



QUAKER CITY CLIMATE

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Fisher's Tudor House
1858 Street Road
Bensalem, PA 19020
(215) 244-9777

For Directions : [Click Here](#)

Free parking on site

Dinner Fees are based on
online reservations and
prepayment (\$45 without
online reservation):

- Philadelphia Chapter
Members: **\$30**
- ASHRAE Members - Non-
Chapter Members : **\$40**
- Non- ASHRAE Member :
\$40
- Young Engineers (35 and
under): **\$25**
- Students: **FREE**

SUSTAINABILITY - UNDEFINED SUCCESS IN A DEFINED WORLD

IT'S STUDENT NIGHT AND TABLETOP VENDOR SHOW

Our next meeting is scheduled
for Thursday, March 10, 2011 at
Fisher's Tudor House. The event
schedule is as follows :

- Tabletop Vendor Show
4:00pm-6:00pm
- Social Hour with Cash Bar
5:00pm-6:00pm
- Dinner
6:00pm-6:30pm
- Presentation
6:30pm-7:30pm

[Registration](#)

Presentation Overview:

Sustainability, or green has moved beyond
being a trend and is now a fixture. Many be-
lieve that soon it will no longer be an option,
but will come to define how we do what we
do. But the definition of sustainability is still
fuzzy in some key areas. The industry has
made great efforts to sharpen that picture
and as that focus becomes clearer the sus-
tainability targets stand out brighter. Green
buildings aim to be better buildings and bet-
ter buildings perform better. As we shoot for
better risks can arise if our better isn't "better
enough" to meet hit the intended target. This
program will address some of the risks asso-
ciated with green building projects; how they
resemble the risks we are used to and where
they create risks which differ from those
we've known in the past.

Presenter's Biography

E. Mitchell Swann, P.E., LEED AP,

C. Eng, FCIBSE

Mr. Swann has over 20 years of extensive experience on both domestic and interna-
tional projects in the areas of management consulting and problem solving, engineer-
ing design, project and construction management, forensic engineering and construc-
tion claims analysis. Mr. Swann's career includes the analysis, evaluation and design
of complex systems across a wide range of industries and buildings types including
commercial, institutional and industrial facilities, hospitals laboratories, pharmaceu-
tical manufacturing, microelectronic operations and data centers. Mr. Swann has
chaired technical committee within national and international organizations and been
a contributing author and editor for a number of technical publications and jour-
nals. He is a frequent speaker both nationally and internationally and is a listed mem-
ber of the speakers' bureau in the Distinguished Lecturer program of ASHRAE. He has
recently presented on Green Building issues in Abu Dhabi, Dubai, Delhi, Detroit, Chica-
go, Seattle, New York City, Indianapolis, Kansas City, Virginia and Delaware. He is a
contributing author to the ASHRAE "Green Guide – The Design, Construction and Oper-
ation of Sustainable Buildings" and co-author of the ASHRAE Survival Guide to De-
sign | Build Project Execution.

2010- 2011

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PRESIDENTS MESSAGE:

On March 10th we have our next monthly meeting at Fisher's Tudor House in Bensalem. For a number of years now the March meeting has included a trade show with a number of HVAC suppliers displaying their products and services. This year we have the added interest of a joint meeting with the Sheetmetal Contractors Association of Philadelphia, which in the past was held in February. The SMCA of Philadelphia will be presenting book grants to ASHRAE student chapter members from Drexel, Temple and Widener.

We are also fortunate to have Mitchell Swann, an ASHRAE distinguished lecturer local to the Philadelphia area, presenting on "Green Building Projects and Risk Management." Mitchell has a strong interest in green buildings and legal topics and this combination of the two will undoubtedly be

a thought-provoking presentation. As a reminder, be sure to block out the afternoons of April 13th and May 12th if you are looking to receive additional technical hours for PE license renewal. Before our dinner meetings on each of those days we will have a 3 hour technical seminar.

Best Regards,
John Pardekooper
215-436-5802
c21@ashrae.net

STUDENT ACTIVITIES:

The first half of the fiscal year got off to an exciting start for Student Activities. In the late fall, our chapter once again donated science supplies to a disadvantaged grade school in Camden, NJ. Through our contribution, the school received three large boxes of science experiment geared towards 6th, 7th and 8th grades. When I delivered the supplies, I had the opportunity to speak with approximately 50 school children about the importance of engineering. We discussed all of the fun things engineers get to design. The students and teachers were extremely appreciative of the donation and, evidently, very excited about the engineering industry. This past January we were once again able to send three undergraduate students to the ASHRAE winter meeting. The students represented Drexel University, Temple University and Widener University. Three additional Drexel University students and one additional Temple University student also made the trip through their own resources. The conference is a fabulous way to show the students how our society works. During the trip they were able to interact with several past presidents and the current President, Lynn Bellenger. As always if you are interested in helping out with Student Activities, please let me know. The Philadelphia Chapter has established a strong program but it needs your help to improve and continue growing.

Mike Witkowski, PE
Governor, Student Activities
c021bog3@ashrae.net

CTTC: The Facts about Venting and Efficiencies

This article was submitted by Randy Rohl of DelVal Equipment Company on behalf of Raypak, Inc., a boiler manufacturer. Articles highlighting novel HVAC technologies should be submitted to Chapter Technology Transfer Committee Chair Mark Maguire (c021bog4@ashrae.net) for consideration in future newsletters.

Today's heating professionals are faced with a bewildering selection of vent materials and appliance exhaust configurations. Making the right venting choice is critical; an incorrect decision can result in vent or boiler failure.

The most common cause of vent failure is condensation, which occurs when water vapor created in the combustion process cools below the dewpoint. As the water vapor condenses, it combines with other combustion byproducts to form an acidic solution. The resultant acid will collect in, and eventually destroy the joints and seams of any vent not designed for condensing operation.

The Gas Research Institute contracted the Batelle Institute to conduct a study to identify the best methods of preventing potentially hazardous vent failures. After extensive testing, the Institute determined that if at least 16.4% of the boiler's input energy is vented with the flue gases, the flue gases will remain hot enough to significantly reduce the risk of condensate-related vent failure.

Batelle's findings provide a benchmark for determining which gas appliances are likely to experience condensation and therefore require a corrosion-resistant vent. Specifically, if flue losses are less than 16.4%, harmful condensation is likely; if flue losses are 16.4% or greater, harmful condensation should not occur. Despite the importance of flue loss in determining the appropriate type of vent to use, few manufacturers list flue loss percentage in their literature. The more commonly encountered terms found in manufacturers' specifications are combustion efficiency and thermal efficiency.

Combustion efficiency is a bit of a misnomer, as it has little to do with the efficiency of the actual combustion process. Combustion efficiency measures the percentage of total energy that is absorbed into the heating medium or escapes from the boiler jacket. The only input energy not accounted for by combustion efficiency is that energy which leaves via the vent as flue loss. Combustion efficiency can be readily calculated by using the following equation:

$$\text{Combustion Efficiency} = 100\% - \text{Flue Loss Percentage}$$

By inserting Batelle's critical flue loss of 16.4% into this equation, we find that if a boiler has a combustion efficiency of 83.6% or less, the flue gases will have enough energy to properly vent without condensing. Conversely, if a boiler has a combustion efficiency greater than 83.6%, there is significant risk of condensing in the vent and therefore, corrosion-resistant vent material should be used.

Some manufacturers do not list combustion efficiency on their specification sheets. Instead, they list thermal efficiency, which measures the percentage of energy created at the burner that is absorbed into the heating medium. Thermal efficiency is defined as the ratio of output to input at full fire and steady state conditions.

$$\text{Combustion Efficiency} = \text{Thermal Efficiency} + \text{Jacket Loss Percentage}$$

Even if a manufacturer's spec sheet only gives thermal efficiency, it is still easy to determine an appliance's combustion efficiency. Simply add the jacket loss to the published thermal efficiency. This estimate can then be used for vent selection. Due to the First Law of Thermodynamics, thermal efficiency can never be greater than the combustion efficiency.

Proper material choice is only one half of the vent option selection equation. The vent system must also be chosen with regard for operating pressure. Vent systems fall into two pressure classifications: negative and positive pressure systems. Negative pressure systems, also known as non-positive pressure systems, operate at static pressures that are less than the surrounding room pressure. The joints of negative pressure systems do not need to be gas-tight – if vent leakage occurs, room air will be sucked into the lower pressure flue. On the other hand, positive pressure systems require gas-tight seals. If a leak occurs in a positive pressure system, flue gases will flow into the equipment room or, even worse, into the living space.

As a general rule, if flue gases are vented vertically through a suitable stack, most appliances will operate at non-positive pressures. Conversely, if the flue gases are vented horizontally, most appliances will operate at positive pressures and will require gas-tight venting. Furthermore, the use of draft inducers or extractors may mandate the use of a different vent type.

A leading authority for the installation of gas appliances in the United States is the National Fuel Gas Code (NFGC)/American National Standards Institute (ANSI) Standard Z223.1. Every specifier or installer of gas-fired equipment should own a copy and be intimately familiar with the NFGC. The NFGC divides gas appliances into four categories based on vent operating pressure and the likelihood of condensate occurring in the vent. The four categories, which are used to determine which type of vent is appropriate for a given appliance, are:

Category I: non-positive vent pressure, non-condensing

Category II: non-positive vent pressure, condensing

Category III: positive vent pressure, non-condensing

Category IV: positive vent pressure, condensing

ANSI has also revised Standard Z21.13, the gas-fired low-pressure steam and hot water boiler code, to reflect the above categories. ANSI Z21.10.3, the water heater standard, is expected to be updated in the near future. As a result to the changes in ANSI Z21.13, most manufacturers specifically identify the appropriate appliance category in their operating and installation instructions. A word of caution: do not solely rely on the manufacturer's installation instructions. Ultimately, it is the engineer and contractor who bear the responsibility for ensuring that installations function properly and comply with national and local codes.

ASHRAE PHILADELPHIA CHAPTER ANNUAL GOLF TOURNAMENT

Friday, June 3, 2011

Northampton Valley Country Club

299 Newtown-Richboro Road Richboro, PA 18954

<http://www.nvcc.com/>



Prizes to Include

- First Place
- Second Place
- Third Place
- Longest Drive
- Closest to the Pin

Lunch/Registration: 12:00 PM

Shotgun Start: 1:00 PM

Format: Scramble

Dinner/Awards: Following Golf

Please contact Jim Piscopo at

jpiscopo@aeceng.net with any questions

SPONSORSHIP OPPORTUNITIES

Single Hole Sponsor - \$200

Two Hole Sponsor - \$300

Three Hole Sponsor - \$450

REGISTRATION DETAILS

Golf, Lunch & Dinner - \$125 ea

Dinner Only - \$35 ea

**Stay tuned...a registration link
will be posted to our chapter
website in early March.**

**If you would prefer not to
register online please contact
Jim Piscopo to arrange
for payment.**

Chapter Technology Transfer Committee

ASHRAE MILTON W. GARLAND AWARD

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 2011.

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.

The Refrigeration Comfort Cooling Award competition is open for the design of mechanical refrigeration machinery for human comfort applications.

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 Transfer Technology Chair (c021bog4@ashrae.net).

ASHRAE Offers Certification:

Healthcare Facility Design Professional Certification

ASHRAE has developed the Healthcare Facility Design Professional (HFDP) certification program in close collaboration with the American Society for Healthcare Engineering (ASHE) of the American Hospital Association. Candidates who earn the HFDP certification have demonstrated a well-rounded understanding and knowledge of medical terminology and facility operations as they affect HVAC&R design in healthcare facilities.

Applications for certification are on the ASHRAE Website (ashrae.org). The exam assesses mastery of a significant body of knowledge that has been identified by industry practitioners and subject matter experts as reflecting current best practices. The detailed content outline is included in the Candidate Guidebook, which is also available on the ASHRAE Website.

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 five certification programs currently available:

- Building Energy Modeling Professional;
- Building Energy Assessment Professional;
- Commissioning Process Management Professional;
- High-Performance Building Design Professional;
- Operations and Performance Management Professional.

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 c021bog4@ashrae.net.

PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2010-2011

Date	Location	Topic	Theme	Joint Meeting
3/10/2011	Fisher's Tudor House	<u>Sustainability - Undefined Success in a Defined World</u>	Trade Show/ Student Night	SMCA
4/13/2011	Holiday Inn (4th & Arch)	Energy Efficiency Seminar presented by ASHRAE Past President & Distinguished Lecturer Bill Coad, PE		
4/13/2011	Holiday Inn (4th & Arch)	VAV System Design by ASHRAE Past President & Distinguished Lecturer Bill Coad, PE	Student Night	
4/21/2011	Temple University 11th & Norris Streets	Ground source Heat Pump Webcast presented by ASHRAE		
5/12/2011	Holiday Inn (4th & Arch)	Thermal Storage Seminar presented by ASHRAE Vice President and Distiguished Lecturer William Bahnfleth, PhD, PE		
5/12/2011	Holiday Inn (4th & Arch)	Variable Primary Flow Chilled Water Systems, presented by ASHRAE Vice President and Distiguished Lecturer William Bahnfleth, PhD, PE	Past President's Night	
6/3/2011	NVCC	Golf Outing		
TBD	TBD	2011-2012 Planning Meeting		

*** Program calendar is subject to change. Please refer to [ASHRAE Philadelphia Website](#) for up to date information.*

CHAPTER TECHNOLOGY AWARD COMPETITION 2011

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 2011 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.

Additional information is available at ashrae.org/technologyawards.

Mark M. Maguire, PE

Chapter Chair – Technology Transfer

c021bog4@ashrae.net

The Philadelphia
Chapter of the
American Society of
Heating, Refrigerating
and Air Conditioning
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994 Old Eagle School Road,
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Wayne, PA 19087-1866

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fax 610.971.4859



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:

Matthew Trinsey
Clive Samuels & Associates, Inc.
1 Independence Way
Princeton, NJ 08540
(P) 609-627-7983
c021ne@ashrae.net

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

AFFILIATE MEMBERSHIP

What is the Affiliate Membership Grade?

Affiliate Membership is for young professionals who are age 30 or younger and are brand new to ASHRAE.

Affiliate Members can take advantage of discounted dues for their first three years of membership for a total savings of \$330.

- o First Year - \$50
- o Second Year - \$70
- o Third Year - \$90

At the end of year three Affiliate Members are converted to full dues paying Associate Members.

Affiliate Membership includes all Member benefits except for the ASHRAE Handbook and the opportunity to vote in the Society annual ballot.

Though Affiliate Members can't hold positions in the Chapter or Society, they can serve on local Chapter committees such as Membership Promotion and Technology Transfer to learn the volunteer role.

[Click Here](#) to register as an affiliate Member today. Please note you must enter your date of birth in order to receive the Affiliate option.

If you know a young professional 30 years of age or younger please share this information with them and encourage them to take advantage of what ASHRAE has to offer.

James Piscopo
Membership Promotion Chair

MEMBERSHIP PROMOTION: NEW MEMEBERS

Members

William Booth
William Jarema
Alfonso Rombola
Hal Roth
Lixia Wu

Associate Members

Bernard Brennan
Pete Caban
Robert Hickey
Ira Horden
Howard Rubin

Affiliate Members

Adam Delecki

Student Member

James Achey
John Bisacquino
Kevin Branin
Daniel Brown
Li Cui
Joshua Dennis
Michael Magee
William Mahon
Mark Romano
Travis Westover
Adam Zatorsky

James Piscopo, PE

Vice President

Membership Promotion Chair

[Online Membership Application](#)