E., Ian Hahus</i>
	09:45 AM <i>Sutton North</i>	Effects of Outdoor Smoking Areas and Weather Conditions on Indoor Air Quality (NY-14-C034) <i>Terry Sullivan, Ph.D., John Heiser, Tom Watson, Ph.D., Paul Kalb</i>
	09:45 AM - 10:45 AM	The Human Factor - Better Understanding of Comfort, Environment, and Risks <i>Michelle Contri, P.E.</i>
	10:05 AM	Evaluation of Building-Specific Threat-Based Security Metrics (NY-14-C035) <i>Ponkamon Aumpansub, William P. Bahnfleth, Ph.D., P.E., Jason W. DeGraw, Ph.D.</i>
	10:25 AM	A Field Study of Occupant Thermal Comfort in a LEED Platinum Office Building With an Underfloor Air Distribution System (NY-14-C036) <i>Chad Miller, Zachary Heise, Huafen Hu, Ph.D.</i>
	11:00 AM <i>Sutton North</i>	Indoor Air Environment and Heat Recovery Ventilation in a Passive School Building: A Case Study for Winter Condition (NY-14-C046) <i>Yang Wang, Jens Kuckelkorn, Fu-Yun Zhao, Hartmut Spliethoff</i>
	11:00 AM - 12:00 PM	Designs for Thermal Comfort and Energy Savings: Real Practices in School and Office Buildings <i>Liangzhu (Leon) Wang, Ph.D.</i>

	11:20 AM	Energy Analysis of CO ₂ -Based Demand Controlled Ventilation and Economizer for Air Source Heat Pump in Schools (NY-14-C047) <i>Nabil Nassif, Ph.D., P.E., Nihal Al Razi</i>
	11:40 AM	Experimental Evaluation of the Thermal Comfort in an Occupied Office Under Transient Conditions using a Hydronic Radiant Ceiling Cooling System (NY-14-C048) <i>Manuel Ruiz de Adana, Ph.D., Ines Olmedo, Ph.D., Fernando Peci, Ph.D.</i>
<i>Tuesday, 21, 2014</i>	08:00 AM <i>Sutton North</i>	Interstate Highways of Cross Transmission of Microorganisms in Healthcare Facilities: Air, Water and Surfaces - Which is the Most Important? <i>Russ Olmsted</i>
	08:00 AM - 09:30 AM	A Comprehensive Look at Infectious Disease and Air Filtration in Healthcare Facilities: Energy Saving, IAQ Performance, and What Makes You Sick <i>Zied Driss</i>
	08:20 AM	Exceeding Standards for Internal Air Quality while Reducing Energy Consumption and Operating Costs <i>John Ellis</i>
	08:40 AM	Utilizing the Existing Air Handler Component for Improvement of the IAQ in Health Care Facilities Without Compromising the Energy Consumption <i>Phil Maybe</i>
	09:00 AM	A Survey of Filtration Applications and Considerations in Healthcare <i>Matt Middlebrooks</i>
	09:20 AM	Building Science Measurements for the Hospital Microbiome Project <i>Brent Stephens, Ph.D.</i>
	11:00 AM <i>Sutton South</i>	HVAC in Sustainable Office Buildings <i>Frank Hovorka</i>
	11:00 AM - 12:30 PM	European Union: Practical Benchmarking of HVAC System Energy Efficiency <i>Karel Kabele, Dr.Ing.</i>
	11:20 AM	Assessment of IEQ and Energy Efficiency in Buildings <i>Manuel Gameiro da Silva, Ph.D.</i>
	11:40 AM	The Practical Benchmarking of HVAC Systems Energy Efficiency in Use <i>Zoltan Magyar, Ph.D.</i>
<i>Wednesday, January 22, 2014</i>	09:45 AM <i>Beekman</i>	Quantification of Ventilation Effectiveness for Air Quality Control in Animal Buildings (NY-14-042) <i>Sheryll Jerez, Xinlei Wang</i>
	09:45 AM - 10:45 AM	Advances in Measurement and Modeling of Indoor Environmental Quality of Animal Buildings <i>J. Patrick Carpenter, P.E.</i>
	10:05 AM	Heat and Moisture Production of Modern Swine (NY-14-043) <i>Tami M. Brown-Brandl, Ph.D.</i>
	10:25 AM	An Optimized Electrostatic Precipitator for Air Cleaning of Particulate Emissions from Poultry Facilities (NY-14-044) <i>Roderick Manuzon, Ph.D., Lingying Zhao, Ph.D., Christoper Gecik</i>
	11:00 AM <i>Sutton Center</i>	Product Safety and IAQ from Industry Experience <i>Donald W. Denton</i>
	11:00 AM - 12:30 PM	Impact of Unvented Combustion on Indoor Air Quality <i>David Delaquila</i>
	11:20 AM	Indoor Pollutant Concentrations from Using Unvented Space Heaters <i>Paul W. Francisco</i>
	11:40 AM	Ventilating Combustion Indoors? Why and How We Should <i>Shelly L. Miller, Ph.D.</i>
	12:00 PM	Impact of Vent-Free Gas Heater on IAQ from a Toxicologist's Perspective

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LOUISE PASSALACQUA

E-MAIL: LOUISE@CAPMETAL.COM.BR

TEL: 55 21 3860-1261 R: 204

SITE: WWW.CAPMETAL.COM.BR



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