



# QUAKER CITY CLIMATE

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**The Philadelphia  
Convention Center**  
1101 Arch Street  
Philadelphia, PA 19107  
215-418-4700

For Directions & Parking:  
[Click Here](#)

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

- Members & Non-Members: **\$20**
- Young Engineers (35 and under): **\$15**
- Students: **\$10**

## CONVENTION CENTER TOUR

Our next meeting is scheduled for Thursday, June 16, 2011. It will be a tour of the Philadelphia Convention Center. The event schedule is as follows:

- Tour:  
5:00pm
- Appetizers and Beverages at the Field House  
7:30pm

[Registration](#)

Please join us for a tour of the Philadelphia Convention Center. We will be looking at the new and existing central plants, fire command center and walkthrough of the convention floor.

We will be meeting at west lobby at 12th and Arch Street.

Afterwards we will be having light appetizers at the Field House located at the Convention Center. Cash bar available.

Five years in the making, the exciting \$700 million expansion lies across 20 acres of central Philadelphia real estate, bringing the facilities up to a staggering 2.3 million square feet. It's the largest single public works project in Pennsylvania history.

Eye-catching new features include:

The Broad Street Atrium, the stunning light-filled glass entrance which soars up over 100 feet.

The vast ballroom, the size of a football field, which can hold 6,000 attendees at one time.

The elevated second-level loading dock which allows tractor-trailers to drive straight off the city streets onto the exhibit floor level.

The superb quality of the design aesthetic, detailed down to custom-designed carpets with 15 different geometric patterns.

Certification as an environmentally-friendly LEED building with a solar-powered roof.

For more information on the expansion visit:

<http://www.paconvention.com/the-center/expansion>

## 2010- 2011

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John Pardekooper, PE

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Bob Finkboner

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Ashley Lester

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Mike Witkowski, PE

### Membership Promotion

Committee Chair

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Mike Witkowski, PE

### Programs Committee Chair

Bob Finkboner

### Chapter Historian

Jared Johnson, PE

### Young Engineers in ASHRAE

Ashley Lester

## YOUNG ENGINEERS IN ASHRAE: PHILLIES NIGHT

The YEA Phillies Night on May 19th was a great success! Many thanks to APC by Schneider Electric who sponsored the event, and the 25 young engineers who came out to Citizen Bank Park. We had a great time tailgating and then watching the Phillies take on the Rockies. APC was generous to provide an RV with hoagies, chips, beer, sodas and water for the tailgate party. Even though we got a little wet during the game, the Phillies gave a great showing and we all enjoyed a fabulous social!



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## PRESIDENT'S MESSAGE

The goal of any ASHRAE chapter is to deliver technical content to the local membership and provide a means for networking and socializing amongst fellow professionals. Here in Philadelphia this extends beyond the monthly dinner meeting with which most of you are familiar. Our programs include the Basic and Advanced HVAC Schools, events for Young Engineers in ASHRAE, student chapter and K-12 outreach and participation in Engineers Week. None of these are possible without your participation and the numerous chapter volunteers past and present who have given generously of their time. I would like to personally recognize all those who helped make this a successful year for the chapter.

On July 1 our 2011-2012 program year will begin with Bob Finkboner as the incoming chapter president. With most of the board of governors returning along with some new faces the chapter will be in good hands and many of the strong programs will continue to improve.

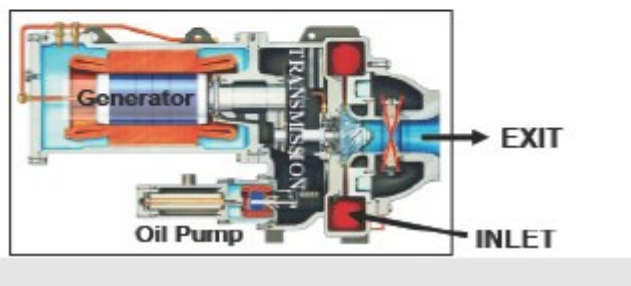
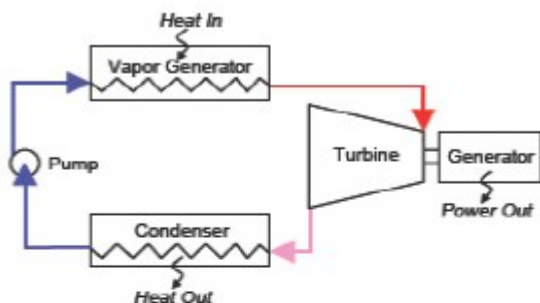
I hope that everyone has an enjoyable summer and we look forward to seeing you at our next meeting in September..

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

## Organic Rankine Cycle for Onsite Power Generation

*This article was submitted by Danica Feustel of Carrier. Articles highlighting novel HVAC technologies should be submitted to Chapter Technology Transfer Committee Chair Mark Maguire (c021bog4@ashrae.net) for consideration in future newsletters.*

On-site power generation provides a green solution for supplying energy as well as delivers more reliable power. New technologies have broadened the options for providing on-site power. This article is an insight into the organic Rankine cycle (ORC), which uses waste heat to run the refrigeration cycle of a centrifugal chiller in reverse to power a generator.



### How does it work?

Hot water enters the vapor generator at temperatures between 140°F and 900°F.

The vapor generator shell is filled with refrigerant R-134a; the refrigerant boiling point is much lower than the boiling point of water, so the temperature of the waste-heated water is enough to boil the refrigerant.

Once there is adequate boiling/evaporation of the refrigerant it is routed into the turbine at well above the saturation point.

Vapor is then expanded supersonically through the turbine nozzle causing the turbine blades to turn at 13,500 rpm. The turbine is connected to a generator which spins at 3600 rpm, generating electricity.

Cooling water enters the condenser and recondenses the refrigerant back into a liquid.

A specialized fluid pump complete with variable-frequency drive meters the liquid refrigerant back to the vapor generator and the cycle begins again.

Modules are commercially available to generate up to 280 kW, depending on the temperature differential between the evaporator and condenser. Applications with a large amount of waste heat (hospitals, manufacturing facilities and universities) are good candidates for this technology.

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

phone 610.971.2169  
fax 610.971.4859



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[c021ne@ashrae.net](mailto:c021ne@ashrae.net)

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

## Commissioning Process Management Professional Certification Available

ASHRAE has developed the Commissioning Process Management Professional (CPMP) program in close collaboration with APPA, Building Commissioning Association (BCA), Illuminating Engineering Society (IES), National Environmental Balancing Bureau (NEBB), Sheet Metal and Air-Conditioning Contractors' National Association (SMACNA), Testing, Adjusting and Balancing Bureau (TABB), and the University of Wisconsin - Madison. To continue to improve building performance, experts agree that the commissioning process should be implemented in new and existing buildings – and the correct management of that process is critical. The purpose of this certification is to help building owners, developers, standards writing agencies, and others assess the capability of individuals to manage the whole building commissioning process. The Commissioning Process Manager oversees and coordinates the commissioning process and communicates on behalf of the building owner with the commissioning provider and the commissioning team.

Applications for certification are on the ASHRAE Website ([ashrae.org](http://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 other five certification programs currently available:

- Building Energy Modeling Professional;
- Healthcare Facility Design Professional;
- Building Energy Assessment Professional;
- High-Performance Building Design Professional;
- Operations and Performance Management Professional.

Additional information is available on the ASHRAE Website at [www.ashrae.org/](http://www.ashrae.org/) certification. Or you can email the Philadelphia Chapter Technology Transfer Chair (Mark Maguire) at [c021bog4@ashrae.net](mailto:c021bog4@ashrae.net).

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## NEW MEMEBERS

### Associate Members

Jocelyn Robarge

James Piscopo, PE

Vice President

Membership Promotion Chair

## Research Promotion 2010-2011

I would like to thank the following Members and Corporations that have contributed to the Chapter's Research Promotion Campaign this year. As a result we have collected \$25,384 towards our assigned goal of \$30,000. There is still time to make a contribution at [www.ashrae.org](http://www.ashrae.org)

Corporate Contributors	Individual Contributors
Arkema, Inc.	Lawrence J Boersig
Associated Engineering Consultants	Barry A Boose
Associated Steam Specialty	Gerard Carr
B. J. Terroni Company	Kevin M Collins
Bruce E. Brooks & Associates	Gary C Debes
Burns Engineering	Daniel J Driscoll
Bush Sales Associates	Daniel J Ebbert
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Chase & Associates	Robert H Finkboner
Clapp Associates	Geza Fozo
Coward Environmental Systems	Bernard C Friel
Diversified Thermal Equipment	William G Gove
E F Siegfried Co	George W Hart
Ernest D. Menold	David h Hersh
Ewing Cole	E Wayne Holmes
James R. McQuaide, Inc.	Jared A Johnson
John F. Scanlan	John E Kampmeyer
L & R Associates	David P Kennedy
McHugh Engineering	Narendra T Kiri
Peirce-Phelps, Inc - Philadelphia	Justin Knapp
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Plate Concepts	Mark M Maguire
R D Bitzer	Rodney W McKenna
Sass Moore & Associates	John G Pardekooper
Schiller & Hersh Associates	James D Piscopo
Siemens Building Technologies	Frank K Presz
SMCA of Philadelphia & Vicinity	David W Reid
The Tri-M Group LLC	Steven M Ridenour
Tozour Energy Systems	George R Schollhamer
Vinokur-Pace Engineering Services	Robert G Schwab
Weil-McLain	Robert L Seeler
	Herman R Vinokur
	Michael Witkowski
	Stephen Zegestowsky

Thank you,

Gary C. Debes, RP Chairman



## **Leadership Weekend in Denver, CO.**

By Eunice Hameyie for the Philadelphia ASHRAE Chapter.

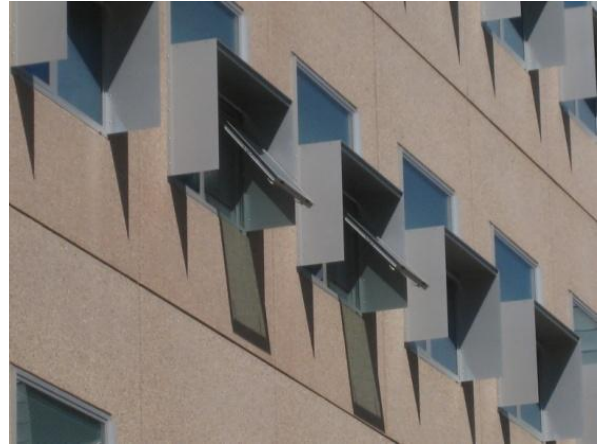
Friday April 1<sup>st</sup>, 2011. As I glanced over the airplane window to get my first glimpse of Denver Colorado, my stomach flinched. Yeah? No. I was not excited to see scattered farmhouses and acres of land. Why was the leadership weekend for Young Engineers in ASHRAE (YEA) taking place in such a rural area? First impressions are often unreliable. In fact, Denver became a vibrant city as our group of 35 engineers explored the area over the next three days.

The YEA leadership weekend is a yearly event organized by the YEA Committee of Members Council. The event serves three main purposes: educate future leaders of ASHRAE about the society, develop their leadership skills by learning about themselves and various personalities, and provide a venue to network with other young professionals.

Our leadership weekend started off of a fun icebreaker that left us grouped into families with a theme song and a dance. We then visited the 222,000 square foot Research Support Facility (RSF) at the National Renewable Energy Laboratory (NREL) in Golden, CO.



The RSF was built in fourteen months, and turned over for occupancy in June 2010. The building includes a data center and, with total construction costs of \$57.4 million<sup>i</sup>, the RSF achieves Platinum certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design New Construction (LEED-NC).



The RSF is designed to use 35.1 kBTU per square foot per year, which represents half the energy of an equivalent building per ASHRAE standards<sup>ii</sup>. Coupling low energy consumption with on-site solar energy, the RSF is slated to become the largest net-zero energy office building in the U.S. by June 2011, fourteen years prior to the Department of Energy (DOE) goal of “effective zero-energy commercial buildings by 2025<sup>iii</sup>.” Some particularities of this building: occupancy of 822 people, raised floors, a below-grade thermal labyrinth, dedicated outdoor air system, radiant slabs, transpired solar collectors, “modular workstations and demountable walls”, light levels lowered at 25 footcandles, controlled process/plug loads, lazy-H shape, aggressive shading and automated night purging.

On Saturday morning, Ralph Kison of Kison, Inc. introduced us to the Golden Circle, Simon Sinek’s theory of the Why, How and What. According to Sinek, what we do and how we do it is driven by our Why. Understanding our Why is the primary factor that sets us apart from the competition, and ultimately leads to our fulfillment and well-being.



Furthermore, Ralph Kison helped us understand our profile, as measured by the Organizational Performance Pro.file (OPP), a validated instrument that measures seven traits and behaviors in adults: emotional containment, assertiveness, originality of thinking, sociability, detail orientation, behavioral adaptability, and proactiveness. Our team also worked on colorful mind-mapping. On Sunday morning, the final day of our leadership weekend, we designed our Cereal Box or personal brand. The idea is to use the Golden Circle to sell our professional assets, with simple directions in mind: to be ourselves and not to sell our assets short, a common mistake among young engineers.







Other key events during our trip: a Saturday afternoon at the Colorado Rockies game, two nights exploring the city, the beautiful mountain landscape in the morning from the hotel room and a snowy Sunday ride to the airport.



Monday April 4<sup>th</sup>, 2011. Back at the office in Bristol PA, my mind drifts back to the past three days. The YEA leadership weekend has definitely been informative. I have been forced to a honest analysis of my professional motives and goals, have learned of opportunities for young engineers to get involved in ASHRAE and, most of all, I have enjoyed meeting fellow engineers from all over North America and India. It's time to get back to work, and look forward to the next YEA event.

Special Thanks to Ashley Lester for her selection and to the Philadelphia Chapter of ASHRAE for handling trip fares.

#### References:

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<sup>i</sup> Petro, Rachel. Countdown to Zero. LD+A. The Magazine of the Illuminating Engineers Society of America. February 2011.

<sup>ii</sup> Pless, Shanti D. et al. The Role of Modeling When Designing for Absolute Energy Use Intensity Requirements in a Design-Build Framework. National Renewable Energy Lab. 2011.

<sup>iii</sup> Energy and Architecture: The Sustainable Future. The Research Support Facility Project. National Renewable Energy Lab. April 2010.