



ISSUE V | 2018

DAYTON CHAPTER

CURRENT OFFICERS

PRESIDENT

Bryan W. Schenck

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Heapy Engineering

PRESIDENT-ELECT

Michael Weisman

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Habegger Corporation

TREASURER

Brian Turner

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ElitAire

SECRETARY

Nathan Launer

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Johnson Controls, Inc

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October 8th Meeting

Membership Promotion & RP Night

Tech Session

Introduction to the Energy Standard for Data Centers
(ASHRAE Standard 90.4-2016)

Presenter: Rick Pavlak
President, Heapy Engineering

Main Presentation

Air Quality in Data Centers: People vs. the Machines.

Presenter: Chris Muller
Technical Director, Purafil, Inc.

Engineer's Club
110 East Monument
Dayton, Ohio 45402

FREE to All
Chapter Members,
Prospective Mem-
bers, & Students.

\$20 to All Others.

Tech Session: 5:00 PM to 6:00 PM
Social Hour: 5:30 PM to 6:30 PM
Dinner: 6:30 PM

Main Presentation: 7:00 PM

Please RSVP to JPFauber@heapy.com

By Thursday 10/4 @ Noon

Special dietary options are available upon request

FROM THE PRESIDENT

Hopefully everyone had a great time at the Bocce Ball tournament and the Dayton Green Expo, as well as a wonderful September, as we all jump headfirst into the fall (and heating season!).

As we push into the month of October, we look toward our first meeting at the Engineer's Club, which is an excellent venue. This meeting is a combined Membership Promotion and RP Night which provides a great opportunity to invite our colleagues to a meeting at no cost and see the value a meeting and membership may provide. A benefit of membership would be attendance to ALL meetings at no cost, which generally includes a tech session presentation, a main presentation, networking time, and (of course) food. The topic focus this time is on Data Centers, specifically ASHRAE's Energy Standard and Air Quality in Data Centers. This should make for some excellent presentations from leaders in our local industry.

From an RP (Research Promotion) perspective, we get to acknowledge our major donors at the meeting, which is exciting for the chapter. We often lead the region in our research endeavors and these folks are the main proponents of that! We thank them all for such a generous commitment to ASHRAE and RP!

We're also very excited to announce our chapter theme for 2018-2019—"Developing the Miami Valley's Energy Future". This theme is very much in line with the Society President, Sheila Hayter's.

Bryan W. Schenck — President Dayton ASHRAE

Upcoming Events

October 17th

Board of Governors
8:00 AM, Heapy Engineering

November 12th

Chapter Meeting
5:00 PM, Engineer's Club

November 21st

Board of Governors
8:00 AM, Heapy Engineering

December 10th

Chapter Meeting
11:30 AM, Engineer's Club

December 19th

Board of Governors
8:00 AM, Heapy Engineering

[See Additional
Events & Volunteer
Opportunities Here](#)

CHAPTER HISTORY (1983-1984)

| | | |
|--------------------|-----------------|-------------------------|
| President: | Jack Putnam | Lorenz & Williams |
| Vice Pres.: | Mark Rae | Greater Dayton H&C |
| Secretary: | Matt Stoermer | Stoermer Equipment Co |
| Treasurer: | Mark Ganser | Trane Co. |
| BOD : | John Stewart | Greater Dayton H&C |
| BOD : | Dick Wood | Enterprise Roofing & SM |
| Education: | Alan Watton | Sinclair |
| RP: | Larry Brelsford | Simplex |
| Membership: | Dennis Lammlein | Monsanto Research Cor |

Meetings were held at the Ramada Inn.
CRC held in Cincinnati

83 Total Members

Received PAOE Presidential Award of Excellence

Committee Chairs

MEMBERSHIP

Jeremy Fauber

JPFauber@heapy.com
Heapy Engineering

HISTORY

Rob Mauro

RMauro@nelsonstark.com
Nelson Stark

COMMUNICATIONS

Nathan Lammers

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Waibel Energy Systems

RESEARCH PROMO

Open Position

Please Contact Bryan W. Schenck

STUDENT ACTIVITIES

Russell Marcks

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Sinclair Community College

CTTC

Evan Nutt

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Elitaire

GOVERNMENT AFFAIRS

Paul Hawkins

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Waibel Energy Systems

YEA (Co-Chairs)

Steven N. Meier

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SKM Services

Phillip Reid

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Heapy Engineering

Board of Governors

Jeremy Fauber

Heapy Engineering

Rick Pavlak

Heapy Engineering

Lorraine Kapka

Sinclair College

MEMBERSHIP

New Members

The Dayton Chapter is happy to welcome its newest members. If you see them please give them a warm welcome!

September

Andrew Ott, Met Demisholli

Do you know a colleague that would benefit from joining ASHRAE?

You can go to http://web.ashrae.org/connect_a_colleague/ and quickly sign up for ASHRAE to send an email to ask them to sign up on your behalf.

Membership Recognition

We would like to recognize the following members who have been with ASHRAE for the following years! Thank you for all your contributions to the field!

30 Years

Thomas Gustafson

10 Years

Craig Rohren, David Wolfe

Membership Promotion Committee

Looking for a way to get involved with your local ASHRAE chapter and meet new people? The membership promotion committee is looking for volunteers to join the committee. The committee's primary responsibility is to recruit new members and retain existing members. If you are interested in serving please contact Jeremy Fauber at JPFauber@heapy.com. Or by calling 937-224-0861

[Membership Application Here](#)

ASHRAE RP

INDIVIDUALS Begins at \$100

*David Crosley
Lorraine Kapka
Nathan Lammers
Tom Mastbaum
Steven N. Meier*

*Evan Nutt
Richard L. Pavlak
Bryan W. Schenck
Brian Turner*



RP NEWS

Make YOUR donations using the link below.

[DONATE NOW](#)

Our goal is not set yet for this year in Total Research Dollars.

**To-date we raised
\$1,050**



The HVAC Industry gives us all our livelihood. ASHRAE's research and educational programs are what keeps our industry and professions on the leading edge and assures its continued existence. Confident that you will recognize the benefits of this investment, we are asking you to help fund future HVAC&R research and development by donating this year.

Thanks so much for your help in advance!

ASHRAE News

Energy Efficiency Day Set for October 5

October 5, 2018 has been designated as the third annual Energy Efficiency Day. This date has been set for advocates, companies, government agencies, utilities and others to showcase the benefits of energy efficiency. To find out more about EE Day, access reports about ongoing efforts to improve energy efficiency and more on how to participate, go to energyefficiencyday.org.

EPA Proposes Limiting Parts of Obama-era HFC Rule

The Environmental Protection Agency [issued a proposed rule](#) that would remove requirements for inspecting and repairing leaks for large refrigerators using substitute refrigerants such as hydrofluorocarbons (HFCs). "This proposal also requests public comment on rescinding other provisions that were extended to substitute refrigerants such as the sales restriction and technician certification requirement, safe disposal requirements, evacuation requirements, reclamation standards, and requirement to use certified recovery equipment."

The proposed rule will have a 45-day public comment period. EPA will be hosting a public hearing on this proposed rule 15 days after its publication in the Federal Register at EPA Headquarters in Washington DC. To register for this event, please email spdcomment@epa.gov

HVAC Design Training

Minneapolis, MN October 15-19, 2018

Find more information [here](#)

HVAC Design: Level I – Essentials

ASHRAE's HVAC Design: Level I – Essentials training provides participants with instruction that accelerates their transformation into effective members of a design, construction or facilities maintenance team. Developed by industry-leading professionals selected by ASHRAE, the training provides attendees with the fundamentals and technical aspects of HVAC design. Attendees will gain practical skills and knowledge to design and maintain HVAC systems that can be put to immediate use.

In addition to gaining in-depth knowledge and understanding, attendees will receive real-world examples of HVAC systems based on the renovated ASHRAE Headquarters building. The training also teaches a systematic approach to guide a design team to a solution that optimally meets the client's expectations. Engineered drawings of the ASHRAE Headquarters renovation will also be discussed so participants are exposed to plan reading and visual understanding of system design.

HVAC Design: Level II – Applications

ASHRAE's HVAC Design: Level II – Applications training provides participants with instruction on HVAC system design. The training is tailored for engineers with advanced experience in the HVAC design field, or those who have completed HVAC Design: Level I – Essentials. Developed by industry-leading professionals, the training provides advanced information that allows practicing engineers and designers an opportunity to expand their exposure to HVAC systems design procedures for a better understanding of system options to save energy.

ASHRAE Articles

Optimizing Cooling Performance of a Data Center Using CFD Simulation & Measurements

In this article, we present a case study that combines computational fluid dynamics (CFD) modeling and measurements to evaluate the cooling performance of a raised-floor data center. To improve the cooling efficiency, we propose enhancements such as equipping the blowers of computer room air-handling (CRAH) units with variable frequency drive (VFD) electric motors, adjusting the speed of the blowers to maintain a certain pressure below the raised floor, and increasing the temperature settings of the CRAH units. These enhancements were evaluated and fine-tuned using CFD modeling. After their implementation, the temperatures of the racks and energy consumption of the data center were monitored for several months. This data showed that the inlet temperatures of the racks stayed below the ASHRAE-recommended maximum value and the energy consumption of the data center was reduced by 58%. The cost of the enhancement will be recovered by the saving in operating cost over 1.5 years.

A large number of data centers are routinely overcooled, resulting in unnecessary increase in the energy consumption and operating cost. The reasons for overcooling include concerns, mostly unfounded, about the reliability of computer equipment, inability of the cooling infrastructure to respond to the changes in the data center, and lack of proper tools to get guidance for changes required to improve the cooling efficiency and to predict the effect of these changes. Several developments in the recent years have eliminated much of the rationale for overcooling. These developments include:

- A better understanding of the effect of cooling-air temperature on the performance of servers
- Availability of control systems on cooling devices
- Adoption of CFD modeling for predicting airflow and temperature distribution in data centers

In this study, we took advantage of these developments to improve the cooling efficiency of a data center. We used CFD to identify the cooling issues in the data center and to evaluate various enhancements. CFD modeling has been used widely in other industries since the early 1970s. It became popular for data center applications in early 2000. Now, it has become a standard practice in both designing new data centers and resolving cooling problems and inefficiencies in existing facilities.

We have used CFD simulations to propose changes in the data center and study the effect of these changes on cooling. For this simulation-based strategy to be successful, the CFD model must be validated. For this validation, we used measurements for the current (as-is) conditions in this data center. In an operating data center, there are uncertainties in the descriptions of certain inputs needed in the model. These measurements were also used to verify and fine-tune such input parameters.

The Data Center

The data center is a raised-floor space, with floor area of approximately 750 m² (8,000 ft²), located in Rochester, N.Y. At the time of the study, the data center housed 175 server racks positioned in the hot aisle-cold aisle arrangement. The total IT heat load in the data center was 320 kW (1,088 kBtu/h). The space was being cooled by eight down-flow, chilled-water CRAH units working at 100% fan speed.

The data center does not have a drop ceiling; therefore, the hot air returns to the CRAH units through the room. However, extension ducts are installed at the return side of the CRAH units to pull in hot air from regions closer to the ceiling, preventing this air from reaching the racks. Perforated tiles with 25% open area equipped with dampers were used to deliver the airflow to the racks. For perforated tiles in front of racks with little or no heat load, the dampers were closed.

See the full article in the July 2018 (volume 60, number 7) ASHRAE Journal...