



# QUAKER CITY CLIMATE

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### Dave & Busters

325 N Columbus Blvd  
Philadelphia, PA 19106  
(215) 413-1951  
For Directions :

[Click Here](#)

Parking is **\$12.**

(\$5 coupon good towards  
food or drink)

#### Dinner Fees:

- Philadelphia Chapter Members with online reservation and prepayment: **\$30**
- ASHRAE Members - Non-Chapter Members : **\$40**
- Non- ASHRAE Member : **\$40**
- Young Engineers (35 and under) with online reservation and prepayment: **\$25**
- Students with online reservation: **\$10.00**
- Event is free for Past Presidents

## ENERGY MANAGEMENT IN EXISTING BUILDINGS IT'S PAST PRESIDENT'S NIGHT

Our next dinner meeting is scheduled for **Wednesday, May 19, 2010** at Dave & Buster's. The event registration can be found [here](#). The event schedule is as follows:

- Social Hour: 5:00pm-6:00pm (Cash Bar)
- Dinner: 6:00pm
- ASHRAE Research Presentation: 6:30pm-7:00pm
- Presentation by Davor Novosel: 7:00pm-7:45pm
- Afterwards: YEA Social

Our February meeting entitled "Energy Management in Existing Buildings" featuring Davor Novosel from the National Energy Management Institute (NEMI).

Mr. Novosel is currently the Chief Technology Office for NEMI and brings with him 30 years of international HVAC experience. He holds a Master of Science in Mechanical Engineering degree from the Technical University of Munich, Germany, a Master in Business Administration degree from Northwestern University, Kellogg School of Management, Evanston, Illinois and is a Certified Indoor Air Quality Professional (CIAQP).

As a follow-up to last year, Professor Jin Wen, PhD of Drexel University's College of Engineering will also be sharing her latest ASHRAE sponsored research on VAV terminal control.

A special thanks to MDCSystems for helping make this meeting possible with their generous donation to chapter activities.

Afterwards: Young Engineers in ASHRAE (YEA) will be having a social event. Pool tables have been reserved and all members 35 years of age or younger are invited.

## PRESIDENTS MESSAGE:

I would like to thank all of the attendees to our 90.1/62.1 seminar and the ASHRAE webcast for coming out to the events. We are working to continue to provide similar events to keep the membership up to date on current issues and hope to see greater attendance in the future.

I hope to see all of you at our next meeting at Dave and Busters for our last chapter program meeting of this year. This is our Past Presidents night and I would like to thank all of them for their service to the chapter and hope to see them there. This is also our membership promotion night so please bring a candidate for membership.

After the meeting there will be a YEA social event so all of you young engineers please come out and meet and enjoy the after meeting activities.

The next chapter event is our golf outing on June 4. Please see the c-vent announcement and our newsletter for sign ups and sponsorship.

We are looking for members to help the Board in their activities. So if you would like to be part of the process please contact any board member.

I encourage all members who have not renewed their membership to do so before the rate increase in June and thank all of the members who have renewed their membership.

I would like to thank all of the members who have contributed to ASHRAE research and hope that anyone who has not contributed to do so.

Please be reminded that if you are unemployed and have your resume posted on the chapter website that there is a \$10.00 discount for attendance to the meeting.

As this is my last chapter program meeting as President I would like to thank the membership for their support. I would like to thank the current board on a job well done. It was an interesting year that went fast and I know that all of you will support the new board and next years' programs and events. I wish the new board well in their endeavors and see you at the next meeting.

*Bill Hart*

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# Implementation of Chilled Beams and Displacement Ventilation

*This technical article was written by Leon Klooststra of Titus and submitted by Steve Solotist from John F. Scanlan. Articles highlighting novel HVAC technologies should be submitted to [mmaguire@klingsstubbins.com](mailto:mmaguire@klingsstubbins.com) for consideration in future newsletters.*

Technology has advanced and new air distribution equipment is available in the market but basic guidelines of comfort still apply. With the emergence of each new air distribution product it is very important that we, as designers, mechanical engineers, air distribution sales personnel and suppliers, do not forget the basic principles of air distribution. Thus, with air distribution tools like chilled beams and displacement ventilation, the basic comfort guidelines are still the ultimate goal.

As design engineers we need to continue designing systems, whether utilizing newer technology or established air distribution devices, that still meet ASHRAE criteria (55 and 62) on comfort, and air change effectiveness, while maintaining the systems energy efficiency, as recommended in standard 90. Our goal is a non-drafty, near thermostat-temperature room conditions at sound levels (NC) that are acoustically acceptable for the space or room occupants.

It should be pointed out that displacement ventilation systems require extra considerations over that of typical ceiling diffusers. In displacement systems, air flow is discharged into the room's "occupied space" at temperatures below what is acceptable for continuous exposure and many times at velocities higher than 50 FPM. Because of this, some space is required for temperatures and velocities to mix with the room air before becoming suitable for occupants and acceptable to ASHRAE standard 55 on comfort. This distance is often called the "near zone" or "adjacent zone." A near zone area may be expressed as a percentage of the floor area in a building that can not be used for comfort, and should not be occupied on a continuous basis. In many ways the near zone for displacement diffusers present a similar comfort dilemma as with a side-wall grille application with an excessive air flow in a drop zone. In both cases the temperatures and velocities will not meet the ASHRAE comfort conditions of Standard 55.

It should be pointed out that many buildings do not require setting 100-percent comfort conditions across all locations. Excessive velocities and temperature gradients may exist in places such as hallways, exterior walls, entries, atria, airport terminal locations, gymnasiums and in many school common rooms. Displacement diffusers do have the advantage of delivering fresh, less mixed air into a room, building space or occupied zone. The proper application of these diffusers can allow for outstanding placement of fresh air flow into many problem areas such as smoke-laden restaurants, casinos, and many other locations.

Chilled beam diffusers are also a very interesting type of air distribution device that is rather new to the United States. Chilled beam diffusers are simply induction ceiling diffusers with cooling coils. These diffusers have induction nozzles that pull room air over a cooling coil mounted inside the diffuser. Cooled room air flow mixes with supply air flow and the combination of air is discharged into the room. Water flow and primary air flow can be varied, and water flow may be fully closed if desired. Chilled beam applications are faced with the same considerations as standard diffusers where performance is influenced by conditions including air and water flow pressure drop, throw, cooling and heating capacity, as well as sound. Though with active chilled beams, buildings must be under positive pressure and controls should be used to avoid condensation.

Throw data is available from manufacturers for active chilled beam diffusers at velocities of 150, 100 and 50 FPM. This data represents cooling with an 18-degree cooling temperature differential, and the throw data for 150 FPM may be applied to heating conditions; as velocities of this intensity are considered temperature independent. When mounted end to end these diffusers have the same throw characteristics as standard linear diffusers so continuous end to end diffuser mounting should be limited. Excessive drop and throw problems can be avoided if continuous layout is not in excess of 10-12 feet.

When these diffusers are selected for heating at 150 FPM the throw is very short for throw temperature independence, and this presents a problem when heating is required as indicated in standard 62.1. Once again, the rules of diffuser selection still apply for heating at the building perimeter. The 150 FPM terminal velocity should be 4.5 ft. above the floor along the building

perimeter to reduce stratification and to obtain ventilation acceptability. Chilled beam diffusers offer some very excellent design opportunities. When using the chilled beam diffusers with cooling coils the designer is provided with an opportunity to reduce the total CFM from the blowers and in turn reduce the pounds of ductwork required, cutting building material cost. In these applications, only outside fresh air may be used, measured and delivered into the building space. If this is done, then these designs can provide a method of delivering fresh air into the building.

Cooling can be transferred to required locations more efficiently with water than with air, reducing cost and assuring proper air quality. These newer design technologies do not supplant the basic requirements for comfort, ventilation acceptability, throw and sound requirements. Displacement diffusers are not just perforated panels and chilled beam diffusers are not a remote extension of air handler coils. They are both air distribution devices that must be evaluated to the ASHRAE guidelines of space, temperature and velocity differential requirements to maintain minimum comfort conditions as shown in the ASHRAE standards.

# YOUNG ENGINEERS IN ASHRAE



## YEA Social:

The next YEA Social will be after the ASHRAE meeting on May 19th at Dave and Busters. If you're 35 years or under, stick around after the meeting for time of hanging out and playing pool with other young engineers.

Come join other YEA members at the Phillies game on Tuesday June 22. More details to follow.



YEA Philadelphia has setup a Facebook group for you to join to keep you updated on all the latest information including YEA specific meetings and a forum for young engineers to dis-

cuss amongst one another.

The group is located [Here](#)

## YEA Phillies Event:

Come join other YEA members at the Phillies game on Tuesday June 22. More details to follow.

## Chapter Technology Transfer Committee

The Philadelphia chapter presented a daylong seminar on compliance with ASHRAE Standards 62.1 and 90.1 on April 20 at Drexel University.

The workshop consisted of presentations by Hoy Bohanon and McHenry (Mack) Wallace, who are members of the Standard 62.1 and 90.1 committees respectively.

The Standard 90.1 presentation provided an overview and discussed the standard's scope, then described compliance paths and proposed changes in the 2010 version, then analyzed an example building.

The Standard 62.1 presentation discussed the impact of outside air quality on filtration selection, how to use the Ventilation Rate Procedure spreadsheet and applied these requirements to a hypothetical new building. This presentation also provided insight into proposed changes in the 2010 version of the standard.

The Philadelphia chapter presented a three-hour Webcast titled "Right from the Start – Commissioning for High-Performing Buildings" on April 21 at Temple University.

The event consisted of a panel discussion and presentations by commissioning authorities Rick Casault, Jay Enck and Ron Wilkinson.

The presentation discussed the importance of an Owner's Project Requirement (OPR) document, construction cost savings associated with commissioning and retrocommissioning, and energy savings and LEED credits attributable to commissioning.

Thanks to Temple University for hosting the event and look for future educational offerings next year.

ASHRAE offers certification programs in five areas:

- Healthcare Facility Design
- High-Performance Building Design
- Operations and Performance Management
- Commissioning Process Management

### Building Energy Modeling

An ASHRAE certification lets employers and clients know that the certification earner has mastered a significant body of knowledge in a specific aspect of HVAC&R design. A firm that employs ASHRAE certification earners demonstrates a corporate commitment to the professional development of its employees and a dedication to providing the best possible resources for building design projects.

Each category has eligibility standards, which are a combination of educational and experience criteria. After filing an eligibility request and being approved by ASHRAE, a candidate takes an electronically-administered exam at an Applied Measurement Professionals (AMP) testing center. After passing the 2 to 2½ hour test (depending on the category), the candidate can then claim to be ASHRAE-certified in that area.

ASHRAE offers a recertification process, including an ethics statement and a continuing education requirement. Additional information, including a candidate guidebook, is at [ashrae.org/certification](http://ashrae.org/certification).

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American Society of  
Heating, Refrigerating  
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**ASHRAE**  
**Philadelphia Website**

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Matthew.Trinsey@Emerson.com

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

## PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2009-2010

| Date      | Location              | Topic                                                                  | Theme                       | Joint Meeting |
|-----------|-----------------------|------------------------------------------------------------------------|-----------------------------|---------------|
| 5/19/2010 | Local 19              | <a href="#">Building and Maintaining Effective Life Safety Systems</a> |                             |               |
| 5/19/2010 | Dave and Buster's     | <a href="#">Energy Management In Existing Buildings</a>                | Past Presidents, YEA Social |               |
| 6/4/2010  | Northampton Valley CC | <a href="#">Golf Outing</a>                                            |                             |               |
| 7/22/2010 | Citizen's Bank Park   | Phillies Game                                                          | YEA                         |               |

## MEMBERSHIP PROMOTION

### New Members for May

Mr Chris Barbieri  
-Associate

Mr Michael Timothy Roberts  
-Associate

Ms Marie Sykes  
-Member

Mr Joseph S Chillari Jr  
-Member

Mr John Edward Landis Sr  
-Member

Mr Robert Joyce  
-Member

ASHRAE is no longer accepting applications for grade advancement. To advance from associate to member, a member must update their ASHRAE bio online, and notify membership@ashrae.org they have an updated bio and wish to be considered for grade advancement. Tips for updating bios:

- Go to [www.ashrae.org](http://www.ashrae.org)
- Login
- In Member Central, Click "Update Your Bio"
- Go through each of the small blue tabs to enter demographics, contact information, education, professional registration, etc. It's very easy!

Bob Finkboner  
Membership Promotion Chair

## ASHRAE Learning Institute Spring 2010 Online Course Series

### 2 WAYS TO REGISTER

**Internet:** [www.ashrae.org/onlinecourses](http://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 seminar.  
Courses are in US Eastern Standard Time.



### Courses in May

**District Cooling & Heating Systems: Central Plants**  
Monday, May 3, 2010 – 1:00 p.m. to 4:00 p.m. EDT

**Complying with Requirements of ASHRAE Standard 62.1-2007**  
Wednesday, May 5, 2010 – 1:00 p.m. to 4:00 p.m. EDT

**Understanding & Designing Dedicated Outside Air Systems (DOAS)**  
Monday, May 10, 2010 – 1:00 p.m. to 4:00 p.m. EDT



## Standard 189.1 Training

The ASHRAE Learning Institute (ALI) is bringing *Standard 189.1-2009* training to a city near you.

**Understanding Standard 189.1-2009 for High-Performance Green Buildings**

May 25, 2010 – 1:30pm – 4:30pm, San Francisco, CA

**Understanding Standard 189.1-2009 for High-Performance Green Buildings**

June 2, 2010 – 1:00pm – 4:00pm, Arlington, TX

**Implementing Standard 189.1-2009 for High-Performance Green Buildings**

June 10, 2010 – 8:00am – 4:00pm, Atlanta, GA

**Implementing Standard 189.1-2009 for High-Performance Green Buildings**

June 26, 2010 – 8:00am – 4:00pm, Albuquerque, NM

Visit [www.ashrae.org/189.1courses](http://www.ashrae.org/189.1courses) for more information and to register

## Hot Products from ASHRAE

A leader in HVAC&R technology, ASHRAE publications cover topics that impact every facet of the environment, both indoors and out.

### Latest Publications from ASHRAE!

- ☐ *Standard 189.1-2009, Standard for the Design of High-Performance Green Buildings* (A Jurisdictional Compliance Option of the IGCC)
- ☐ *ASHRAE Handbook Online* – Web-Based access to all 4 volumes
- ☐ *ASHRAE Pocket Guide* – Useful information that fits in a shirt pocket
- ☐ *IAQ Guide: Best Practices for Design, Construction and Commissioning*
- ☐ *Load Calculation Applications Manual (SI)*

### Other Products from ASHRAE!

- ☐ *Energy Efficiency Guide for Existing Commercial Buildings*
- ☐ *Dampers and Airflow Control*
- ☐ *Advanced Energy Design Guide for Small Hospitals and Healthcare Facilities*
- ☐ *Principles of Heating, Ventilating, and Air Conditioning* – Textbook based on the 2009 ASHRAE Handbook - Fundamentals

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