

March 2012 Volume 47, Issue 6

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COSTS

Fees are based on online reservations and prepayment.

Philadelphia Chapter Members: \$30

ASHRAE Members -Non-Chapter Members: \$40

Non- ASHRAE Member: \$40

Young Engineers (35 & under): \$25

Students: FREE



QUAKER CITY CLIMATE

Application of Computational Fluid Dynamics (CFD) for Built Environment

Presented by
Kishor Khankari, PhD
ASHRAE Distinguished Lecturer
Syska Hennessy Group

Thursday, March 15, 2012

3:30 PM to 6:00 PM: Tabletop Vendor Show

With Hors D'oeuvres and Cash Bar

6:00 PM: Dinne

6:30 PM: SMCA Student Scholarship Presentation

7:00 PM to 8:00 PM: Technical Session

Click here to Register.

See <u>page 8</u> for a list of vendors exhibiting at the show. This is **Student Night** - all Students may attend at <u>no charge!</u>

LOCATION

Fisher's Tudor House

1858 Street Road Bensalem, PA 19020 (215) 244-9777 www.fisherstudor.com

For Directions: <u>click here</u> Free parking on site

PRESENTATION SUMMARY

Computational Fluid Dynamics (CFD) has been widely used in a variety of industrial sectors for analysis, and optimization of the designs. It can be employed as a design and analysis tool of ventilation systems for built environment. CFD predicts airflow patterns, temperature and relative humidity distribution, thermal comfort parameters, and effectiveness of ventilation for indoor and outdoor spaces. This presentation will provide basic introduction to CFD simulations and discuss how it can be employed in the analysis and optimization of HVAC designs starting at the conceptual stage.

2011- 2012

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Young Engineers in ASHRAE

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PRESIDENT'S MESSAGE

Did you know?

There are 36.5 million U.S. residents who claim Irish ancestry. This number is more than eight times the population of Ireland itself (4.5 million).

Can you believe March is here and that means St. Patrick's Day is just around the corner. This year as Chapter President has flown by fast. We have this month's Trade Show meeting with SMCA and then we have just two more meetings and then our annual golf outing which is always a hit. Even though the economy is struggling, I see a few new faces coming out to the monthly meetings to network and learn what's new or enhanced in the industry. I hope that means we are doing the right things to serve the Chapter membership. While I'm on the topic of serving the Chapter, I really want to stress how important it is for members to get involved. We are the future leaders of the HVAC industry. By donating to ASHRAE research or volunteering your time, you show others your commitment to our future, especially the future of the environment. Be an example to others! If you don't do it who will? If you do not like something, how can it get changed if you do not speak up? Talk to a Board member this month. Now is a good time, as Chairperson and Board member positions are being reviewed for the 2012-2013 Chapter year.

Be sure you attend this month's Vendor Show/Dinner Meeting. I guarantee you will enjoy yourself.

Bob Finkboner
Philadelphia Chapter President
c021@ashrae.net

Distinguished Fifty Year Member Award

We are pleased to announce that upon recommendation of the Honors and Awards Committee, ASHRAE Members Council has voted to honor **Mr. Lawrence G. Spielvogel** with the Distinguished Fifty-Year Award. This award recognizes individuals who have been an ASHRAE member for a minimum of fifty years, a past Society President, Fellow, recipient of the Distinguished Service Award, or otherwise performed outstanding service for the Society. Congratulations Larry!!

March Speaker Bio

Dr. Kishor Khankari is an Associate Partner at Syska Hennessy Group. As a specialist in Computational Fluid Dynamics (CFD), he works closely with his clients to provide optimized HVAC solutions using CFD techniques. Dr. Khankari has several years of experience in providing consulting services that have resulted in the development of solutions to a wide variety of engineering problems involving fluid flow, heat transfer, mass transfer, and other similar engineering processes. He has developed a patented technology of a wind band design of exhaust fan assembly systems. He has developed several easy-to-use analytical software tools, which are regularly used by design engineers in a variety of companies including those in the critical facility and automotive industries.

A noted expert in his field, Dr. Khankari has a PhD in CFD from the University of Minnesota and has been regularly published in several technical journals and trade magazines. He is an eloquent speaker and has made presentations on topics related to design and optimization of HVAC systems at various technical conferences and professional meetings.

Dr. Khankari is an active member of ASHRAE both at local and national level. He is a member and Secretary of Board of Governors of Detroit ASHRAE Chapter. He is serving as a voting member and Chair of Research subcommittee of ASHRAE Technical Committee TC9.11 Clean Spaces.

2011-2012 Directories are Available Now!

The 2011-2012 Philadelphia Area Directory—Associations, Consulting Firms, and Manufacturers' Representatives is in stock. It sells for \$23 each. Payment should be sent with your order to: Philadelphia Chapter ASHRAE, 994 Old Eagle School Road, Suite 1019, Wayne, PA 19087-1866. Rather pay by credit card? Call Emily at 610-971-2169.

Chapter Technology Award Competition 2012

The Technology Award Program recognizes members for innovative designs, communicate that technology to other members, and highlight achievements to other professionals.

The Chapter Technology Transfer Committee will be accepting applications for the Chapter Level competition in **March 2012** in the following categories:

- Commercial Buildings, New and Existing
- Institutional Buildings, New and Existing
- Health Care Facilities, New and Existing
- Industrial Facilities or Processes, New and Existing
- Public Assembly Facilities, New and Existing
- Residential Buildings, New and Existing (Single Family and Multi-Family)
- Alternative or Renewable Energy Use

Entries will be judged on energy efficiency, indoor air quality and thermal comfort, innovation, operation and maintenance, cost effectiveness, environmental impact and quality of presentation.

The process for the ASHRAE Technology Awards starts right here at the Chapter level. Chapter Competition winners will be judged in the Regional Technology Award Competition. Regional winners will then submit a long form application for the Society Technology Award Competition. Winners of the Society Competition will also be featured in the ASHRAE Journal.

Operations and Performance Management Professional (OPMP) Certification

Today's complex buildings can fade from green to gray when building operators don't realize the full potential of the systems they manage. Staying current with the latest facility operational strategies and technologies can reduce energy use in buildings by 10% to 40%.

The OPMP certification demonstrates a well-rounded understanding of how to design and executive an effective building operations and maintenance plan based on optimizing HVAC system performance. ASHRAE has developed the OPMP certification program in collaboration with the Association of Higher Education Facilities Officers (APPA) and the US General Services Administration (GSA).

The exam is available on computer at proctored testing centers through Applied Measurement Professionals, Inc., which has testing centers in Center City Philadelphia, Wilmington, DE and Robbinsville, NJ.

This is in addition to the other five certification programs currently available:

Building Energy Modeling Professional;

Healthcare Facility Design Professional;

Building Energy Assessment Professional;

Commissioning Process Management Professional;

High-Performance Building Design Professional (HBDP) Certification

Additional information is available on the ASHRAE Website at www.ashrae.org/certification. Or you can email the Philadelphia Chapter Technology Transfer Chair (Mark Maguire) at co21cttc@ashrae.net.

Visit our web site at

http://phila.ashraechapters.org

For Presentation Archives, Announcements, Jobs/Resumés, Education Updates, and more!

Sheet Metal Workers Local 19 Tour

Twenty-one ASHRAE Philadelphia chapter members accepted the offer to receive a "behind-the-scenes" tour of the Sheet Metal Workers Local 19 balancing training center on Saturday, March 3. The half-day workshop consisted of presentations of the biosafety cabinet and fume hood testing lab, the variable volume box/DDC station, the water balancing station and the duct-leak testing area.

Instructors demonstrated the training that members receive as part of a two-year course, such as:

- The SMACNA test protocol of pressurizing a section of ductwork and measuring the flow rate of air to maintain the pressure; removing even small plugs from the duct caused a measurable increase in duct leakage.
- The water-balancing station, in which students measure water flow rates by different measurement techniques.
- The state-of-the-art biosafety cabinet/fume hood testing area. This
 area is one of the largest clean-room training facilities in the country.
- The interface between balancers and control vendors in adjusting variable-volume air systems.

The attendees came away impressed with the extent and quality of training that Local 19 balancers receive. ASHRAE appreciates the tour that Local 19 assembled.



ASHRAE members in variable-volume calibration lab at the Local 19 balancers' training center.

10th Annual Design on the Delaware

November 14-16, 2012 - Philadelphia, PA

Design on the Delaware provides an opportunity to contribute your expertise to the design, construction, and planning professions. The 2012 Conference Committee invites you to submit program and tour proposals of interest to architects, landscape architects, planners, engineers, contractors, developers and others in the building design and construction industry. Program proposals are due **April 16, 2012** and should be submitted online at http://proposals.designonthedelaware.com. Click here for the Call for Programs.

SAVE THE DATE!!

ASHRAE PHILADELPHIA CHAPTER ANNUAL GOLF TOURNAMENT Friday, June 1, 2012

Northampton Valley Country Club 299 Newtown-Richboro Road Richboro, PA 18954 www.nvgc.com

Lunch/Registration: 12:00 PM Shotgun Start: 1:00 PM Dinner/Awards: Following Golf

Stay tuned for more details!

PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2011-2012

Date	Location	Торіс	Theme	Joint Meeting
3/15/2012	Fisher's Tudor House	Application of Computational Fluid Dynamics (CFD) for Built Environment presented by Dr. Kishor Khankari, PhD, ASHRAE Distinguished Lecturer, of Syska Hennessy Group	Vendor Trade Show & Student Night	SMCA
4/19/2012	Holiday Inn	Technical Session Energy Modeling Techniques		
4/19/2012	Holiday Inn	TBD	Refrigeration	RSES
5/17/2012	Holiday Inn	Dealing with Dampers - Design and Code Issues presented by Mark Jelinske of Cator-Ruma Associates	Past President's Night	
6/1/2012	Northampton Valley CC	Golf Outing		

Program calendar is subject to change. Please refer to <u>ASHRAE Philadelphia Website</u> for up to date information.

University of Pennsylvania Module VII Chiller Plant Tour

Thursday, May 3, 2012 2:00 PM to 4:00 PM

3331 River Road
Philadelphia, Pennsylvania 19104
(intersection of University Avenue and River Fields Drive)
Get Directions

The University of Pennsylvania Module VII (MOD VII) chiller plant contains 30,000 tons of cooling capacity and is the largest of the three chiller plants on campus that support the central chilled water system. The plant was designed to accommodate an additional 20,000 tons of cooling capacity as demand for chilled water on the University's campus grows. There are six field-erected 5,000 ton centrifugal chillers currently installed within the plant. Four of these units were installed when the plant was originally constructed in 2000 and two units were added in 2008. During the summer season peak chilled water supply can reach as high as 68,000 gpm. The plant is located at the south end of campus off University Avenue.

April 19 Technical Session – Reserve the Date!

The Philadelphia ASHRAE Chapter will host a 3-hour technical session on Thursday, April 19 from 1 to 4pm (just before the dinner meeting). The "Energy Modeling Techniques" session will be led by Dr. Drury B. Crawley, Director of Building Performance Products at Bentley Systems, and an ASHRAE Fellow.

Prior to joining Bentley Systems, he led DOE's Commercial Building Initiative – working to achieve cost-effective net-zero energy commercial buildings by 2025, including the Commercial Building Energy Alliances and Commercial Building Partnerships. He was also responsible for managing the U.S. Department of Energy's building energy software tools research and development activities including EnergyPlus (winner of an R&D100 Award in 2003), OpenStudio plugin for Google SketchUp, Energy-10, and DOE-2.

The session will award three professional development hours. More details will follow.

Milton Garland and Refrigeration Comfort Cooling Award Competitions - 2012

ASHRAE offers two competition-based awards encouraging the design of innovative refrigeration systems. The Milton W. Garland Commemorative Refrigeration Award for Project Excellence recognizes non-comfort refrigeration systems. The Refrigeration Comfort Cooling Award for Project Excellence is oriented toward comfort refrigeration systems.

The Philadelphia Chapter Technology Transfer Committee is currently accepting applications for both competitions for 2012.

The Garland Award competition is open for the design of mechanical refrigeration machinery for applications other than human comfort: e.g., food processing/preservation, industrial/manufacturing processes, life support in extreme environments, recreational facilities. Additional information on this competition is available at ashrae.org/members/page/1692.

The Refrigeration Comfort Cooling Award competition is open for the design of mechanical refrigeration machinery for human comfort applications. Additional information on this competition is available at www.ashrae.org/members/page/comfortcooling.

Both submissions must be made within 36 months of the initial operating date of the system, and will be judged on the following criteria:

- Complexity of Problem
- Solution Concept
- Architectural Integration
- Originality
- Achievement of Performance Criteria
- Energy Effectiveness
- Budget Compliance
- Ease of Maintenance

Additional information can be obtained from Mark Maguire, Chapter Technology Transfer Chair at c021bog5@ashrae.net.

Annual Science / Mathematics Donation

The Philadelphia ASHRAE Chapter purchased \$1500 of science and mathematics materials for a K-8 school in Camden. The school was very grateful for these materials since their budget cannot afford these supplies. Some of the materials include a Periodic Table, models of an animal cell and a plant cell model, models of the eye, heart and brain, a rock and mineral survey set, a fossil set and a set of K'nex. Most of these materials will be used by the 7th and 8th grade classrooms.



This article was written by Greg Cunniff (manager of application engineering for Taco) and submitted by Paul Silvestre of B.J. Terroni Company, the Philadelphia-area manufacturers' representative. Please submit articles highlighting novel HVAC technologies to Chapter Technology Transfer Committee Chair Mark Maguire (c021cttc@ashrae.net) for consideration in future newsletters.

Chilled Beams Get a Warm Reception

Tracing radiant technology's genealogy, a new member of the family recently entered our consciousness: chilled beam radiant cooling. With chilled beam systems, chilled water circulates through tubing embedded in a metal ceiling fixture to wick away heat. What makes this technology so interesting is its broad applicability for commercial structures and xtreme energy and thermal efficiency. A key advantage is that a chilled beam system requires very little ceiling space and height, or, in the parlance of commercial architects and designers, it conserves interior real estate. Another key advantage, functionally and financially, is that water — the main transporter of thermal energy and much denser than air — permits a very high energy carrying capacity and a smaller transport system: pipes. A forced-air system is, by its very nature, greatly less efficient because of the inherently low density of air and requires large ducts to transport Btu.

Chilly In The Windy City

The structure located at 250 S. Wacker Drive in downtown Chicago is a 15-story, multitenant office tower with retail space on the first floor. The first and top floors had dedicated HVAC systems separate from systems serving the second through 14th floors. These intermediate floors had a floor-mounted induction perimeter system and a constant volume-variable temperature interior system. Each of the floors had about 14,300 square feet of rentable floor area (215,000 square feet total).

A major renovation of the building included removal of the building's exterior walls and glass, and gutting of the structure down to the concrete. Building owners concluded the existing induction units and enclosures would have to be replaced. Fortunately, the renovation involved a change to 100% low-e exterior glass, which significantly reduced the building's heating and cooling loads. Heat losses along the perimeter were reduced to less than 200 Btu/lineal foot, which made it possible to provide comfort conditioning of interior spaces with active chilled beams mounted overhead.

Jim Wilson of Windy City Representatives, a Chicago HVAC manufacturers rep firm, says many advantages have been realized, beginning with unobstructed visibility through the floor-to-ceiling windows along all exterior walls. Also, there are no downdrafts and floor space has been gained, while the cost of custom enclosures for floormount units was avoided. Finally, fan energy and noise levels have been greatly reduced.

Because chilled beams are ceiling-mounted and do not use drain pans, the chilled water supply temperatures must be above the ambient dew point. As a result, dehumidification, or latent cooling, is handled by a separate 100% dedicated outdoor air system (DOAS) supplying dry, conditioned air to the space. Passive chilled beams employ natural convection, while active chilled beams employ forced convection. Passive chilled beam systems supply the DOAS airflow through a separate diffuser or grille in the room. An active chilled beam supplies the DOAS airflow through the chilled beam, thereby increasing the capacity of the cooling coil through forced convection.

The amount of outside air required to operate a typical chilled beam system is much less than that needed for a forced-air system. A chilled beam system typically needs only one air change per hour, using outside air to pressurize the space to prevent the infiltration of outside air. With a forced-air system, that need grows to eight to 10 air changes of recirculated (and fresh) air to cool a space. Also reduced is the ceiling space typically required for ductwork. The amount of air circulated by the central system is also dramatically reduced, often 80% to 90% less than with conventional, all-air systems. Of course, this dramatically reduces the horsepower to circulate air within interior spaces.

The net result is lower energy consumption and operating costs. Studies have shown — in typical U.S. commercial buildings — that fan energy is often second only to lighting in energy consumption. With active chilled ceiling and chilled beam systems, energy to

Please join us!

<u>Tabletop Vendor Show</u>

Thursday, March 15, 2012

4:00 PM to 6:00 PM

with hors doeuvres and cash bar

Associated Steam Specialty Co.

B.J. Terroni Co.

Clapp Associates

Conquest—Fire Spray

Coward Environmental Systems, Inc.

Elite Air Systems

Energy Transfer Solutions, Inc.

Environmental Systems Group

eSite Systems, LLC

General Aire Systems

HVACR-Tools.com

IIS Group, LLC

James Martin Co., Inc.

L&R Associates, Inc.

Maiocco & Associates, Inc.

Merion Pump & Equipment Company

Mitsubishi Electric HVAC Division

Mutimer Company

National Air Filter Service Co of NJ Inc.

N.H. Yates & Co.

Penn Lighting Associates

Radius Systems, LLC

R.D. Bitzer Co. Inc.

Reliable Controls Corp.

Schneider Electric

Siemens Industry Inc.

SMCA of Philadelphia & Vicinity

Victaulic

ASHRAE Learning Institute 2012 Spring Online Course Series

2 WAYS TO REGISTER

Internet: www.ashrae.org/onlinecourses

Phone: Call toll-free at 1-800-527-4723 (US and Canada) or 404-636-8400 (worldwide) Note: You may register up to 24 hours prior to an online course. Courses are in US Eastern Standard Time.



District Cooling & Heating Systems

Mon, March 19, 2012 - 1:00 pm to 4:00 pm ET

Basics of Combined Heat & Power

Wed, March 21, 2012 - 1:00 pm to 4:00 pm ET

Evaluating the Performance of LEED®-Certified Buildings

Wed, March 28, 2012 - 1:00 pm to 4:00 pm ET

Commissioning Process & Guideline 0 Wed, April 4, 2012 – 1:00 pm to 4:00 pm ET

* Complying with Standard 90.1-2010: HVAC/Mechanical

Mon, April 9, 2012 - 1:00 pm to 4:00 pm ET

* Complying with Standard 90.1-2010: Envelope/Lighting

Wed, April 11, 2012 – 1:00 pm to 4:00 pm ET

The following courses are comprised of two parts. Registrants must attend both parts in order to receive CEU/PDH credits. Archiving is available.

Humidity Control: Principles and Applications - Part 1

Mon, March 26, 2012 - 1:00 pm to 4:00 pm ET

Humidity Control: Principles and Applications - Part 2

Mon, April 2, 2012 - 1:00 pm to 4:00 pm ET

Implementing ASHRAE Standard 189.1-2009 - Part 1

Mon, April 16, 2012 - 1:00 pm to 4:00 pm ET

Implementing ASHRAE Standard 189.1-2009 - Part 2

Thurs, April 19, 2012 – 1:00 pm to 4:00 pm ET

Integrated Building Design - Part 1

Mon, April 23, 2012 - 1:00 pm to 4:00 pm ET

Integrated Building Design - Part 2 Wed, April 25, 2012 - 1:00 pm to 4:00 pm ET

* Take both Standard 90.1 courses and save 20% on the price of these courses



ASHRAE HVAC Design Workshops

2 Workshops, 5 Days of Intense Instruction May 21-25, 2012 • ASHRAE Foundation Learning Center • Atlanta, GA

HVAC Design: Level I - Essentials

May 21-23, 2012

ASHRAE's HVAC Design: Level I - Essentials workshop provides intensive, practical education for designers and others involved in delivery of HVAC services. Developed by industry-leading professionals, the workshop provides participants with training design to accelerate their evolution into effective member on a design, construction or facilities maintenance team. Gain the fundamentals and technical aspects to design, install and maintain HVAC systems.

HVAC Design: Level II – Applications



May 24-25, 2012

ASHRAE's HVAC Design: Level II - Applications workshop provides advanced instruction on HVAC system designs for experienced HVAC designers or those who completed the HVAC Design: Level I Essentials workshop. Gain an understanding of system design incorporating the application of Standards 55, 62.1, 90.1 and 189.1.

Creating Effective, Highly Skilled Engineering Team Members

- Gain knowledge to make immediate contributions to design projects
- Participate in in-depth, practice-focused training
- Learn from industry leaders selected by ASHRAE
- Receive free bonus resources valued at over \$200

Attendees of the HVAC Design Workshops can earn continuing education credits. Contact the relevant governing body for more information.



ASHRAE Certification **Programs**

- **Building Energy Assessment** Professional (BEAP)
- Building Energy Modeling Professional (BEMP)
- Commissioning Process Management Professional (CPMP)
- Healthcare Facility Design Professional (HFDP)
- High-Performance Building Design Professional (HBDP)
- Operations & Performance Management Professional (OPMP)

For more info, visit www.ashrae.org/ certification

Visit www.ashrae.org/hvacdesign to register

In Memoriam

The Philadelphia Chapter is sorry to report the passing of one of its past Presidents, Stanley Leitsch, on February 18, 2012. He was President of the Chapter in 1978. Stan worked at Robert Seigel Associates of Narberth, PA.

Stan was the beloved husband of Rita Leitsch, the devoted father of two children, and the loving grandfather of five grandchildren. Contributions in his memory may be made to the Boy Scouts of America, Cradle of Liberty Council #525, 2130 Winter Street, Philadelphia, PA. 19103.



February Meeting Photos



Members of the Philadelphia Chapter enjoy the YEA Social Event at the pool tables at Dave & Buster's following the February meeting.

The February meeting speaker, Bill England of Flow Design (left), receives a Liberty Bell as a thank you from ASHRAE Philadelphia Chapter President, Bob Finkboner. Bill spoke on "Achieving Total Flow Control in HVAC Systems."





The Philadelphia Chapter
of the
American Society of Heating,
Refrigerating and Air
Conditioning Engineers, Inc.

994 Old Eagle School Road Suite 1019 Wayne, PA 19087-1866 P 610-971-2169 F 610-971-4859

Click <u>here</u> to visit our web site at:

http://phila.ashraechapters.org

Republication of material contained herein is expressly forbidden without official Chapter authorization. The Chapter does not speak or act for the Society.

Any member with material to submit for inclusion in the Climate can send the information to:

Hope Silverman
P 610-971-2169
hope@mmco1.com

Material can include letters to the editor, member news, upcoming events, comments on chapter programs or issues, etc.

NOTICE

On January 7, 2010 the Legislature enacted and the Governor signed into law
P.L. 2009, C. 294 which requires Professional Engineers licensed in New Jersey to
complete continuing education. The effective date of the new law is January 12, 2011. At this time, the
State Board of Professional Engineers and Land Surveyors ("Board") is working on proposed regulations to
provide guidance and clarification to its licensees and interested parties. This Notice is intended to provide
information about the continuing professional competency requirements.

- A licensee shall complete not more than 24 continuing professional competency credits related to the practice of Professional Engineering in every biennial license renewal cycle, 2 of which shall be in professional practice ethics.
- The Board does not have a process in place to approve educational programs and providers at this time. However, the Board is working on proposed regulations to address these matters.
- A licensee is not required to acquire continuing professional competency credits until January 12, 2011. However, the Board anticipates that a current licensee shall be required to obtain 15 continuing professional competency credits, 2 of which shall be in professional practice ethics, on or before April 30, 2012 to meet the requirements for the 2012-2014 biennial renewal period.
- The Board anticipates that for the 2014-2016 biennial renewal period, and every 2 years thereafter, a licensee shall be required to complete 24 continuing professional competency credits, 2 of which shall be in professional practice ethics. http://www.njleg.state.nj. us/2008/Bills/PL09/294.HTM

NEW MEMBERS

William L. Bohner, Jr. (Member)

Holly Lynn Goodroad (Member)

David A. Bennett (Associate)

Steven W. Graff (Associate)

John Francis Elwood (Student)

Timothy J. Forbes, Jr. (Student)

Peter Navarro (Student)

Dylan M. Short (Student)

Kevin Tomko (Student)