



## Stingrays Night a Huge Success!

Many of your fellow ASHRAE members turned out on February 22nd to watch the Stingrays win against the Gwinnett Gladiators, 4-1. The group was given an in-depth tour of the ice-making and climate control systems at the Charleston Coliseum, which was both fascinating and informative. Special thanks to Megan Rooney for setting it up. Go Rays!

## Next Meeting

Tuesday, February 9

Harbor Breeze at Patriots Point, Mt. Pleasant

BOG Meeting 5:00-5:30

Happy Half Hour 5:30-6:00

Dinner and Chapter Meeting 6:00-6:30

Technical Program 6:30-7:30

\$25/person +\$5 open bar

[REGISTER ONLINE](#)

## Recap of Some of Last Meeting's Important Information

Before our speaker's presentation Randy Jones gave us a few comments on ASHRAE Standard 214P, Standard for Determining and Expressing Building Energy Performance in a Rating Program. Former Society president, Tom Phoenix, realized we need a something which can meet the requirements of ANSI standards, so this standard is being developed. The development has been proceeding for over a year and the standard is out for review. The board of ASHRAE will vote on approving the standard. Many people who do not come to chapter meetings sit on the board. ASHRAE is one of 4 organizations which ANSI has certified to do outside review. The standard will be published by next fall.

Anyone who would like to be involved can be a corresponding member and will not have to be physically present at the meetings. Vendors can add valuable input but their perspectives could be influenced by the particular products with which they have experience.

## Presidential Corner— Feb. 2016

Well speaking of years rolling by, where did January go?

Remember to sign up for the Charleston Joint Engineer's Council Banquet on February 16th. I just sent out an additional reminder with all kinds of information. We are looking for a little better showing than the past couple years, and the Chapter will be subsidizing tickets this year so our members will be paying \$25 and Students will pay \$15. For more info and to sign up, please check the CJEC website. That is where you will register at these rates.

Please remember our upcoming events; Chris Constantine will be putting together one outstanding Spring Golf outing so contact him about team and sponsorship information.

Continuing my Membership duties here with a welcome to this year's new members, John G Gottlieb, PE, Lawrence (Tripp) Paul Livingston, Richard S. Combes, Charles Brunson, Cole Cameron, John Housley, Tim Monahan and Michael Frey. And welcome our newest members Kurt William Andrzejczyk and Ronald K Gardner. Hope y'all can come out and say hello at our next meeting.

Thanks everyone and see you soon,

Steve Marek  
President ASHRAE Charleston Chapter



## Chapter Sponsors

Thank you for your sponsorship. If you would like to support the chapter, please contact the Research Promotion Chair.

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Bo Nutting, Dave Tomayko, Philip Runyon, Steve Marek, Austin Jones, Doug Wilkerson, Daniel Folk, Chris Constantine, Megan Rooney, Kimberly Pierson, Chris Wigginton



## CTT Corner— Review of January Presentation by Shane Bixby

For more information about this presentation, contact Gene Brown, CTTC.

Shane Bixby gave an outstanding presentation on plate-and-frame heat exchangers. The heat exchangers must be ASME-rated as a pressure vessel. It is best to have all connections at one end of the heat exchanger to facilitate installation. For a counterflow heat exchanger, the hot or cold fluid can be on either side as long as the incoming hot fluid is exchanging heat with the outgoing cold fluid. Fouling is prevalent when the velocity is low. A 1 to 2 degree approach is common with plate-and-frame designs whereas a 5 to 6 degree approach may be expected with shell and tube heat-exchangers. “Approach” is typically defined as hot inlet temperature minus cold outlet temperature. The term can also be used to refer to log-mean-temperature-difference (LMTD). For a heat exchanger with ends a and b:

$$LMTD = (\Delta T_a - \Delta T_b) / (\ln(\Delta T_a) - \ln(\Delta T_b))$$

In the past, the heat exchanger market was dictated by who was willing to take the greatest risk. In the design of a system, if a greater pressure drop is allowed, more heat transfer will occur with fewer plates and lower first costs. However, a bigger pump and more energy usage will be required. With a lower allowable pressure drop, more plates will add to the expense but there will be a smaller pump and less energy usage.

There is no requirement to maintain heat exchangers unless there is a change in performance. With the new regulations, heat exchangers are becoming larger. Because of AHRI (Air Conditioning, Heating and Refrigeration Institute) requirements, manufacturers can’t cheat. Fouling factors are carried over from shell and tube heat exchangers. Shane would encourage designers not to apply a fouling factor to plate-and-frame heat exchangers. The heat transfer coefficient should be kept under 1000 BTU/HR/DEGREE F. A higher velocity will give a better coefficient but will require more pump horsepower. A water side economizer is one application. There is software which will help provide justification. The heat exchanger capacity is not specified for glycol so for a thermal storage system the project engineer will have to specify surface area. For a swimming pool application use titanium. For steam, most plate-and-frames can operate up to 80 psig.

A liquid to liquid heat exchanger (LLHE) certification is only available for water-to-water or for water-to-seawater. The ratings are available for HVAC comfort cooling only. Ratings are not available for glycol. Dimensions must be accurately maintained. If flow is constricted there will be better heat transfer but more pressure drop. If flow path is opened too wide the heat transfer will not be as good. When maintenance is accomplished, the unit may be reassembled with improper dimensions. If a manufacturer furnishes a unit which is required to function outside of AHRI limitations, the manufacturer may submit the unit description to AHRI and anyone who purchases the unit may submit comments to AHRI so that the level of satisfaction may be made public. Some of our members pointed out that our local aquarium has a titanium heat exchanger and that ships have titanium heat exchangers. In the early days copper heat exchangers were used for sea water. They were replaced every 18 months. On one ship, a 316 stainless heat exchanger was installed with no strainer. It had to be replaced with a titanium unit specially fabricated with a built-in strainer.



# February Meeting Technical Presentation

## Modern Pump Selection for System Efficiency

With James Christopher Edmondson

### Summary:

This seminar takes an in depth look at pump selection to maximize system efficiency.

### Detailed:

We will learn to calculate system curves for both open and closed systems. We will examine the differences between constant and variable head and how this can impact system pumping efficiency during part load operation. This presentation will also address what Efficiency Islands are, how they can impact operating results and key application considerations with examples.

### About the Speaker:

Chris Edmondson received his B.S. Degree in Mechanical Engineering from North Carolina State University in 1967. During his summers, he worked at Barber Coleman and Jay Johnson Controls. After graduation, he spent four and a half years as a salesman with the Trane Company. In 1971, he came to work for the James M. Pleasants Co., Inc. He worked as an Outside Salesman until 1978, when he was promoted to Vice President and Sales Manager until 1987. From 1987 to 2010, he has served as President of the Pleasants Company. Chris is currently CEO of James M. Pleasants Company.

Chris has served many years in the ASHRAE organization, holding positions such as Secretary/Treasurer, Vice President and President of the North Piedmont Chapter. For the fiscal year, 1985-86, Chris received the Rudy Ferguson Memorial Award (Presidential Award of Excellence). In 1985, he became a Technical Speaker to various ASHRAE chapters and he is a Distinguished Lecturer for ASHRAE. He spoke at ASHRAE's CRC Region VII meeting in 1992, Region III CRC Technical Speaker 2013 Bethlehem PA, ASHRAE 2014 NYC lecture series, ASHRAE Region IV CRC 2015 Raleigh NC, Birmingham's Region VII Meeting and many other ASHRAE events as a Technical Speaker. He held the position of Educational Activities Vice Chairman for Region IV from 1992 to 1994. In 1995 he was the Chapter Program Chairman for Region IV. He has served as Region IV DRC and on the ASHRAE Board of Directors. He has also served on the ASHRAE nominating committee.

His principal areas of interest are energy savings, primary/secondary variable volume systems, hydronic balance, heat transfer, hydronic systems, plumbing piping systems and central chilled water plant design.

## Chapter Officers

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BOG— Austin Jones, Chris Constantine, Randy Jones

September— Tuesday 9/8  
October—Tuesday 10/13  
November—Tuesday 11/10  
December—Tuesday 12/8  
January—Tuesday 1/12  
February—Tuesday 2/9  
March—Tuesday 3/8  
April—Tuesday 4/12  
May—Tuesday 5/10  
June—Tuesday 6/14

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Annual Summer Social and Induction of Officers

## Chapter Meetings

