Past President’s Night
Join us on January 23rd to honor our past chapter presidents. Curt Miller, a comedian and magician, entertaining for the night. Social hour begins at 5:00 PM and the event will continue until 8:00 PM. Click here to register.

YEA January Social
Join Young Engineers in ASHRAE for their first social of 2019! This social will be held at Bobcat Teddy’s Ice House from 5:30-7:30 PM on Thursday January 24th. $5 for YEA members and $10 for non-members. Click here to register.

2018-2019 ASHRAE Directory
Due January 31st!
Vendor listing
$425
Engineer, Contractor, Service, Commissioning Listings
$125
Download form here

CALL FOR PRESENTERS
Due January 21st!
Click here to learn more

Region VIII CRC
April 11-13 at Iberostar Cancun
Click here to learn more
Hello Chapter Members. Hope you had an enjoyable holiday and are off to a great new year.

Have you seen our new chapter website?!? Pretty spiffy. Much thanks to our website improvement committee (Julie Thomet, Rachel Haines, John Walik).

Past President Night is Wednesday, January 23rd from ~6-9pm. Please make plans to attend and reach out to any Life Members and Past Presidents to encourage them to attend. Kurt has lined up a great entertainer and Bruce Flaniken will have a special history slideshow presentation.

There is also an upcoming YEA meeting and HCC student branch ceremony – discussed in further detail elsewhere in this HAR.

You only have a couple weeks left to get company listings to Richard Ruskin, directory chair, as he compiles the ASHRAE Houston Annual Product & Services directory. He can be reached at directory@ashraehouston.org. Please make sure to contact him if you do not want your info published in the member roster!

I hope to see many of you at the ASHRAE Winter Conference and AHR Expo in Atlanta in January 12-16th.

Engineering week is coming up on February 17-23, 2019. Please reach out to your local school district to set up a K-12 presentation, or maybe just to your child’s class. Doing this during E-week should help you get those opportunities with the school. Terry Connor is our K-12 Chair and has simple and fun demonstration kit that will make the presentation easy.

Looking forward to seeing you at our upcoming events throughout the remainder of the year.

Happy 2019!

Best Regards,
Ken Shifflett, P.E
2018-19 ASHRAE Houston Chapter President
PAST PRESIDENT’S NIGHT

Come join us in at the HESS Building from 5-8 PM to honor the old presidents of our chapter and relegate in the history and nostalgia of our chapter. We will have a well known Comedian / Magician (Curt Miller) as our usual have top flight entertainment and be sure to join us as we just have some good ol’ fashion fun with the other members. If you are a past president— please come out to be recognized and remember that your admission is free!

JANUARY 23, 2019

$50- MEMBERS
$75- NON-MEMBERS
$0- PAST PRESIDENTS

CLICK HERE TO REGISTER

FEATURING:
CURT MILLER

Houston, Texas based corporate magician, illusionist and entertainer Curt Miller combines amazing magic, hilarious, clean comedy routines and audience interaction to provide a performance sure to delight your audience at your upcoming special event! He has performed thousands and thousands of magic shows for events just like yours, and he knows how to make sure your group leaves saying, "Wow, that was FUN!" EVERY show is a GREAT show!

Part magician, part comedian, Curt Miller provides great entertainment for corporate and special events all over the country, with such clients as Texaco, American Express, and NASA. He has appeared in Las Vegas and made many television appearances, including "The Disney Channel." Whether you have a corporate event, a trade show, or a large theatrical special event, magician and comedian Curt Miller has a magic and comedy show perfect for you. You can choose from a small to large Comedy Magic Show, Close-Up "Walk-Around Magic," or even a huge "Las Vegas" Illusion Show, complete with music, lovely assistants, and smoke & fire! If you want your group to have a great time, Houston based Corporate Magician Curt Miller is the perfect choice for you!
HISTORY ARTICLE

Jefferson Theater, Beaumont Texas Built with Air Conditioning in 1927 Carrier Corporation Centrifugal Chiller & Carrier Buffalo Forge AHU with Chilled Water Spray Coils
Written by Bruce Flaniken, PE, LEED AP

The idea for an air conditioned theater in Beaumont probably came as the result of the First Presbyterian Church that was built in 1908 with an air conditioning system that is still in operation today.

The Jefferson Theatre has been a downtown Beaumont landmark since it was constructed in 1927 by the Jefferson Amusement Company. The Beaumont Journal of November 12, 1927, described it in this glowing manner:

"Surpassing the most exquisite structure yet attempted in Beaumont, equal in beauty to the elaborate show places of ancient Greece, replete with architectural and engineering ingenuity, the million dollar Jefferson Theatre is ready to swing open its doors to patrons of Southeast Texas. Designed of old Spanish architecture, romantic memories or a majestic aristocracy flit with the rays of a thousand colored lights, from bowered grill to balcony, fading in shadowy recesses of stippled walls. Hand painted ornamentations bedeck the quarters of every floor. Staircases of inlaid marble lead with stately grandeur to the mezzanines. Costly carpets line polished floors. Magnificent chandeliers illuminate the corridors. Towering pillars support the balconies. Brocaded velvets adorn woodwork. Sculptured statues beautify the auditorium. Marble fountains lend charm to promenades."

In addition to the dazzling appointments, a Robert Morton Wonder organ, constructed and voiced particularly for the acoustical conditions of the Jefferson, was installed on a "disappearing platform" near the orchestra pit. The 778 pipe organ (which has been kept in an excellent state of repair) is capable of reproducing all orchestral tones plus myriads of sound effects with uncanny accuracy.

The firm of Emile Weil, Inc. of New Orleans designed and supervised the construction of the building which is supported by wood pilings sunk in an excavated plot. A poured concrete foundation, steel frame and brick walls complete the skeleton. No expense was spared in completing the structure. Italian marble was imported for use as portions of the grand stairway leading from the foyer to the mezzanine. Green Verde marble was brought from New York State for the floor of the foyer. All plaster materials were molded and cast in Houston, Texas and all were hand painted. The proscenium arch was cast in sections in New Orleans and brought to Beaumont for assembly. Spanish tile (an exact duplicate of tile once made in Mexico) and recognized as a lost art) was made in Mobile, Alabama, and was especially designed for the Jefferson. Mahogany timbers from South America and tupelo gum form Maryland were used exclusively in the theatre.

Above the 2,000 seats of the theatre hangs the huge crystal chandelier weighing more than 16,000 pounds, measuring more than eighteen feet in diameter, and costing more than $30,000. The chandelier is a replica of one of a set of fourteen chandeliers which illuminated the Chamber of Mirrors at Versailles. There is still much to be done to preserve the theatre and also bring it up to top theatrical standards. It is the hope and plan of the Jefferson Theatre Preservation Society to do just that.

Click here to read the full article
Refrigeration systems are usually one of, if not, the largest user of energy in a grocery store or cold storage facility. While energy cost are a big concern for any organization the number one concern is going to be product loss from failure or degradation of the system. Often saving energy can have other benefits that may impact redundancy or future capital cost.

Some of these energy benefits are reducing required size of the rack or condenser unit. This can avoid upsizing a compressor or adding additional units to handle loads needed. Using energy strategies can add redundancy avoiding additional capital cost. Energy saving opportunities can add many benefits to an owner beyond simply dropping the electric bill.

Dropping the electric bill is how we focus on energy savings, I want to talk about some of the strategies employed. The most popular in the grocery world is Floating Suction (inside). This is varying the suction pressure, therefore the temperature of the suction to meet the needs of the neediest unit on the circuit or loop. Anytime the differential pressure is reduced pumping energy usage. Floating Head (outside) is a strategy used to reduce differential pressure based on the amount of pressure needed to condense the refrigerant in the condenser. What varies is the outdoor temperature. Without floating control then the system must be set for worst case temperature plus a safety factor. We are all painfully aware that we have large changes in temperatures by season, day-night and even weather. These all are great opportunities to save energy. The final strategy is Compressor and condenser fan controls done by either VFD or proper staging. Refrigeration systems like all mechanical systems have areas of high efficiencies we can usually see on the manufacture provide curves. If our control strategy maintains the compressors and fans at the high efficiency areas thereby reducing the number of fans or compressors need to provide proper suction pressure and heat rejection more energy is saved.

The name of the game is to save electricity, that saves money and it may also make the system more robust and reliable. Every owner is interested in saving money. Remember a good design strategy will provide savings, reliability and longer life.
HOUSTON ASHRAE SCHOLARSHIPS

Applications for the 2019 Houston ASHRAE Scholarships are now available. A minimum of 3 scholarships will be awarded to members of ASHRAE attending a college or university covered by the ASHRAE Houston Chapter pursuing a degree related to the Heating Ventilation and Air Conditioning field. Contact Brooke Enochs (brooke@ramseyandco.com) the Student Activities Chair for Scholarship Applications. All applications are due March 4th and awarded at the March Houston ASHRAE meeting.

RECEPTION FOR THE NEW STUDENT ASHRAE CHAPTER

Welcome Houston Community College Student Chapter of ASHRAE on Tuesday, January 29th at 3:30 pm. Light refreshments will be provided.

ASHRAE DESIGN COMPETITION

Texas A&M Senior ASHRAE Design Competition Members: Arber Shasivari, Lindsay Yankam Kontchou, Jhetlyn Fox, Thomas Weis, Jose Sanchez, Edwin Torres Prieto
MEMBERSHIP

APPLY TO WIN
ASHRAE MEMBERSHIP SPONSORSHIP 2019

Send an email to membership@ashraehouston.org for the application

Please welcome our new members:
Atharva Barve, Tom Comstock, Lilian Johnson, Andre Lehr, Tim Lenig, Kyle Putnam, Abraham Robles, Alex Rosson

Joining or renewing is a simple 4-step process. Start by clicking here.
Questions about membership? Contact Michelle Baten at (832) 374-6845 or michelle.k.baten@carrier.utc.com

TREASURER REPORT

Chapter is in good financial standing
RP REPORT

SPRING GOLF TOURNAMENT
March 25th
Longwood Golf Club
Mark your calendars!

POKER TOURNAMENT
February 15th
1100 Louisiana Street in the tunnel level
of the Page offices
RSVP here
**YEA**

JANUARY SOCIAL @

**Bobcat Teddy’s Ice House**

1.24.19 5:30-7:30 PM  
$5 for YEA members, $10 for non members  
Register here

Special thanks to Roessler Equipment for sponsoring our January social!

---

**WIA**

PANEL - NAVIGATING THE CORPORATE LANDSCAPE  
Thursday, February 21st from 5:30-7:30pm at FKP | CannonDesign 3737 Buffalo Speedway #1200

**PANELIST SPOTLIGHTS**

Kristin Ledet, IIDA  
Principal  
FKP | CannonDesign

She is involved with several leading industry associations to keep informed of energy efficiency, clean technology and sustainability related issues. She looks forward to discovering the new energy efficiency, clean technology and sustainability challenges ahead.

---

Rose Shaver  
Manager Sustainability Services  
Schneider Electric

---

**Quick Links**

President’s Message  
This Month's Meeting  
Tabletop Sponsors  
History Article  
Refrigeration Report  
Student Activities  
Membership Report  
Treasurer Report  
RP Report  
YEA  
WiA  
Grassroots Government  
Sustainability  
Roster

---

[Some links and social media icons are also present]
US: EPA TO REINSTATE RULES RELATING TO HFC LEAK CHECKING

- The US EPA has announced its intention to roll back its rules relating to HFC leak checking and is seeking comment on other rules on refrigerant recovery and refrigerant handling including the removal of sales restrictions from substitute refrigerants.

- Currently, anyone purchasing or handling refrigerants needs to be a Section 608 certified technician.

- Howard Weiss, executive vice president of training company ESCO, said, “The removal of this sales restriction would enable anyone (do-it-yourselfers “DIY”), to purchase substitute refrigerants. This change would be bad for manufacturers, wholesalers and contractors. With easy access to equipment and refrigerants, DIYers will be able to purchase these items from big box retailers and online stores. This action will prove harmful to HVACR supply house and contractor businesses.”

- The proposed rule change was published in the Federal Register at the beginning of October.

UPDATE: US: SUPREME COURT REFUSES TO REVIEW COURT OF APPEALS DECISION TO BLOCK EPA FROM BANNING HFCS

- The US Supreme Court has declined to consider a review of the US Court of Appeals for the D.C. Circuit’s decision to block the Environmental Protection Agency’s (EPA) ban on HFCs.

- The Supreme Court’s decision leads to the decision from 2017, which overturned the EPA’s directives to ban high-GWP refrigerants such as R-404A and R-410A from use in certain applications, remaining in effect.

- Honeywell and Chemours, earlier in 2018, asked the Supreme Court to review the August 2017 decision by the US Court of Appeals for the D.C. Circuit.

- Both Honeywell and Chemours have expressed their disappointments regarding the Supreme Court’s decision.
SUSTAINABILITY

UNCERTAINTY IN CONTROLS
WRITTEN BY: KAPIL UPADHYAYA, BEMP, LEED AP BD&C, FITWEL AMABSSADOR

Engineering professionals are expected to design a system for the future. This frequently tasks them to overcome unforeseen problems in the future. Usually such uncertainty is overcome with oversizing and fail-safe procedures. But uncertainties may arise in many different ways. One of the most common forms of uncertainty arises due to gaps in communication. For instance, let’s consider a simple control sequence for Series Fan-Powered Terminal Unit (shown below).

There may arise a discrepancy when this control sequence is translated from one form to another. Consider the following three formats in which control sequences occur on a construction project:

Specifications that are written in spoken-english by design team. For the above case, the control sequence may say: “When system start-up has been initiated the fan shall run and the primary air damper shall be modulated between the minimum and maximum values to maintain the space temperature within +/- 0.5 °F of the active Cooling Setpoint”.

Simulation Control Sequences that are interpreted versions for modeling Loads or Energy in respective simulation engines. Because the intent of simulation engines is either estimation of loads or energy, most simulation software simplify control sequences to minimize runtime. For example when simulating fan-power for above case, a simulation engine may approximate a constant FPTU air flow when in reality the flow may vary with demand.

Executable Codes that are programmed into HVAC control software by control vendor. Many times, vendors customize codes or reuse lengthy codes with the end result being slightly different from specifications. In executing the above sequence, a vendor may use ‘minimum & maximum’ values from another FPTU without referring to the TAB report.

A paper presented by Wetter, et. al.1 at 2018 Simbuild points to this exact same phenomenon and introduces ‘Control Description Language’ – a graphical set of control sequences - that is being developed at Lawrence Berkley National Laboratory, which may be used for all three of the above mentioned purposes. Once implemented, such a workflow may completely eliminate any discrepancy between design, modeling and execution of control sequences.

Uncertainty in building operation also comes with hardware errors such as sensor failure and stuck valves. Chen, et. al.2 presented their findings at 2018 Simbuild of how such errors may impact HVAC operation in different ways – impacts might be either immediate or might manifest over a long period of time. This research points to including fault impact within predictive building performance analysis and lifecycle cost of HVAC components.

To reduce uncertainty, an innovative method was suggested by Jain, et. al.3 at 2018 Simbuild that further integrates design with operation. Jain et. al.3 propose to create digital twins of building management system by using two models: one energyplus simulation model and another data-driven (Gaussian Processes) simulation model. The (slow) energyplus model could be used to assess appropriateness of control strategies and the investment that an operator would like to make. The data-driven (fast) model could be used for real-time predictive HVAC control. Jain et. al.3 have proposed development of an interface between energyplus and python and also developed an ‘EnergyPlus-OPC Bridge’ for real-time data exchange between the twin models and HVAC controls.

Simbuild continues to be the leading national conference that raises pertinent issues in building performance simulation as those relate to design, execution and operation of HVAC systems. More from the conference to follow later in HAR.
### ASHRAE Houston Chapter Roster

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>TelePhone</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Kenneth Shifflett</td>
<td>(713) 266-1761</td>
</tr>
<tr>
<td>President Elect</td>
<td>Kurt McCulloch</td>
<td>(713) 266-3900</td>
</tr>
<tr>
<td>Vice President</td>
<td>Greg Tinkler</td>
<td>(713) 871-8484</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Josh Vanlandingham</td>
<td>(713) 548-8900</td>
</tr>
<tr>
<td>Secretary</td>
<td>Rachel Haines</td>
<td>(832) 328-1010</td>
</tr>
<tr>
<td>Past President 17-18</td>
<td>Bill Chalmers</td>
<td>(713) 898-2874</td>
</tr>
<tr>
<td>Reception</td>
<td>Tim Navarro</td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>Trey Green</td>
<td>(713) 782-2701</td>
</tr>
<tr>
<td>Board of Governors</td>
<td>Bruce Flaniken</td>
<td>(713) 441-9624</td>
</tr>
<tr>
<td>Board of Governors</td>
<td>Alan Neely</td>
<td>(281) 432-9864</td>
</tr>
<tr>
<td>Board of Governors</td>
<td>Bill Chalmers</td>
<td>(713) 898-2874</td>
</tr>
<tr>
<td>Board of Governors</td>
<td>John Walik</td>
<td>(713) 462-8888</td>
</tr>
<tr>
<td>C.I.C. Delegate</td>
<td>Bruce Flaniken</td>
<td>(713) 441-9624</td>
</tr>
<tr>
<td>C.I.C. Delegate</td>
<td>Keith Reihl</td>
<td>(713) 459-1044</td>
</tr>
<tr>
<td>C.R.C. Delegate</td>
<td>Kurt McCulloch</td>
<td>(713) 266-3900</td>
</tr>
<tr>
<td>C.R.C. Alternate</td>
<td>Greg Tinkler</td>
<td>(713) 871-8484</td>
</tr>
<tr>
<td>Chaplain</td>
<td>Neal Dominick</td>
<td>713 340-5389</td>
</tr>
<tr>
<td>CTIC Chair</td>
<td>Kurt McCulloch</td>
<td>(713) 266-3900</td>
</tr>
<tr>
<td>Commissioning Chair</td>
<td>David MacLean</td>
<td>(713) 857-6499</td>
</tr>
<tr>
<td>Energy Code</td>
<td>Kapil Upadhyaya</td>
<td>(713) 426-7508</td>
</tr>
<tr>
<td>Grass Roots Advocacy</td>
<td>Bill Chalmers</td>
<td>(713) 898-2874</td>
</tr>
<tr>
<td>Historian</td>
<td>Bruce Flaniken</td>
<td>(713) 441-9624</td>
</tr>
<tr>
<td>Historian Emeritus</td>
<td>Bruce Flaniken</td>
<td>(713) 441-9624</td>
</tr>
<tr>
<td>Honors &amp; Awards</td>
<td>Alan Neely</td>
<td>(281) 432-9864</td>
</tr>
<tr>
<td>Membership Promotion</td>
<td>Jeffrey Hunter</td>
<td>(832) 418-3833</td>
</tr>
<tr>
<td>PAOE Administrator</td>
<td>David Williams</td>
<td>(713) 208-8986</td>
</tr>
<tr>
<td>Photographer</td>
<td>Skip Williams</td>
<td>(713) 782-2701</td>
</tr>
<tr>
<td>Photographer</td>
<td>Valerie Roberts</td>
<td>(281) 500-8136</td>
</tr>
<tr>
<td>Professional Certifications</td>
<td>Alex Roessler</td>
<td>(713) 782-2701</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>Matt Burris</td>
<td></td>
</tr>
<tr>
<td>Resource Promotion</td>
<td>Greg Tinkler</td>
<td>(713) 871-8484</td>
</tr>
<tr>
<td>Social Media</td>
<td>Mitchell Campbell</td>
<td>(713) 782-2701</td>
</tr>
<tr>
<td>Social Media</td>
<td>Lauren Ramos</td>
<td>(713) 783-7707</td>
</tr>
<tr>
<td>STEM Champion</td>
<td>Terry Connor</td>
<td>(713) 936-1132</td>
</tr>
<tr>
<td>Student Activities</td>
<td>Brooke Enochs</td>
<td>(713) 869-4608</td>
</tr>
<tr>
<td>Student Activities</td>
<td>Terry Connor</td>
<td>(832) 328-1010</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Kapil Upadhyaya</td>
<td>(713) 426-7508</td>
</tr>
<tr>
<td>Women in ASHRAE</td>
<td>Lauren Ramos</td>
<td>(713) 783-7707</td>
</tr>
<tr>
<td>Women in ASHRAE</td>
<td>Catherine Tinkler</td>
<td>(713) 821-9317</td>
</tr>
<tr>
<td>Young Engineers In ASHRAE</td>
<td>Thanh Huynh</td>
<td>(832) 351-7832</td>
</tr>
<tr>
<td>Young Engineers In ASHRAE</td>
<td>Marisa Kamstra</td>
<td>(713) 229-7415</td>
</tr>
<tr>
<td>Young Engineers In ASHRAE</td>
<td>Rudy Luna</td>
<td>(713) 398-6284</td>
</tr>
<tr>
<td>Editor, Hot Air Recorder</td>
<td>Julie Thomet</td>
<td>(713) 936-1184</td>
</tr>
<tr>
<td>Webmaster</td>
<td>John Walik</td>
<td>(713) 830-4523</td>
</tr>
</tbody>
</table>