

# May Newsletter

ASHRAE Atlanta Chapter

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## Upcoming Important Dates

Habitat for Humanity

May 31, 2014

Chapter Regional Conference

August 14-16, 2014

## May 2014



Our ASHRAE year is almost over, and what a year it has been.

I'm so impressed by our many ASHRAE volunteers. Running a successful chapter can be equated to running a business; and it's all about the people. We work hard to provide our Atlanta members the best value for the price of membership. We offer technical programs, opportunities to network with other members, important industry information in our newsletters, and paths to volunteer in your local community. We also host events that raise funds for the greater ASHRAE community.

For those of you new to our chapter, we typically slow down during our summer months. We do not host chapter meetings with technical seminars from May through August. This allows us to wrap up the current year and transition leadership to the new officers\*. We also spend quite a bit of time planning for the upcoming year as well. Your ideas and feedback for the upcoming year are welcome!

Although we don't have technical events over the summer, we do host a number of other types of events. Earlier this month we hosted an event at Turner Field, a tailgating event at the Spring Classic. We had a lot of fun with our new ASHRAE-themed cornhole game. We also hosted our Spring Golf tournament, which was a huge success. We hosted many more teams than in the past, and are so grateful for our members' help meeting our Research Promotion Goals.

This year our Research Promotion goal is \$44,000. Please consider making a donation to RP by [clicking here](#) and make sure you put "Atlanta" in the box for ASHRAE Chapter. **Did you know** that every year our chapter officers make an individual donation to RP to make sure that we're walking the walk, not just talking the talk. When all 5 officers donate, we earn the Full Circle award from the region- an award we've earned every year for as long as I've been a part of this chapter.

Finally – mark your calendars. Chapter Regional Conference (CRC) this year is August 14-16 in Charleston, SC. It's a great location and we're sure to pick up numerous awards. See you there?

Pamela Androff  
Atlanta Chapter President 2013-2014  
[president@ashraeatlanta.org](mailto:president@ashraeatlanta.org)  
[www.ashraeatlanta.org](http://www.ashraeatlanta.org)

\*Speaking of new officers – check out the next page in the newsletter for the results from our recent election. Congratulations to all; I know the chapter is in great hands!

## 2014 – 2015 Atlanta ASHRAE Officers

The results of our recent election are in. Congratulations to our local leaders:

**President** : Mr. Brian Justice

**Vice President** : Mr. John Pruitt

**Treasurer** : Mr. Rick Dustin

**Secretary** : Mr. Nick Kassanis

**Past President** : Ms. Pamela Androff

### Board of Governors

Mr. Brian Justice	Mr. Charles Miltiades
Mr. John Pruitt	Mr. Kurt Ehlers
Mr. Rick Dustin	Mr. Mark Dahir
Mr. Nick Kassanis	Mr. Glenn Northrup
Ms. Pamela Androff	Mr. Pat McCabe
Mr. Tony Martin	

Respectfully submitted,  
Mr. Charlie Fischer  
ASHRAE Atlanta Nominating Committee

# History Corner

We are sad to report the passing of one of our members, Jerry E. Kirkpatrick. He was a member since 1983 and has attended many of our meetings. He was the owner of Kirkpatrick Engineers in Marietta, GA and was a great asset to our engineering community. He will be missed dearly.

The Marietta Daily Journal

Jerry E. Kirkpatrick, 73, died Saturday, May 3, 2014. Funeral service is Tuesday, May 6, 1 p.m. at Winkenhof Pine Ridge Funeral Home in Kennesaw with Pastor Robert Ledbetter officiating. Burial will follow at Mountain View Cemetery in Marietta. Born and raised in Marietta, Georgia, Mr. Kirkpatrick earned his Engineer Degree from Georgia Tech and owned Kirkpatrick Engineers in Marietta. Jerry was of the Baptist faith and served our country in the US Navy. He and his wife, Mina, had been married for 49 years and raised four wonderful daughters. His parents, John and Frances Kirkpatrick, and his brother, Mike Kirkpatrick, preceded Mr. Kirkpatrick in death. Jerry's survivors include his wife, Mina Kirkpatrick of Acworth, daughters, Lori (Robb) Toole of Acworth, Sandra Cole of Dallas, Karen Terry of Dallas, and Nancy (Carl) Koch of Dallas; brother, Russell Kirkpatrick of Powder Springs; grandchildren, Matthew, Joshua, Justin, Andrew, Wesley, Katherine, Sara, Kaili, and Nicholas; four great-grandchildren; several nieces and nephews. Visiting hours at the funeral home are Monday from 2 to 4 p.m. and 6 to 9 p.m.

## Chapter Technology Transfer

### Use of Air Conditioners Increases Nighttime Temperatures, Escalates Demand for Air Conditioning

#### Experts advise turning 'wasted heat' into 'useful energy'

**Released:** 5/16/2014 1:00 PM EDT

**Source Newsroom:** [Arizona State University](#)

Newswise — A team of researchers from Arizona State University has found that releasing excess heat from air conditioners running during the night resulted in higher outside temperatures, worsening the urban heat island effect and increasing cooling demands. “We found that waste heat from air conditioning systems was maximum during the day but the mean effect was negligible near the surface. However, during the night, heat emitted from air conditioning systems increased the mean air temperature by more than 1 degree Celsius (almost 2 degrees Fahrenheit) for some urban locations,” said Francisco Salamanca, a post-doctoral research scientist at Arizona State University’s School of Mathematical and Statistical Sciences.

The research is presented in the paper, “[Anthropogenic Heating of the Urban Environment due to Air Conditioning](#),” published in the March 6 issue of *Journal of Geophysical Research Atmospheres*. The paper focuses on the anthropogenic contribution of air conditioning systems on air temperature, and examines the electricity consumption for the rapidly expanding Phoenix metropolitan area, one of the largest metropolitan area in the US. Phoenix is located within the semiarid Sonoran desert and because of its harsh summertime conditions makes considerable use of air conditioning systems.

To keep people cool, air conditioning (AC) systems can consume more than 50 percent of total electricity during extreme heat and put a strain on electrical grids. Cooling demands for rapidly expanding urban areas like Phoenix are likely to increase considerably during the next several decades. To address future energy needs in a sustainable manner, the researchers determined it was essential to study current AC demand and assess AC waste heat.

This research shows that release of waste heat raises the outdoor temperature and as a result increases the electricity consumption needed for cooling. The analysis of this feedback required using a building energy model and an atmospheric model that were dynamically coupled. The atmospheric model supplied the building energy model with the outdoor air temperature, outdoor air humidity and the boundary conditions for the temperature calculation for building walls and roofs. The building energy model then provided the atmospheric model with the heat fluxes associated with the energy consumption of AC systems within the buildings. They found that the effect of the AC systems was more important during the night due to the limited depth of the urban boundary layer. The effect is stronger from late afternoon to early morning. A smaller quantity of excess AC systems heat ejected during the night can increase the air temperature more compared to a greater quantity released during the daytime when the hot sun is beating down.

According to the US Department of Energy, summertime extreme-heat days are projected to become more frequent and intense as a result of climate change, presenting significant challenges for the energy sector and electric grid. Reliable methods are needed for forecasting energy demands that can help to inform and assist in the future planning of sustainable energy needs of rapidly growing urban areas.

*For more articles like this one, be sure to subscribe to ASHRAE’s weekly newsletter, the HVAC&R Industry.*

*This Atlanta Chapter Newsletter goes by email only to all Atlanta Chapter ASHRAE members along with all other ASHRAE members in our area and anyone else who asks. If you need a change in our email list, please notify our Chapter Secretary at [secretary@ashraeatlanta.org](mailto:secretary@ashraeatlanta.org)*

# Membership Promotion

Finally the backlogs are getting healthy and lengthy. It was about time, it seems that our Clients are done with the recession side of life. In the meantime our spring was too short and Mother Nature can't decide if we go back to the Winter or ride thru Summer. We will see soon.

Take some time and go thru the lessons learned over the Headquarters renovation. I really enjoy our magazine since it always features good information that gets me updated on the latest trends.

## New Members!!!:

The following members started on the last month so let's keep the ball rolling and say hello to:

Mr. Terry M. Hall	Kimberly Stamps Robinson	Mr. Jeffrey J Reardon	Mr. Jeff Minton
Kirstin Sage Moehlig	Josh Toole	Matthew Morris	Mr. Greg Verhelle
Mr. Raynald C Clarke	Mr. Sunilsen Peramanu	saibal sengupta	Mr. John Robert Taylor, Jr
Mr. Mark Faircloth			

## From the Associates Corner...

Want to advance to the Member grade? It's very , very easy. First, check if you have a PE or with ASHRAE over 10 years of experience in the industry, second just go online to [www.ashare.org](http://www.ashare.org), log-in, update your bio and third let me know that bio update is complete at [membership@ashraeatlanta.org](mailto:membership@ashraeatlanta.org). It's just that easy!!!

## Membership Discounts

We got some cool membership discounts applied to select future activities such as the Golf outing on May 21st. This will be the first activity where you can start saving money as part of the membership benefits. So, sign-on today to enjoy a great day in the fairway under the sun with fresh air and cool peers over nice drinks

A sincere warm salute to all members specially to the Retired and Life Members which paved the way for our success.

Ok, back to work, see ya in June.



Pedro Pacheco  
MP Chair Atlanta Chapter

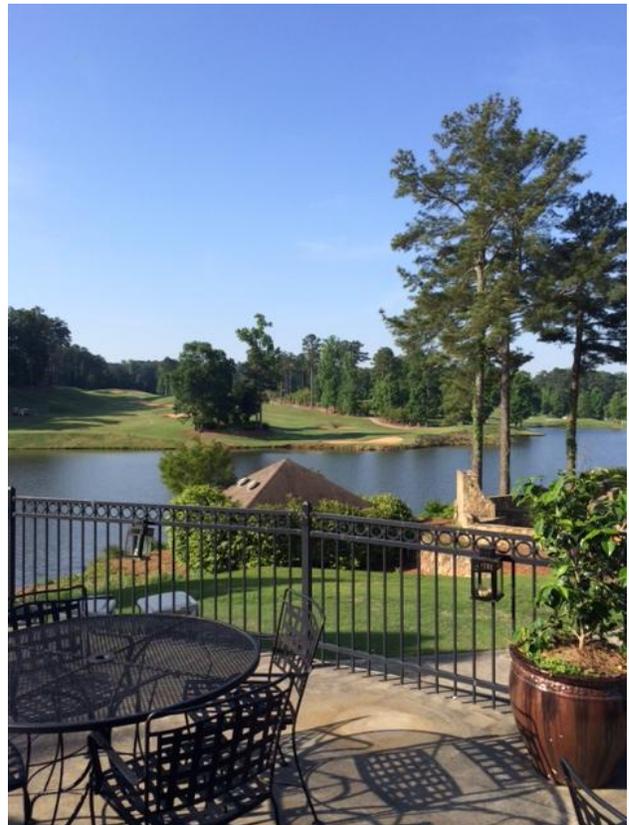


Ted Duffy  
MP Co-Chair Atlanta Chapter

e-mail either of us at: [membership@ashraeatlanta.org](mailto:membership@ashraeatlanta.org)

## ASHRAE 2014 Spring Golf Tournament

On May 21, we hosted our spring golf tournament at Heritage Golf Links in Tucker, GA. We are still working on the final numbers on how much we raised for Research Promotion, but we believe it is in the area of \$15,000! Thank you to all who contributed and played. Here are some photos from the day:



Kurt Ehlers, our Public Relations Chair, invites you to:



[www.facebook.com/ASHRAEAtlanta](http://www.facebook.com/ASHRAEAtlanta)

Follow us on



<http://www.linkedin.com/groups/ASHRAE-Atlanta-Chapter-2186496>

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# Employment Opportunities

Did you know that employers post job opportunities on the Atlanta Chapter website for free?

<http://ashraeatlanta.org/JobOpportunities>

You can even subscribe to the listings to receive an e-mail any time a new listing is posted!

**NEW!** Here is a list of some of the current opportunities posted:

- Entry Level Mechanical Engineer
- Mechanical/Plumbing Designer
- Senior Mechanical Design Engineer
- Software Test Engineer

## **2013-2014 Research Promotion Campaign's Contributors** **Company Research Associates (\$2500 and greater)**

ENERVEX Inc.

### **Company / Individual Major Donor Silver and Bronze (\$500 - \$2499)**

Mr Steven F Bruning

Mr Prem R Shetty

Mr Stanley R Everett

Mr H E Burroughs

Lincoln Associates

Tom Barrow Company - Atlanta

### **Company / Individual Major Donor (\$250 - \$499)**

Mr Dominic J Radosta

Mr Brian K Justice

Mr Chris P Rousseau

Mr David K Spruill

Mr Ken Shear

Mr Charles H Fischer, III

Ms Pamela M Immekus

Mr Brian Nichols

Mr David C Thompson

Mr Charles A Miltiades

### **Company / Individual Honor Roll Donor (\$100 - \$249)**

Mr Charlie Cichetti

Mr Richard Eason

Mr Dennis F Begley

Mr Marcus Arevalo

Mr Matt Word

Mr Clay L Peacock

Mr Brent Baird

Mechanical Sales Company

Johnson Controls - Atlanta

Daikin McQuay of Georgia

Victaulic Company Of America -

Duluth

Mr Jason K Clifton

Miss Pamela L Androff

Mr John David Pruitt

Ms Peggy J Fritz

Mr Harris M Sheinman

Dr John Mench

Mr Chad Fletcher

Mr Matthew Prather

Mr Edwin E Hill

Mr Lane T Roberts

Mr Philip Kang

Mr Gary M Holder

Mr Travis James Palladino

Mr Mike Luker

Dawn Ingram

Mr Thomas S Kisgen

Advantix Systems

James M Pleasants

Incorporated - Raleigh

Joe Powell & Associates

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Mr Ignatius Nicholas

Kassanis

Mr Richard Lee Dustin

Ms Caroline C Calloway

Mr John S Shepherd, Jr

Borie Davis Incorporated

Mr Robert Howell

Mr Michael R Vaughn

Mr Ryan M Doering

Mr Jack Cali

Mr Jim Kibby

Mr Scott McVay

Mr Jeffrey L Minton

Mr Jack Chapman

HESM & A Inc

SERBCA

Georgia Air Associates

Instruments Direct

Mr Mark A Dahir

Mr Patrick J McCabe

Mr Kurt M Ehlers

Mr John R Neely, Jr

Mr Jim Gaut

Mr J Lewis Cook, Jr

Mr Marshall Cheek

Mr Jimmy Padgett



# ASHRAE Atlanta Sponsorship Opportunities

## Web Sponsorship Package: \$250

- Logo on main page
- Logo on newsletter
- Product Directory Listing



## Gold Sponsorship Package: \$500

- Web package
- Logo on meeting announcements
- Presentation
- 1 Table at lunch



All money is donated to ASHRAE Research.

For More Information Click Here:

[ashraeatlanta.org/sponsorships](http://ashraeatlanta.org/sponsorships)

For any questions please contact:

Nick Kassanins  
[nickk@sigearth.com](mailto:nickk@sigearth.com)

This Atlanta Chapter Newsletter goes by email only to all Atlanta Chapter ASHRAE members along with all other ASHRAE members in our area and anyone else who asks. If you need a change in our email list, please notify our Chapter Secretary at [secretary@ashraeatlanta.org](mailto:secretary@ashraeatlanta.org)



## Magnolia Moments

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*more than an unforgettable meal . . . serving ASHRAE Atlanta for 5 years*

we would love to cater for your upcoming events!

- ◆ Holiday Parties
- ◆ Corporate Events
- ◆ Graduation Parties
- ◆ Christenings
- ◆ Weddings
- ◆ Dinner Parties

404/626-5111

*marymiltiades@gmail.com*

# Student Activities

In January, our chapter provided financial support to UGA student Buddy Bishop to travel to the ASHRAE Winter Conference. Here is a letter Buddy wrote to thank the chapter for our support:

*I am writing to thank ASHRAE for its financial support of my trip to the winter meeting in New York City. Without your support, I simply would not have been able to make the trip and I believe I would have missed out on a great experience.*

*From the time that I began my engineering coursework in 2010, I have been curious as to how engineers are involved in our built environment and what it means to engineer buildings for sustainability. The winter meeting was a great opportunity for me to be surrounded by engineers that are doing exactly those things. During the meeting, I was able to attend a number of sessions focused on sustainability. They ranged in scope from detailed topics about using cooling tower water for irrigation, to presentations about the impacts of the building envelope on sustainability, to large scale topics such as GIS and community planning for net zero energy use. All of these topics were well presented and allowed me to really see what sustainable engineering is all about and to better understand many of the challenges that lie ahead for our built environment.*

*Each session that I attended was of great value to me, but they were really not the only value in the conference. While at the conference, I was also able to attend the 189.1 technical committee meeting, which provided some insight as to how I might be able to be more involved in ASHRAE in the future. Finally, the conference provided some great opportunities for networking and meeting other professionals. This networking is always a great help in identifying opportunities in the field such as projects to work on, possible employment, and future engineering mentors.*

*Thank you again for your support of my trip to the conference, I would recommend attending to any student that is interested in sustainability. It's exciting to see all of the opportunities out there for us as we graduate!*

*Sincerely,*

A handwritten signature in black ink, appearing to read "Buddy Bishop".

*Buddy Bishop  
The University of Georgia*



## **How to Join ASHRAE?**

Go to <http://www.ashraeatlanta.org/> to start the process, click “Membership” on the horizontal menu bar. On the pull down menu, click “Join”. Enter your email address in the box “Verify your E-mail status”. A prospective member will then be directed to enter his or her email information. As a new member, your address will not be recognized, and you will be invited to “Register Now”. After you complete registration, you will be directed to the Individual Information page where you can finally select “Join ASHRAE”!

## **Web Sites Reference List**

Again this year, our use of the Internet to further embrace our goal of Modeling a Sustainable World will be continued. Please use the web sites listed below:

1. RSVP and prepay for each event through the Atlanta ASHRAE <http://www.ashraeatlanta.org/>. For events where meals are served, you must at least RSVP to ensure that there will be a meal for you. We encourage you to prepay, as this will speed your way through the check-in process.
2. Pay your Chapter dues of \$40 per year directly to the chapter: <http://www.ashraeatlanta.org/Membership>. These dues are in addition to your Society dues and help fund the Chapter’s programs and outreach.
3. Donate to ASHRAE Research Promotion. We have a fundraising goal of \$44,000 this year, so please do what you can to help fund ASHRAE research. Donate here: <http://www.ashraeatlanta.org/Default.aspx?pagelid=748082>
4. Join the “ASHRAE Atlanta Chapter” group on LinkedIn at <http://www.linkedin.com/>.
5. Access the Product Directory online at the Atlanta ASHRAE website. Please note that this feature is in the process of being updated.

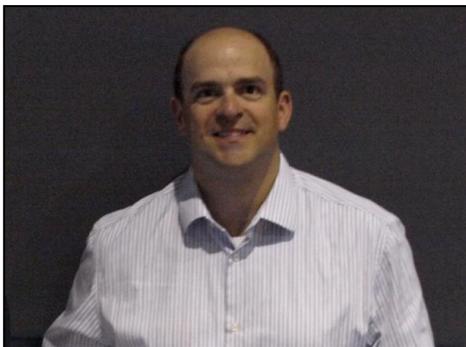
This Atlanta Chapter Newsletter goes by email only to all Atlanta Chapter ASHRAE members along with all other ASHRAE members in our area and anyone else who asks. If you need a change in our email list, please notify our Chapter Secretary at [secretary@ashraeatlanta.org](mailto:secretary@ashraeatlanta.org)

## CHAPTER OFFICERS 2013-2014



**Brian Justice – President Elect**  
[presidentelect@ashraeatlanta.org](mailto:presidentelect@ashraeatlanta.org)

Brian has been a member of ASHRAE for 8 years. He has served the Atlanta Chapter as Secretary, Treasurer, Research Promotion Chair for 2 years and Research Promotion Co-Chair 1 year. Brian brings 22 years experience in refrigeration & HVAC as a design engineer, applications engineer, consultant, and regional manager. He has worked for companies such as Hussmann, Carrier, Lennox, AAON, and now Joe Powell and Associates. Brian earned his Bachelor of Science degree in Physics from Presbyterian College, a Bachelor of Science degree in Mechanical Engineering from Clemson University, and a Master's in Business Administration from Brenau University.



**John Pruitt – Treasurer**  
[treasurer@ashraeatlanta.org](mailto:treasurer@ashraeatlanta.org)

John has been a member of ASHRAE for 6 years. He has served the Atlanta Chapter as Research Promotion Chair for 2 years and Secretary for 1 year. John Graduated from Georgia Tech in 1998 with a Mechanical Engineering degree. Since graduating, he has worked with Johnson Controls in Atlanta as a project manager and account executive. John Lives in Marietta and is married with 3 daughters.



**Rick Dustin – Secretary**  
[secretary@ashraeatlanta.org](mailto:secretary@ashraeatlanta.org)

Rick is a graduate of Georgia Institute of Technology with a Bachelor of Mechanical Engineering. He is currently the Director of Engineering at McKenney's, Inc. with responsibility for the HVAC & Plumbing design team as well as the Building Information Modeling (BIM) team. He was a cooperative education student with McKenney's in college and has been employed full time for 21 years. Rick has been a member of ASHRAE for 20 years and has served on the Board of Governors for the local chapter.

**OFFICER DIRECTORY – 2013-2014**

Office:	BOG	Name:	Email:
President / CRC Alternate	X	Pamela Androff	<a href="mailto:president@ashraeatlanta.org">president@ashraeatlanta.org</a>
Vice President / President Elect	X	Brian Justice	<a href="mailto:Justicebrian@charter.net">Justicebrian@charter.net</a>
Treasurer	X	John Pruitt	<a href="mailto:john.d.pruitt@jci.com">john.d.pruitt@jci.com</a>
Secretary / PAOE	X	Rick Dustin	<a href="mailto:rick.dustin@mckenneys.com">rick.dustin@mckenneys.com</a>
Past President 2012-13/CRC Delegate	X	Charles Miltiades***	<a href="mailto:charlesmiltiades@gmail.com">charlesmiltiades@gmail.com</a>
BOG	X	Charlie Fischer***	<a href="mailto:charles.h.fischer@jci.com">charles.h.fischer@jci.com</a>
CTTC and Programs Chair	X	Tony Martin	<a href="mailto:aemartin@workingbuildings.com">aemartin@workingbuildings.com</a>
MP Co-Chair		Henry Slack	<a href="mailto:slack.henry@epa.gov">slack.henry@epa.gov</a>
Membership Promotion		Pedro Pacheco	<a href="mailto:pedro.pacheco@obg.com">pedro.pacheco@obg.com</a>
MP Co-Chair		Ted Duffy	<a href="mailto:ted.duffy@gmail.com">ted.duffy@gmail.com</a>
Honors & Awards		Samir Sheth	<a href="mailto:ssheth@itsmarta.com">ssheth@itsmarta.com</a>
Honors & Awards Co-Chair		<b>VACANT</b>	
Student Activities		Megan Tosh	
Student Activities Co-Chair		<b>VACANT</b>	<a href="mailto:megan.tosh@gmail.com">megan.tosh@gmail.com</a>
Historian		Ed Hunda	<a href="mailto:edhunda@workingbuildings.com">edhunda@workingbuildings.com</a>
Co-Chair		Scott McClure	
Research Promotion		Nick Kassanis	<a href="mailto:nickk@sigearth.com">nickk@sigearth.com</a>
RP Co-Chair (Product Database)		Kurt Ehlers	
Refrigeration	X	Mark Dahir	<a href="mailto:markd@jmpco.com">markd@jmpco.com</a>
Refrigeration Co-Chair		Gerard Roth	<a href="mailto:gproth@workingbuildings.com">gproth@workingbuildings.com</a>
YEA Chair		Sarah Young	<a href="mailto:syoung@dlbassociates.com">syoung@dlbassociates.com</a>
YEA Co-Chair		Allison Briede	<a href="mailto:aabriede@workingbuildings.com">aabriede@workingbuildings.com</a>
Government Grassroots Activities Committee		Jay Perkins	<a href="mailto:jdperkins@hvac.me.com">jdperkins@hvac.me.com</a>
Macon Section		Caroline Calloway***	<a href="mailto:caroline@callowayes.com">caroline@callowayes.com</a>
Attendance/Reception		Danny Cobucci	<a href="mailto:dannycobucci1@bellsouth.net">dannycobucci1@bellsouth.net</a>
Attendance and Reception V. Chair		Darrell Sandlin	<a href="mailto:dsandlin@nexant.com">dsandlin@nexant.com</a>
Spring Outing	X	Glenn Northrup***	<a href="mailto:gnorthrup@georgiaairassociates.com">gnorthrup@georgiaairassociates.com</a>
GEF		John Boneberg	<a href="mailto:john.boneberg@obg.com">john.boneberg@obg.com</a>
E-week		Brendan Gardes	<a href="mailto:bgardes@dlbassociates.com">bgardes@dlbassociates.com</a>
Ways and Means/Audit Committee	X	Pat McCabe***	<a href="mailto:pjmccabe@charter.net">pjmccabe@charter.net</a>
Holiday Party Activist		John McFarland***	<a href="mailto:jkmcfarland@workingbuildings.com">jkmcfarland@workingbuildings.com</a>
Holiday Party Activist		Michael Dudley***	
Region IV RVC History		Pam Immekus***	<a href="mailto:pam@leppardjohnson.com">pam@leppardjohnson.com</a>
Region IV RVC Student Activities		Peggy Fritz***	<a href="mailto:pjf41@att.net">pjf41@att.net</a>
Region IV RVC CTTC		Harris Sheinman***	<a href="mailto:HSheinma@heery.com">HSheinma@heery.com</a>
Region IV Nominating Committee Member		Caroline Calloway***	<a href="mailto:cccalloway@bellsouth.net">cccalloway@bellsouth.net</a>
2015 Annual Chair		Pam Immekus	<a href="mailto:pam@leppardjohnson.com">pam@leppardjohnson.com</a>

\*\*\* Indicates a former Atlanta Chapter President.

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# Industry Opportunities



Join us at ASHRAE's 2014 Annual Conference  
June 28–July 2 | Seattle, Washington | [www.ashrae.org/seattle](http://www.ashrae.org/seattle)

Special first  
time attendee  
registration fee  
available!

Join ASHRAE in Seattle! Take advantage of the opportunity to discuss and examine the latest topics in the building industry, such as high performing buildings and integrated design, through the technical program; participate in technical tours; attend ASHRAE Learning Institute courses; and earn professional credits.

**Research Summit** – held in conjunction with the 2014 Annual Conference. The summit addresses the latest research results, innovative research techniques and forecasts future research directions.

**Technical Program** – presentations and papers focus on current research worldwide; core HVAC&R applications and systems; and Integrated Project Design, Energy Modeling and Building Efficiency Performance.

**Networking** – share ideas and learn from fellow members from your hometown and around the world.

**ASHRAE Learning Institute** – choose from two full-day professional development seminars and seven half-day short courses to stay current on new HVAC technologies.

