

Upcoming Events!

Monthly Meeting -
Wednesday,
March 9th, 2022

March 2022 Edition

SWFL ASHRAE Chapter Meeting Announcement ****YEA Promotion Night****

Date: Wednesday, March 9th, 2022

Location: Crowne Plaza at Bell Tower Shops
13051 Bell Tower Road
Fort Myers, FL 33907

Time:

5:30 - 6:30 - Networking

6:30 - 8:30 - Dinner and Main Program

In-Person Cost: \$35.00 per attendee - Reservations are a must

Virtual Cost: No cost, donations to Research Promotion are encouraged. To donate please contact Gena Knight (gknight@bandiflorida.com).

Virtual Instructions:

If you are planning on attending virtually, please RSVP using the link below. Be sure to indicate that you will be participating remotely.

You will be provided a viewing link by 3pm on the day of the meeting, please check your email.

No cost for college students with a valid student ID.

Pre-Pay via www.paypal.com to swfl.ashrae@gmail.com.

[RSVP Link](#)

Presentation:

Basics of Sound & Understanding Acoustics in HVAC Equipment

This presentation will cover the basics of sound and understanding acoustics as related to HVAC equipment, focusing on methods to measure sound, determination of sound sources, and recommendations which help reduce and achieve exceptionally quiet equipment operation. Finally, it will focus on several case studies detailing existing and new HVAC equipment offerings. These new units will provide the customer with sound power levels reduced through use of new compressor technology, specialized variable speed blower motors, acoustical isolation techniques, and optimization of design through extensive sound testing.

Presenter: Aaron Sorenson

Aaron has 13 years of experience in the Heating, Ventilating, Air Conditioning & Refrigeration (HVAC&R) industry. He has worked as an Application Engineer at Bosch, a Design Engineer for Bosch/FHP, and as a Design, Application, and Engineering Manager at a startup Water Source Heat Pump manufacturer in South Dakota. His educational background includes a bachelor's degree in Agricultural and Biosystems Engineering with a mechanical emphasis from South Dakota State University. He has a breadth of knowledge ranging from equipment design and testing to unique and customized applications of Water Source Heat Pumps.

Presenter: Phil Rains

Phil Rains has over 50 years of experience in the Heating, Ventilating, Air Conditioning & Refrigeration (HVAC&R) industry. He has worked as an HVAC&R Application Engineer, HVAC&R Specialist, HVAC&R Trainer, HVAC&R Designer, Sales Manager, Marketing Manager, Product Manager, Program Administrator, Heat Pump Advisor, Owner/Operator, Serviceman, Installer, and Novice. His educational background includes the HVAC&R Program at the Tennessee College of Applied Technology, Nashville, Tennessee, Mechanical Engineering at the University of Tennessee, Chattanooga, Tennessee, and Marketing at William Jennings Bryan College, Dayton, Tennessee. He has vast knowledge in every aspect of the HVAC industry and has participated in almost every sector of that industry over the past five (5) decades. He also has a deep understanding of training development and presentation and has trained over 7,000 students in the past twenty (20) years.



Shaping Tomorrow's
Built Environment Today

2021-2022 SWFL ASHRAE Team

President - James Martin

Vice President/Secretary/Refrigeration - David Moorhead

Treasurer - Woody Wilson

Research Promotion - Gena Knight

Membership Promotion - Trey Dougherty

Sustainability - Justin Holland

C.T.T.C. - John Stischok

Y.E.A. - Dave Jaworski

Student Activities - Bill Boga

Historian / Reception - Sidney Feldman

Honors and Awards - Kathy Schmitt

G.A.C. / B.O.G. - Kathleen Simpson

B.O.G. - Pat Graef

B.O.G. - Bill Malphus

B.O.G. - Jason Hardman

Newsletter/E.C. - Tony Amitia

A Letter from President James Martin, PE

Greetings SWFL Chapter,

I hope this year is treating all of our members well so far. We had an excellent turnout for our February BIM panel discussion, and I would like to keep that ball rolling for our March meeting which I think can offer some great information for engineers, contractors and vendors. This month we will be learning the basics of sound and acoustics in HVAC equipment. I'm also excited to announce that we have a tech-topic lined up for this month as well where everyone can learn more about pre-engineered duct systems for underground and exterior applications.

And now, the moment so many of you have been waiting for... Mark your calendars, Saturday May 21st has been set as the day for the annual SWFL ASHRAE Backwater Fishing Tournament. We are continuing to hold the check-in and awards dinner at the Princher's at the Edison Ford Marina in downtown Fort Myers. We will have separate cash prizes for our 3 different fish as well as non-cash prizes, everyone has a chance to win even if you only catch one fish.

I would also like to thank our members who volunteered at the STEMtastic Day of Discovery Annual STEM Convention. This event is organized each year by the Foundation For Lee County Public Schools. SWFL ASHRAE volunteers manned a booth and were able to interact with 100s of local students and give them a taste of how interesting STEM (science, technology, engineering and math) can be. As always, we are looking for new members and volunteers. If you're interested in volunteering or know someone that may be interested in joining please let us know, or bring them to a meeting!! Guests are always welcome and our membership promotion chair will be happy to share information about the benefits of joining the excellent community of ASHRAE.

Thanks for all your support!!

James Martin, PE

SWFL Chapter President 21-22



Shaping Tomorrow's
Built Environment Today

Refrigeration

The (R)Evolution of Refrigerants

Refrigeration was named one of the 20 most significant engineering achievements of the 20th Century in a recent review, ranking alongside computers, spacecraft, and the Internet. (1) Nearly 20% of energy consumption worldwide is due to the demand for refrigeration and air conditioning. (2) Refrigerants are the vital working fluids at the heart of the vapor-compression cycle, moving heat from a lower to higher temperature.

In the present work we trace the evolution of refrigerants from the early days of mechanical refrigeration to the present. We consider the evolution of the molecules themselves, making use of the refrigerant “generations” defined by Calm, (3) as well as the evolution of the constraints on the characteristics required of refrigerants, which have largely driven the need to find and develop new refrigerants. We also consider the evolving tools and models used to represent the properties of refrigerants and their mixtures, with a focus on the NIST REFPROP (4) database. In some cases, these developments were revolutionary, thus, the “(R)” in the title. We also note examples where previously known molecules have been applied (or reapplied) to meet new constraints; in other words, sometimes, the choice of refrigerants has “revolved,” in the sense of “circling back.” Our title is, thus, a play on words.

[Full Article](#)

Research Promotion

Ceiling Fan Integrated Air Conditioning

Laboratory studies showed that ceiling fans mix unducted supply air very well, providing uniform room temperatures and sufficient air ventilation effectiveness within the occupied zone. These studies also showed thermal comfort equal or better than that with traditional ducted overhead diffusers. In addition, a detailed comparison of a CFIAC design in an actual open plan office showed that the new approach reduced the number of VAV zones from 14 to 4 (or even two), with a design that included 12 ceiling fans for air mixing. Overall, the net cost reduction in ductwork and air handling equipment was between 30 and 50 percent.

Conventional air conditioned buildings are currently designed to maintain temperatures that are comfortable in still air. Under cooling modes it is a challenge for building designers and operators to maintain still air in a room. The relatively dense cooled supply air tends to fall (‘dump’) into the occupied space, and diffusers need to be spaced closely to provide uniform coverage, requiring significant terminal ductwork and substantial numbers of diffusers. These systems are often operated at relatively high volumes of supply air to help mixing, a practice that limits energy efficiency at partial loads and also the ability to control space temperatures. For these and other reasons, the conventional approach of cooling using cool temperatures with still air is highly energy intensive.

[Full Article](#)

Sustainability

Desiccant Enhanced Evaporative Air-Conditioning

NREL has developed the novel concept of a desiccant enhanced evaporative air conditioner (DEVap) with the objective of combining the benefits of liquid desiccant and evaporative cooling technologies into an innovative “cooling core.” Liquid desiccant technologies have extraordinary dehumidification potential, but require an efficient cooling sink.

DEVap’s thermodynamic potential overcomes many shortcomings of standard refrigeration based direct expansion cooling. DEVap decouples cooling and dehumidification performance, which results in independent temperature and humidity control. The energy input is largely switched away from electricity to low-grade thermal energy that can be sourced from fuels such as natural gas, waste heat, solar, or biofuels. Thermal energy consumption correlates directly to the humidity level in the operating environment. Modeling at NREL has shown that the yearly combined source energy for the thermal and electrical energy required to operate DEVap is expected to be 30%–90% less than state-of-the-art direct expansion cooling (depending on whether it is applied in a humid or a dry climate).

[Full Article](#)

Editors' Choice

Power-Quality Analyzers Help Improve HVAC System Efficiency

Power-quality analyzers also can help improve overall system efficiency and reduce power-related equipment problems. Building occupants, along with the technology they use and the activities they perform, have become dependent on highly sensitive electronic equipment. This equipment in turn, is highly dependent on a stable, clean source of electrical energy. Unfortunately, most building electrical systems are anything but clean. Even the power supplied to the facility by the utility is not necessarily clean.

Heavy electrical loads can cause voltage sags and momentary dropouts at start-up. The operation of non-linear electrical loads generates voltage and current harmonics that increase heating in the system and can damage sensitive electronic equipment. Ground loops or improper system grounding can easily interfere with the operation of audio, video, and computer systems. Power-line noise, either from the utility’s lines or generated within the facility itself, also interferes with the operation of electronic equipment while also increasing heating in the electrical system’s components.

[Full Article](#)

Government Activities**Government Activities****European Union Poised to Label Gas as Green Energy Alternatives
Provided by Kathleen Simpson****DOE's FEMP Has a New Director
Provided by Kathleen Simpson**

A draft of the EU's green energy taxonomy submitted to the European Commission's advisory group on sustainable finance hints that the EU is considering classifying projects involving fossil fuels as sustainable investments. This proposed text was met with objection from investors and global asset management firms, highlighting the inclusion of natural gas in the taxonomy would compromise Europe's climate ambitions given that natural gas is a fossil fuel and not a clean energy source.

The U.S. Department of Energy has welcomed Mary Sotos as the new director of the Federal Energy Management Program (FEMP), which works with agencies across the federal government to reduce energy use and costs. With the U.S. government being the largest energy consumer in the world, FEMP's work can result in major energy reductions, as well as promote technological innovation.

The EU taxonomy assists investors in identifying and financing sustainable development and aims to put the EU on the path to achieving net-zero greenhouse gas emissions. The EU gets 22% of its energy from natural gas, and to meet its climate targets, the European Commission recommends cutting fuel use by 37% by 2030.

Sotos comes from the Connecticut Department of Energy and Environmental Protection, where she revamped its "Lead By Example" program to create new strategies to track and manage greenhouse gas emissions, waste, and water use across all state agencies. She previously served as the agency's deputy commissioner for energy, directing the state's energy policies and programs. Sotos also worked at the Greenhouse Gas Protocol Program at the World Resources Institute, where she developed new global carbon accounting standards and tools used by thousands of organizations worldwide.

EU member states are divided on whether natural gas should qualify as sustainable. This text, when accepted, will be submitted to the European Parliament and Council. There will then be a four-to-six-month review of the document where it can be accepted or objected to.

[Full Article](#)[Full Article](#)



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TIME 5:30 – 6:30pm NETWORKING
6:30 – 8:00pm DINNER MEETING AND MAIN PROGRAM

In-Person Cost: \$35.00 PER ATTENDEE – RESERVATIONS ARE A MUST

Online Cost: No cost, donations to RP are encouraged, contact gknight@bandiflorida.com

If viewing online, you must RSVP using the link below and, indicate you will be attending online

A viewing link will be provided by 3PM on 9MAR22.

NO COST FOR COLLEGE STUDENTS WITH A VALID STUDENT I.D.

Pre-Pay via www.paypal.com to swfl.ashrae@gmail.com.

RSVP by 8MAR22 via the following link: <https://forms.gle/Ky9EmNWH1CVbKrt49>

Main Program: Basics of Sound & Understanding Acoustics in HVAC Equipment

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Tech Talk: AQC Engineered Duct Systems – Woody Wilson



The BlueDuct® underground air duct solution is the only proven direct-burial air duct system made from ultradurable, advanced HDPE (high-density polyethylene). The products are engineered to protect against corrosion, mold and mildew, radon, rust, and air leaks. The BlueDuct systems have been installed in thousands of buildings, for over a decade, with trouble-free, long-term performance.



Engineered for exterior use, Q Duct® Outdoor Preinsulated Duct System is constructed to withstand harsh weather conditions in all climates. Q Duct is custom fabricated using two layers of rigid UL 181 Pal phenolic core material, faced on both sides with coated aluminum and an exterior multilayered laminate jacketing material. Requiring no additional insulation or weatherproofing, Q Duct sections are delivered pre-assembled to the job site ready for installation by a trained contractor. The product's unique design easily installs in a fraction of the time of traditional insulated sheet metal duct, saving money and labor.

Directions

Crowne Plaza Fort Myers at Bell Tower Shops
Shops 13051 Bell Tower Road
Fort Myers, FL 33907
(239) 482-2900

The Crowne Plaza at Bell Tower Shops is located in the Northeast corner of the Bell Tower Shops, on the corner of US-41 and Daniels Parkway.

From Hwy I-75 North

Head South on I-75. Take exit 131 for Daniels Pkwy. Turn right (West). Continue on Daniels Parkway for 4.6 miles. Turn right onto Bell Tower Dr. Continue on Bell Tower Dr. for 0.3 miles. Destination on right.

From Hwy I-75 South

Head North on I-75. Take exit 131 for Daniels Pkwy. Turn left (West). Continue on Daniels Parkway for 4.6 miles. Turn right onto Bell Tower Dr. Continue on Bell Tower Dr. for 0.3 miles. Destination on right.

From Cleveland Ave (US-41) North

Head South on US-41. Turn left onto Daniels Pkwy. Continue 0.2 miles. Turn left onto Bell Tower Dr. Continue on Bell Tower Dr. for 0.3 miles. Destination on right.

From Cleveland Ave (US-41) South

Head North on US-41. Turn right onto Daniels Pkwy. Continue 0.2 miles. Turn left onto Bell Tower Dr. Continue on Bell Tower Dr. for 0.3 miles. Destination on right.





ASHRAE Membership

ashrae.org/benefits

Your (NEW!) Membership Benefits

A NEW selection of complimentary ASHRAE products is now available to new and renewing, full dues paying Member and Associate grade members.

Full Members and Associates can now select

1 of the following:

eLearning Course



150 to select from

OR

ASHRAE Standard



100+ to choose from

OR

ASHRAE Handbook



PDF version of the most recent Handbook

Additional Member Benefits by the Numbers

12

month subscription to ASHRAE Journal



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400

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ASHRAE Learning Institute (ALI) Courses held annually

&

7



ASHRAE Certifications

&

6+



Conferences held annually

50,000+
Members



190+ Chapters **15** Regions across the world



WE'D LOVE TO
HEAR FROM YOU!

YOUNG ENGINEERS IN ASHRAE (YEA)

What is ASHRAE?

ASHRAE is a global technical society that provides essential resources for sustainable design, construction and operation of buildings and their systems. Our technical foundation is built by our 56,000+ volunteer members in over 130 countries who dedicate their time and knowledge to moving the industry forward. The Society's members influence the direction of HVAC&R technology by creating industry standards, recommending procedures and guidelines, and developing research.

What is YEA?

To ensure a bright future for ASHRAE and the industry, the Young Engineers in ASHRAE (YEA) Committee was developed to create programs and develop a path for our young professional members. Any current ASHRAE Affiliate, Associate or Member who is 35 years of age or younger is considered a YEA member, and automatically has a wide variety of programs, events, and opportunities at their fingertips!



ashrae.org/YEA



Facebook.com/ashraeYEA



Young Engineers Group



YoungEngineers@ashrae.org



(678) 539-1178



1791 Tullie Circle NE
Atlanta, GA 30329



To join ASHRAE and become a YEA member,
visit www.ASHRAE.org/join



FUN FACTS

56,000+
members

190
Chapters

130+
Countries

YEA makes up 18% of all ASHRAE members, and that number continues to grow!

Some ASHRAE Chapter Boards are made up of all YEA members

YEA Leadership Weekend has hosted over 700 YEA members since its start in 2007

What can YEA do for me? We're glad you asked!

PROFESSIONAL GROWTH & EXPERIENCE

In addition to your technical expertise, we want to be sure you have the tools you need to succeed. The **YEA Leadership Weekend** and **YEA Leadership International** events focus on personal development and allow you to interact with YEA members from around the world. If you want to find out how an association like ASHRAE operates, the **Leadership U** program gives you the chance to shadow an ASHRAE Vice President at one of our conferences.

TECHNICAL CONTRIBUTION

Getting involved with **ASHRAE Technical Committees (TCs)** provides you the opportunity to help guide the future of our industry. Find a TC that focuses on your area of interest, get involved, and help to make a difference! You can find a list of all TCs and a sign-up form at ashare.org/TCs.

EDUCATION & RECOGNITION

To make sure you've got the latest and greatest education, YEA offers 10 scholarships to the **ASHRAE HVAC Design Essentials Training**. And since you've put in the hard work, why not be recognized for it and apply for the **YEA Award of Individual Excellence** or the **Developing Leader Award**.

NETWORKING

It's all about who you know, right?! Join us at our **YEA Hospitality Suite** at the ASHRAE Annual and Winter Conferences to meet fellow YEA members, as well as many ASHRAE leaders who stop by. And to keep you up to speed on all things YEA, we publish a quarterly **YEA Connections** e-newsletter that goes straight to your inbox.



Certified

ASHRAE Certification

Advance Your Career Today!

NEW!
DIGITAL BADGING

Helps you get the recognition
you've earned.



With already more than 3,000 certifications earned to-date, ASHRAE programs were founded to meet the industry needs of today and provide value to thousands of built-environment professionals, employers and building owners.

[ashrae.org/certification](https://www.ashrae.org/certification)