



Giga-Joule

April 2017

<http://www.ashrae4greenville.com/>

Meeting Announcement

Hybrid Geothermal Heat Pump Systems

The **Greenville** meeting will be held on **Tuesday, April 11, 2017 at 11:15 AM**

RSVP here: <https://goo.gl/forms/f5XzkyYqJQ9TxWwf1> by Monday, April 10

Location: M.T. Anderson Support Center
100 Blassingame Rd
Greenville, SC 29605

Program Cost includes catered lunch!

- \$13 via website: <http://www.ashrae4greenville.com/next-greenville-meeting>
- \$15 at door for chapter members, \$20 for non-chapter members

Education Credit: This Seminar qualifies for 1.0 PDH each (including NC PE).

If you have any questions, contact: Jeremy Butdorf at 864.232.0200 or jeremyb@jmpco.com

Meeting Sponsor: **Sponsorships available!** Contact our Research Promotion officer Jeff MacNeil
JMacNeil@hahn-mason.com for more information.

Upcoming Events

- **Geothermal Summit on Monday, May 15, 2017 at Clemson University**
- **Our Golf Tournament will be held Friday, April 21 at Legacy Pines in Greenville, SC**
- **Happy Hour Taste & Tour is April 20 from 6-7:30 PM at Upstate Craft Beer Co.**



A Message from the President



Rodney Hinton – President
ASHRAE – Greenville Chapter
RHinton@PalmettoAirBalance.com.com
864-303-5722

We are proud to be co-hosting Clemson University's Geothermal Summit on May 15, 2017! Please check out the following link for complete details and mark your calendars! <http://www.cugeosummit.com/>

March Meeting



G. David Pleasants, Jr
Principal, Pleasants Energy Services LLC

Program: **Hybrid Geothermal Heat Pump Systems**

The Emergence of Hybrid Geothermal Systems as a Commercial High Performance Building Cost Solution

- 1) GSHP Systems Review
- 2) Cooling Dominated Applications for Hybrid GSHP Systems
- 3) Application of Hybrid GS Systems
- 4) Design Guide for Hybrid GS Systems - ASHRAE TRP 1384
- 5) Future? Reduced Water Usage - Thermal Ground Storage / Air / Evaporative Cooling

David Pleasants is retired from James M. Pleasants Co., Inc as Vice President and Sales Manager after serving many years in the company. Positions included management, technical systems and product information and teaching at different levels in the industry as well as actual field experience.

He has authored and presented many seminars and courses in the hydronics, steam and energy fields as well as having extensive experience in actual systems for over thirty years. He has conducted several hundred seminars and training sessions.

He is currently Principal of Pleasants Energy Services LLC, and active in the areas of hydronic system energy measurement, management and optimization. He is also a consultant for James M. Pleasants Co., Inc. in the areas of geothermal, hybrid and water source heat pump systems, centrifugal pumps, steam systems and advanced chilled water systems.

David Pleasants is a Life Member of ASHRAE. He has been active at the local level in the North Piedmont Chapter of ASHRAE, serving as Chairperson for a number of committees, as a member of the Board of Governors and as President. The Piedmont chapter received the Rudy Ferguson Memorial Award for ASHRAE year 1996-1997, when he was president. He has been a member of ASHRAE Technical

Committee 6.8 for many years. He has also presented at a number of ASHRAE chapters, ASHRAE Region IV CRC and other conferences.

Membership Promotion



Jeremy Butdorf
Membership Chairman
jeremyb@jmpco.com

Thank you to all the members who continue to bring guests! We would love to see our chapter continue to grow and thrive! Remember - Bring a prospective member to the next meeting and have a chance to win one of 4 American Express \$25 Gift Cards. You must introduce the prospective member to me, so I can get their contact information.

We need your help! Please check your membership status with ASHRAE and be sure you are up to date – I will be contacting those of you with lapsed membership to help with any issues. With Greenville and Asheville constantly growing, we need to grow our membership as well. A big part of growth is bringing guests, but we also need to retain our members as well! ASHRAE is a great organization for learning, networking, and fellowship – Let’s actively work together to grow our chapter and also keep around our long serving members!

Research Corner



Jeff MacNeil
Research Promotions Chairman
jeff@hahn-mason.com

Thank you to everyone who has sponsored holes for this year’s golf tournament and to those who have registered to play as well. It is much appreciated and we look forward to a great day on the links. We do have a few more openings if anyone is still interested in joining with a team or as an individual. You can either email me at jeff@hahn-mason.com or visit the link below. We are playing at Legacy Pines on April 21st.

<http://www.ashrae4greenville.com/next-golf-tournament>

I would like to thank everyone who has donated to this year’s campaign:

Wade Crow Engineering	James Reeves
Adolph Beyerlein	William Graves
Thermal Resource Sales	Palmetto Air & Water Balance
Commissioning Consultants	James M. Pleasants
Jamie Porterfield	Tigue Garick

Rodney Hinton
Melissa Angulo
Donald Willoughby
Greenville ASHRAE Chapter

Jeff Beard
Jeff MacNeil
Dorothy Bertolini

We appreciate your continued support for our local ASHRAE Chapter.

Chapter Vice President



Tigie Garick
Vice President
TigieG@JMPCO.com

We successfully sent Bryan Chirillo, Clemson Student Chapter President, to this year's winter meeting. Please see attached letter from him concerning his trip.

Young Engineers in ASHRAE (YEA) Chairs



YEA Chairs

Brandon Dillard

brandonrdillard@gmail.com

Carson Carpenter

ccarpenter@devitainc.com

YEA is happy to announce we will be sponsoring a happy hour on April 20th at the Upstate Craft Beer Co., the first nano brewery in the Upstate. Please see the flyer included in the newsletter for more details. We look forward to seeing you there.

Young Engineers in ASHRAE (YEA) Chairs



Daniel Lowe

Chapter Historian

LoweD@CxConsultants.com

We are composing a biographical report on the career successes of Mr. Benny Bootle which will be submitted as a candidate for the Lou Flagg Historical Award! This award was established in 2002 "to recognize a Chapter Gold Ribbon Award winner for compiling information on outstanding historical projects or persons related to HVAC&R."

Student Activity Chair



Ryan Tonnsen
Student Activity Chair
wtonnsen@greenville.k12.sc.us

Clemson Student Chapter of ASHRAE will be having a job fair for engineering on Wednesday, March 8th. This is the perfect time to find some help for those tight deadline summer projects or look for candidates to fill open positions. Members of our Chapter have been very pleased with the quality of candidates they were able to recruit through this job fair in years past. Let's make it a success again this year.

If you are interested in participating, please contact Ryan Tonnsen or Daniel Lowe.

Clemson Student Branch President



Bryan Chirillo
Clemson Student Branch ASHRAE President
Senior Mechanical Engineering Student | Clemson University
bchiril@g.clemson.edu

2017 ASHRAE Career Fair is taking place today (Wednesday, March 8th) at Clemson University, Hendrix Student Center from 1-4 PM.

Treasury



Jeff Beard
Treasurer Greenville ASHRAE
Jeff.beard@heattransfersales.com

Our finances remain stable and we continue to provide a great menu during our meetings. Thanks to the "Presenting Sponsors" of our meetings. If you are interested in being a presenting sponsor please let me know as these opportunities are filling up fast.

Greenville ASHRAE's March 2017 CTTC Article: **Practical Efficiency**

by Devon Cortright, PE

We are inundated with efficiency improvements and requirements, not all of which seem to be practical. COMcheck is an energy compliance software that many municipalities require be submitted as part of the code review package. COMcheck requires that water heaters be "Capable of being set for a temperature of 120 degrees F. ASPE, ASHRAE and other organizations state that hot water needs to be at 140 degrees to prevent the growth of the Legionella bacteria. At least COMcheck does not **require** 120 degrees F set point.

We continue to improve wall and roof insulation, windows are more efficient, LED light fixtures put off less heat, and the cooling load in spaces continues to fall, but not humidity. Pay attention to the humidity level that appears in the load calculations and simulations, especially on the off peak days. In some systems I have resorted to specifying the installation of dehumidifiers to operate in parallel with the air conditioning unit to keep humidity under control. It uses less energy to control temperature, but is it still an efficient system?

Fan efficiency is now a reality and will become more stringent in the near future. A recent chilled water VAV design incorporated series fan powered boxes to maintain the ventilation rate in the spaces. Shift the system into economizer mode and a relief fan is required to move the air out of the building. Using a COMcheck analysis of the initial design and inputting all of the fan horsepower the system did not comply with the limitation on fan energy. Thankfully a slightly different relief fan brought the system into compliance, but just barely.

If you really want to experience foolishness, residential occupancies are to be tested to confirm their air tightness. Once you prove that its air tight, it is now too air tight and you have to bring in outside air, because infiltration is not high enough in a tight building to meet the ventilation requirements. You are required to seal up all the holes, and then required to put one in. Try explaining that to a client! (2009 IECC 402.4 & 2015 IRC R303.4 & M1507. It should be noted that IRC 2015 R303.4 has been deleted from the South Carolina Code, so the requirement is fuzzy in SC.)

The July 2016 Building Science Column in The ASHRAE Journal was titled "No Good Deed Shall Go Unpunished..." In the column Dr. Lstiburek highlights some of the consequences of installing air handlers in residential attics and crawl spaces, especially in humid climates. He also points out the increase in attic insulation to R-38 in the new code (2015 IECC) and the possible development of mold on the ceiling as a result. He closes with

Wait until you provide high levels of whole house ventilation - and good windows. Sounds like the 2015 IECC and ASHRAE Standard 62.2. Probably should invest in a dehumidification company and find yourself a really good HVAC contractor.

I am not anti-efficiency; I am for efficient, reliable systems that my clients are capable of operating and maintaining, at a reasonable first cost. It is possible that some of these changes in codes and standards occurred without sufficient input from the engineers, building owners, contractors, and designers with "boots on the ground" experience. Proposed changes to ASHRAE standards are published for a 30 to 60 day review period with provisions for comments to be added via the website. A link to that portion of

the website is below. We all need to be better participants in the process that creates the standards and codes of our industry.

<https://www.ashrae.org/standards-research--technology/public-review-drafts>



Devon Cortright, PE

Board of Governors, Greenville ASHRAE

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2017 ASHRAE Winter Conference Summary

by Bryan Chirillo

First off, I wanted to say thank you to the entire group at ASHRAE Greenville for giving me the opportunity to go to the Winter Conference in Las Vegas. It was an incredible experience that I will not forget!

I flew to Las Vegas on the Saturday morning, Jan. 28th. After I arrived, I checked in and had lunch before signing in at the ASHRAE booth and attending the Student Orientation. The student orientation event consisted of a brief summary of the student design awards that would be presented Sunday morning and a question and answer session with 3 YEA members on what they recommended a student attend while at the conference. The two biggest items: a technical seminar presented by YEA and the AHR Expo, I already had on my "to-do" list.

After the student orientation, we were all quickly escorted to the Plenary Session, which acted as an opening meeting for the conference. At the session, ASHRAE president Tim Wentz spoke and presented many with achievement awards, and keynote speaker Adam Stelzner gave the audience a very interesting speech on his achievements in NASA and how he creates a positive team environment for getting projects completed.

Following the Plenary Session, I attended a student/YEA mixer event for supper, where I was able to meet many other student chapter presidents and ask their advice on ways to grow our club membership and recruiting techniques. I also spoke with a student at Kennesaw State University in Atlanta who wishes to start an ASHRAE chapter at his school, but didn't know what a chapter might do. I have stayed in close contact with him after the event and have already made plans for him to attend some of our events this semester in order to help him with his new club. During the mixer, I met a group of students who were attending the ASHRAE Hoover Dam tour the next morning and was invited along.

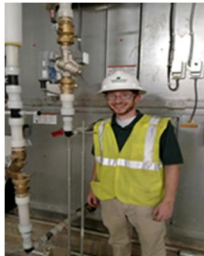
On Sunday morning, I attended the ASHRAE Hoover Dam tour with other students, and it was a blast. As a huge history fan, this was a great experience. Upon returning from the Hoover Dam tour, I attended a YEA dinner party in order to network with young engineers fresh out of college and understand their roles in ASHRAE. This event was great for me, as I was able to meet ASHRAE members from all over the country and even some young engineers from overseas. One of my most interesting talks was comparing my experiences and paths with a British consulting engineer who recently moved to California.

On Monday, I attended the YEA technical session (Seminar 20) titled "Fresh Insights On Building Automation." This presentation was very interesting, as three different YEA members spoke on different forms of study and how the ever-changing technology in the industry is affecting seasoned technicians in the field. They also discussed how the industry is preparing (or not preparing) for the "smart device" craze that is taking over the market. After this seminar, I attended the ASHRAE Student Congress meeting and was able to voice my opinion on the direction of the student section of ASHRAE and gain useful insight into how to help our club at Clemson. This meeting was extremely productive and I'm excited to see what ASHRAE does to address their current recruiting issues.

After having lunch with the student congress, I attended the AHR Expo, which was an overwhelming experience! At the Expo, I was able to meet up with James M. Pleasants and tag along with them and get

acclimated to the Expo. Once on my own, I stopped at any company I recognized or found interesting and was able to see an unbelievable amount of products in the HVAC industry. While I tried to cover the entire Expo, I believe I was able to cover $\frac{3}{4}$ of it, which was quite a task. After the Expo, I had a late dinner with some students I had met earlier at the convention before flying out early Tuesday morning.

Attending the ASHRAE conference was a great experience. The amount of technical expertise at the conference was incredible. The wide range of individuals I was able to speak with made for a great learning experience while I was out there. Just from speaking with everyone at the Clemson ASHRAE events, I knew ASHRAE was an extremely close and helpful group, and this was confirmed at the conference, as everyone I spoke to was extremely friendly, interested in each other's accomplishments, and wanted to find ways improve the organization. Thank you again for this experience, especially Rodney Hinton for offering the invitation to go and Tigue Garick for all the assistance getting to and from Las Vegas and the hospitality shown while I was out there. I look forward to many more ASHRAE experiences in the future and continuing my involvement in ASHRAE when my time at Clemson is complete!



Bryan Chirillo

Clemson Student Branch ASHRAE President

Senior Mechanical Engineering Student | Clemson University

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ASHRAE Greenville Chapter Board

Chapter President	Rodney Hinton
Chapter President Elect	Melissa Angulo
Chapter Vice President	Tigue Garick
Chapter Secretary	Dorothy Bertolini
Chapter Treasurer	Jeff B Beard
Chapter Board of Governors	Devon Cortright
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Chapter Student Activities Chair	Ryan Tonnsen
Chapter Grassroots Government Activities Chair	Tigue Garick
Chapter Historian	Daniel Lowe
Chapter Honors and Awards	Devon D Cortright
Chapter Webmaster	Karl F Counts
YEA CO-CHAIRS	Carson Carpenter Brandon Dillard,



Event Dates for 2016-2017

Date	Topic	Location	Presenter
Tuesday 09/20/2016	Integrating Indoor Air Quality and Energy Efficiency in Buildings	Lenoir-Rhyne-3 rd floor 36 Montford Ave. Asheville, NC	William P. Bahnfleth, PhD, PE, FASHRAE, FASME ASHRAE Distinguished Lecturer
Wednesday 09/21/2016	Integrating Indoor Air Quality and Energy Efficiency in Buildings	Roper Mtn. Science Center Wilkins Conference Center 402 Roper Mountain Road, Greenville, SC	William P. Bahnfleth, PhD, PE, FASHRAE, FASME ASHRAE Distinguished Lecturer
Tuesday 10/11/2016	Fabric Ductwork Fundamentals and Applications	MT Anderson 100 Blassingame Rd Greenville, SC	Bret Pettit Regional Sales Manager Fabric Air
Saturday 10/15/16	YEA Tailgate Party: Starts 4 hours prior to the announced kickoff time for the NCSU vs Clemson Game	Parking Space 5179 Lot #5 West End Zone	Young Engineers in ASHRAE Committee (YEA) of the GSP Chapter
Monday 10/31/2016	Second Annual Fly-fishing Outing	ECO Elizabethan, TN	Chapter Function
Tuesday 11/1/2016	Building Performance Analysis for Building Performance Rating Systems	Lenoir-Rhyne-3 rd floor 36 Montford Ave. Asheville, NC	Dennis Knight ASHRAE Distinguished Lecturer
Wednesday 11/2/2016	Productivity and Leadership	MT Anderson 100 Blassingame Rd Greenville, SC	Dennis Knight ASHRAE Distinguished Lecturer
Wednesday 11/2/2016	Building Performance Analysis for Building Performance Rating Systems (1 hour Seminar after the meeting)	MT Anderson 100 Blassingame Rd Greenville, SC	Dennis Knight ASHRAE Distinguished Lecturer
Tuesday 12/13/2016	Condensing Boiler Piping Design	MT Anderson 100 Blassingame Rd Greenville, SC	Patrick Leake JMP
Tuesday 01/10/2017	Vibration and Seismic Topic TBD	MT Anderson 100 Blassingame Rd Greenville, SC	Jonathan Reinhardt Mason Industries
Monday 2/13/2017	Oyster Roast	Bimini's 100 Villa Road Greenville, SC	Chapter Social
Tuesday 02/14/2017	TBD	MT Anderson 100 Blassingame Rd Greenville, SC	Trane-TBD
Tuesday 03/14/2017	What is the current plan for commercial equipment efficiencies	MT Anderson 100 Blassingame Rd Greenville, SC	Gus Faris VP-Engineering Nailor Industries
Tuesday 04/11/2017	Digital Controls Systems Explained	MT Anderson 100 Blassingame Rd Greenville, SC	Bryan Lampley, PE
TBD	Spring Golf Outing	TBD	Chapter Function
Tuesday 05/9/2017	CGAC Topic	MT Anderson 100 Blassingame Rd Greenville, SC	T. Randy Jones