ASHRAE Philadelphia Chapter

March 2026
Volume 61, Issue 6

INSIDE THIS ISSUE:

Stay up to date on latest events and meetings by visiting the ASHRAE Philadelphia Chapter website at ashraephilly.org

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Quaker City Climate

March Meeting

Join AMFP Greater Philadelphia and ASHRAE Philadelphia for an engaging co-hosted program exploring the evolving landscape of healthy buildings and the practical implications of ASHRAE Standard 241, Control of Infectious Aerosols. *Click here to learn more.*

Member Price: $75 | Guest / Non-Member Price: $125

Click Here to Register

2025-2026

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President's Message

Dear Philadelphia ASHRAE Chapter Members,

February's weather kept us on our toes, but our industry is no stranger to adapting when conditions change. Between digging out from the snow and catching up after the ASHRAE Winter Conference and AHR Expo, there has been plenty to keep us moving this month.

Following the Conference, we hosted a joint event with the Drexel University ASHRAE Student Branch and the Society of Women Engineers (SWE). We are grateful to ASHRAE Distinguished Lecturer Dr. Theresa Weston for her engaging presentation, *Women and STEM: Enhancing Innovation and Sustainability through Diversity*. The discussion highlighted the value of diverse perspectives in driving innovation and strengthening the future of our profession.

We also launched the 2025–2026 Debra H. Kennoy Scholarship application. This scholarship honors Debra Kennoy's legacy as a 25+ year HVAC&R industry professional and dedicated advocate for education and community development. Applications are due April 20, and the recipient will be recognized at our May Chapter meeting, which is currently being finalized.

March's Chapter Meeting will feature a joint panel discussion with AMFP Greater Philadelphia, moderated by Philly ASHRAE's own Andrew Mondell. The topic, *Healthy Buildings: ASHRAE Guideline 241*, brings together an outstanding group of panelists representing healthcare, academia, and engineering leadership. The event will take place at City Winery Philadelphia on March 24. Additional details can be found on our homepage and throughout this newsletter.

In April, our Student Activities and Young Engineers in ASHRAE (YEA) committees will host a Bowling Social on April 2. This is a great opportunity for members and those new to the industry to connect in a relaxed setting and expand their professional network.

Later that month, we will host our annual Golf Outing on April 27 at Trump National Golf Club Philadelphia in Pine Hill, NJ. Proceeds support the Debra H. Kennoy Scholarship fund. This event traditionally sells out quickly, so we encourage you to reserve your spot early.

If you are interested in getting more involved, learning more about the inner workings of the Chapter, or sharing ideas, we welcome you to attend a monthly Board of Governors meeting. Dates and locations vary, so please feel free to reach out to me directly for details.

Thank you for keeping the momentum strong. We look forward to seeing you at an upcoming event.

As always, thank you for your continued support.

Sincerely,
Tyler A. Holland
Philadelphia Chapter President
c021@ashrae.net

DEBRA H. KENNOY SCHOLARSHIP 2026

EMPOWERING FUTURE LEADERS IN HVAC&R

Scholarship Amount: $7,250

Deadline: April 20, 2026

The ASHRAE Philadelphia Chapter proudly offers the Debra H. Kennoy Scholarship Fund annually to a full-time student in the Greater Philadelphia area interested in a profession in the HVAC&R industry. This Philadelphia scholarship is especially aimed at female students pursuing studies in engineering, mechanical engineering, architecture, science, chemistry, and HVAC&R fields.

Click here for more information and to download an application.

Registration

$100 No golf - lunch, dinner, and open bar

$2,500 Includes all activities of the day and benefits of all sponsorship contributions.

Sponsorship

$3,500.00 Hors D'oeuvres Sponsor
$3,500.00 Lunch Sponsor
$4,500.00 Hospitality Sponsor
$3,950.00 Golf Tee Sponsor
$4,500.00 Golf Ball Sponsor
$3,500.00 Trophy Sponsor
$4,950.00 Golf Outing Sponsor
$3,500.00 Debra Kennoy Scholarship Sponsor
$3,500.00 Flag Pin Sponsor

ASHRAE
Philadelphia Chapter
Annual Golf Outing
April 27, 2026
10:30 a.m. to 7:00 p.m.
Trump National
Golf Club Philadelphia
500 W. Branch Avenue
Pine Hill, NJ 08021

CLICK HERE TO REGISTER

Golf Outing Sponsor - $4,950 Includes 4some of golf, Hole Sponsorship on Hole 1 and 18, Registration Table Sponsorship, and Branded Golf Polo Shirt for All Participants.

Hospitality Sponsor - $4,500 x 2 Includes 4some of golf and hole sponsorship. Company Logo displayed prominently on front 9 or back 9 beverage carts. Contribution supports complimentary drinks on course and in clubhouse for all golfers.

Golf Ball Sponsor - $4,500 Includes 4some of golf and hole sponsorship. Company Logo displayed on complimentary and customizable golf balls to all golfers.

Golf Tee Sponsor - $3,950 Includes 4Some of golf, Hole Sponsorship, Company Logo Displayed on Golf Tees distributed to all participants of the golf outing.

Lunch Sponsor - $3,500 Includes 4some of Golf and hole sponsorship. Company Logo displayed prominently to all golfers with lunch.

Flag Pin Sponsor - $3,500 Includes 4Some of golf, Hole Sponsorship, Company Logo Displayed on branded flag pins on holes 2 through 17.

Hors D'oeuvres Sponsor - $3,500 Includes 4some of golf and hole sponsorship. Company Logo displayed at cocktail hour. Sponsorship supports hors d'oeuvres and cocktail hour for all golfers.

Cigar Sponsor - $2,500 Includes 4Some of golf, Hole Sponsorship, Company Logo Displayed on complimentary and customizable cigars for the event

Debra Kennoy Scholarship Sponsor - $3,500 x 4 Includes 4some of golf, hole sponsorship, and $1,500 contribution to the ASHRAE Debra Kennoy Scholarship Fund

Trophy Sponsor - $3,500 Includes 4Some of golf, Hole Sponsorship, Company Logo Displayed on all Outing Trophies

BOOKING ANY OF THE ABOVE SPONSORSHIPS WILL QUALIFY YOU FOR DISCOUNTED $1,000 PER FOURSOME PRICING ON ALL ADDITIONAL FOURSOMES.

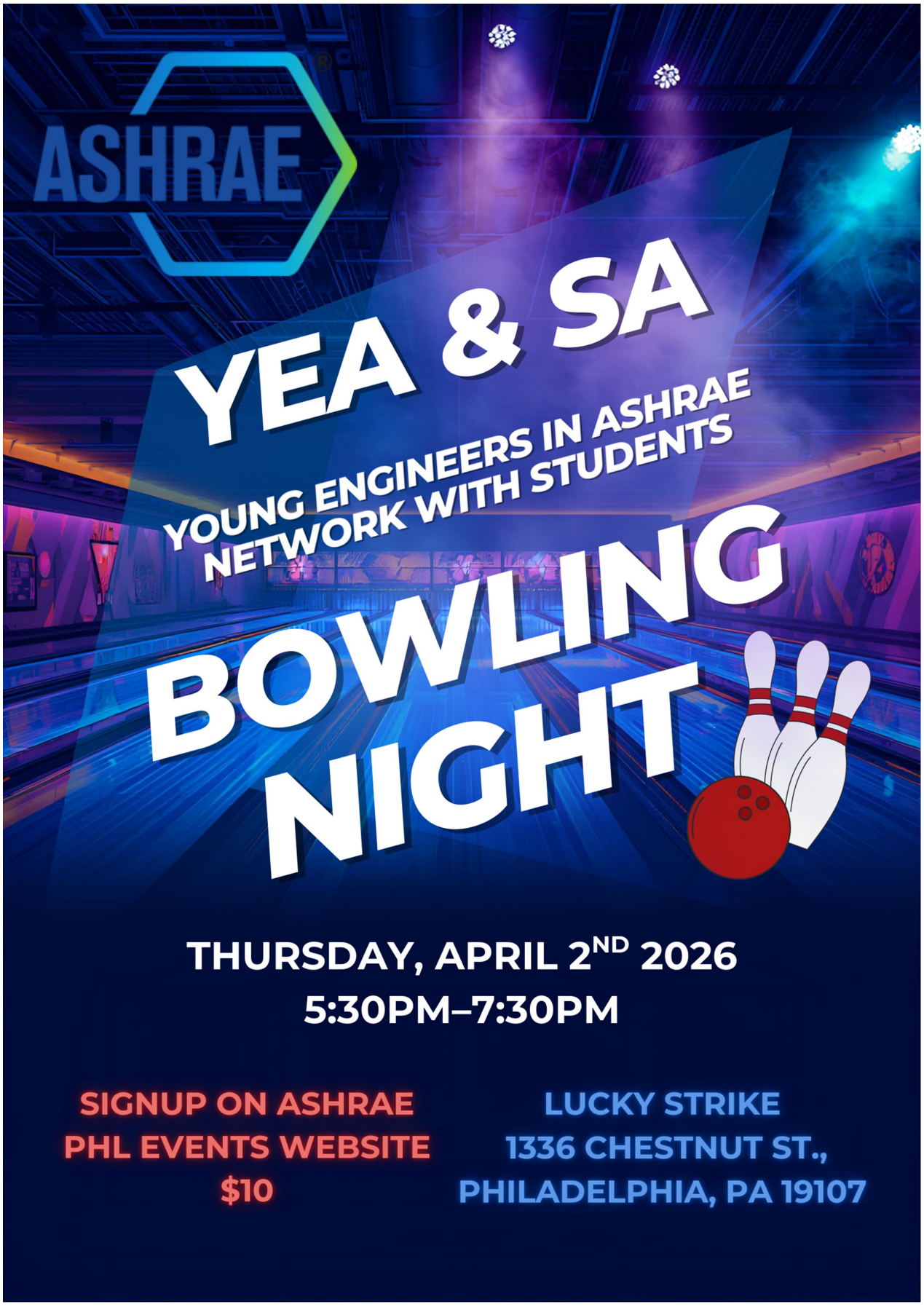
Closest to the Pin Sponsor - $400
Includes branding displayed prominently at hole and supports purchasing of closest to pin award.

Longest Drive Sponsor - $400
Includes branding displayed prominently at tee box and supports purchasing of longest drive award.

Tee Box Sponsor - $250
Company branding displayed prominently at tee box.

For more information, please reach out to

Anthony Rodio
Arodio@UnitasEngineering.com
(609)703-9095


ASHRAE
YEA & SA
YOUNG ENGINEERS IN ASHRAE
NETWORK WITH STUDENTS
BOWLING NIGHT
THURSDAY, APRIL 2ND 2026
5:30PM–7:30PM
SIGNUP ON ASHRAE
PHL EVENTS WEBSITE
$10
LUCKY STRIKE
1336 CHESTNUT ST.,
PHILADELPHIA, PA 19107

Government Affairs Committee News

Questions or comments? Contact:
Andrew Mondell, Government Affairs Committee Chair
Andrew.Mondell@AMZenergysystems.com

Katherine Mahon, Government Affairs Committee Member
kem@ba-inc.com

Electricity Needs at Half the Cost of Gas Plants

The American Council for an Energy Efficient Economy (ACEEE) recently published a report showing how improving energy efficiency (EE), is the lowest-cost option for reducing electricity consumption and peak demand. Examining multiple methods for meeting increased electricity demand, the report shows that demand-side EE programs with measures such as heat pump utilization, in addition to improving efficiency of other appliances and insulation had the lowest median cost of all, at $20.70/MWh. This cost is significantly less than that of all the supply-side options examined, whose median costs ranged from $27/MWh to almost $200/MWh.

ASHRAE To Host Congressional Briefing: Indoor Air Quality for a Healthier America

On March 6, ASHRAE will partner with nine leading organizations in the building sciences and human health communities to convene this briefing highlighting the important role of indoor air quality (IAQ) to bettering public health and increasing economic productivity. The program will include remarks from **Representatives Paul Tonko (D-NY), Don Beyer (D-VA), and Brian Fitzpatrick (R-PA) (invited)**, as well as expert panel discussions on IAQ fundamentals and policy opportunities to support continued innovation in this space. The briefing will take place in the Rayburn House Office Building Gold Room from 9:30 a.m. to 12:00 p.m. on Friday, March 6. Breakfast and light refreshments will be provided. Attendees are encouraged to RSVP here.

ASHRAE President Sends Letter to DOE on Data Center Construction

On February 4, ASHRAE President Bill McQuade sent a letter to the Department of Energy (DOE) encouraging them to use ASHRAE Standard 90.4-2025, *Energy Standard for Data Centers*, Standard 127, *Method of Testing for Rating Cooling Equipment Serving Data Center (DC) and Other Information Technology Equipment (ITE) Spaces* and ASHRAE TC 9.9 Datacom Encyclopedia. ASHRAE previously submitted technical comments in response to DOE's request for information on Frontiers in AI for Science, Security, and Technology (FASST) Initiative. DOE is now moving forward with soliciting proposals from companies to build AI data centers on four national lab sites. The letter can be found here.

Reps. Beyer and Fitzpatrick Reintroduce Bipartisan Airborne Act

On February 10, Rep. Don Beyer (D-VA) and Rep. Brian Fitzpatrick (R-PA) reintroduced the Airborne Act, legislation that would incentivize non-residential building owners to conduct indoor air quality (IAQ) assessments and upgrade their ventilation and air filtration systems. This legislation was informed by technical expertise from **ASHRAE experts, including Wade Conlan, Bill Bahnfleth, and Corey Metzger**. ASHRAE thanks these experts for sharing their technical knowledge to craft better legislation. The full text of the legislation can be found here, and a press release with a quote from **ASHRAE President Bill McQuade** can be found here.

Decline in New York City GHG Emissions Attributed to Buildings Policies

In December 2025, New York City's annual greenhouse gas (GHG) inventory report showed that in 2024, the city's emissions declined to levels not seen since the height of the COVID pandemic in 2020. Total GHG emissions in 2024 were 5% below the previous year, and 25% below 2005 levels, when the city first began tracking such emissions. One of the biggest contributors to this decline was emissions from buildings, which were 5% below the previous year and 27% below 2005 levels. Also, transportation emissions were down more than 22% and waste emissions by 19% since 2005. Local Law 97, the city's flagship GHG emissions reduction requirements for buildings over 25,000 square feet, went into effect in 2024.

Become a 2026-2027 Corporate Sponsor of the Philadelphia Chapter

Your firm's participation in this program would enable us to make a donation to ASHRAE's Research Promotion which includes over $1.9 million in local research funding.

Some of the benefits your company will enjoy as a Corporate Sponsor include:

- listing on the Chapter's website with a link to your own website
- five (5) free log-ins to the Digital Directory
- $100 discount on an advertisement in the Digital Directory

The Philadelphia Chapter of ASHRAE is a proud sponsor of the Future City competition. On January 24, 2026, ***over 300 students on 44 teams and more than 100 volunteers*** took part in the regional competition held at Archbishop Carroll High School in Radnor, PA.

REGIONAL WINNERS

1st Place Lionville Middle School
2nd Place: Downingtown Middle School
3rd Place: St. Mary Interparochial School
Honorable Mentions: St. Andrew School, Pottsgrove Middle School and Lower Moreland Middle School

Congratulations to
Team Alimora of Lionville Middle School!
Winners of the middle school level at the national competition held in Washington, DC!

Too learn more about this year's winners visit https://www.futurecityphilly.org

DISCOVER PRESENTS
FUTURE CITY COMPETITION

2026 THEME: Design a city that eliminates food waste from farm to table and keeps your citizens healthy and safe.

Future City is a hands-on cross-curricular educational program that brings STEM to life. To learn more, visit Future City and Future City Philly.

Our Chapter Digital Directory is available!

The link to the Directory of Manufacturers' Representatives in the Philadelphia Area is on our home page on the website, or you may click here to advertise or purchase access to the directory!

ASHRAE Philadelphia Chapter Digital Directory

The Philadelphia Chapter
of the
American Society of Heating,
Refrigerating and Air
Conditioning Engineers, Inc.

994 Old Eagle School Road
Suite 1019
Wayne, PA 19087-1866
P 610-971-2169

Visit
our web site at:
www.ashraephilly.org
Follow us
on LinkedIn

 Any member with material to submit for inclusion in the *Climate* can send the information to:

Cindy Cornish
P 610-971-2169
cindy@mmco1.com

Material can include letters to the editor, member news, upcoming events, comments on chapter programs or issues, etc.

New Philadelphia Chapter Members—WELCOME!

John McDermott

Anthony DelGuercio

Christopher Brosnan

Mack Murtha

Juliana Soreo

Anthony Roig

Noah Gilford

Skylar Olson

What are the benefits of paying Philadelphia Chapter *dues** ?

Discounts:

- $200 Discount for Basic HVAC Design Class
- Discounts on Monthly Chapter Meetings
- Free access to the Digital Directory
- And much more!

***Note that Philadelphia Chapter Membership Dues are $50/year.**

To receive discounts, please remit your Chapter dues when renewing online or applying for a new membership. Feel free to upgrade online by clicking here or contact c021@ashrae.net for assistance.

Membership Advancement

If you are currently an ASHRAE Associate Member, becoming a full Member is easier than you think! The following count toward the required **12 points** to advance to full membership status. You must update your ASHRAE online biography and send an email to membership@ashrae.org to advance.

Non-accredited degree = 4 points
PE = 4 points
Accredited degree = 6 points
Industry experience = 1 point/year

ASHRAE TC 9.9 TECHNICAL ALERT

The CDUs Critical Role of TCS and FWS Isolation in Cold Plate Deployments

TL; DR

Ever increasing extreme loads such as AI lack the benefits of best practices or substantial installed base. This ITE costs more than lower density ITE resulting in its damage being a costly risk.

Metallurgy, chip heat transfer, flow, pressure, delta T, etc. can vary greatly between IT platforms, even for the same manufacturer.

There are unintended consequences of developing and / or applying CDUs without understanding why they were originally developed and the critical nuances to the design considerations.

The CDU's role in isolating ITE systems is critical to enabling the rapid growth and scaling of liquid cooling. This is why the best practice is to connect only a single ITE platform to each CDU. Smaller, platform-specific, CDU-isolated TCS loops enable optimal operating environments, simpler maintenance and service, and a scalable architecture where the TCS grows with the ITE deployment.

OVERVIEW

Coolant Distribution Units (CDU) play an important role in liquid cooling of information technology equipment (ITE).

The concept of a coolant distribution unit originated at the time of the IBM S/360 Model 91 announcement in 1964. The CDU concept was originated to guarantee a buffer between customer water and the water flowing through the inter-board heat exchangers within the electronics frames.

The design requirement that the CDU provide a buffer was critical when failures did occur in those early systems due to corrosion of the water carrying components.

With the rapid growth of high-power processors, both graphics processing units (GPU) and central processing units (CPU) for artificial intelligence (AI), and the rapid power densification at the rack level driving adoption of direct to chip liquid cooling (DLC), CDUs are more critical than ever.

The key function that CDUs provide is isolation of the Technology Cooling System (TCS) and Facility Water System (FWS) coolant loops.

This Technical Alert highlights the importance of this isolation and describes best practices for proper CDU integration into a data center environment.

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The CDUs Critical Role of TCS and FWS Isolation in Cold Plate Deployments

ISOLATION OF THE TCS AND FWS

Isolation of the TCS from the FWS coolant loops plays a significant role in supporting each of the CDU's key functions. These functions include:

- Clear ownership and control
- Prevention of condensation
- Flexibility of coolants and coolant chemistry
- Temperature & pressure control and protection
- Coolant flow rate management
- Coolant quality control and filtration

There are many benefits of isolation of the TCS and the FWS. Some are obvious and have been covered extensively in other TC 9.9 publications. Several are highlighted here to reinforce.

There are several important benefits of isolation that are less obvious. These need strong consideration and underscore the best practice of connecting only a single ITE platform to each CDU.

OBVIOUS BENEFITS OF ISOLATION

Filtration

Finer filtration to eliminate cold plate clogging

- TCS cold plates often have microchannels that may range from 100 to 500 microns (0.004" to 0.020") in width
- The TCS coolant generally has much different requirements from the FWS, necessitating much finer filtration of the TCS compared to the FWS system.

Chemistry and Materials

Minimizing corrosion and negative material interactions

- Equipment, filtration requirements, and materials in the TCS differ substantially from those in the FWS due to the different functionality of the two systems (i.e., rejecting heat to the outside ambient versus collecting heat from power-dense electronic components located within a controlled environmental envelope), which further differentiates the chemistry and management requirements between the FWS and TCS coolants.
- The chemistry of the TCS coolant must be managed to minimize corrosion and negative material interactions among all the materials in the TCS loop (e.g., an FWS may contain carbon steel, galvanized steel or other materials that are not compatible with the TCS).
- FWS coolant may be required to operate in colder ambient conditions, calling for higher antifreeze concentrations.

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The CDUs Critical Role of TCS and FWS Isolation in Cold Plate Deployments

Contamination

Minimizing biological or particulate contamination

- If components of the TCS, such as cold plate loops in ITE, are not carefully cleaned and maintained as required to prevent contamination and biological growth, they can introduce these impurities into the TCS.
- While operational coolant quality maintenance activities should be strictly followed, a CDU further isolates one group of ITE from the rest of the data center, creating a limit to how far such contamination can spread.
- Such isolation also enables localized coolant testing, potentially identifying issues before they cause significant loss of performance and allowing for a localized coolant treatment program.

Temperature & Pressure control

Avoid damage to TCS components

- FWS systems typically operate at much higher system pressure than the TCS due to system sizes and pumping losses. This operating pressure may be higher than the components in the TCS can tolerate.
- CDUs provide stable TCS supply temperature control, given supply temperature and pressure fluctuations of the FWS and changing workloads.

WHY DEDICATE A CDU TO EACH PLATFORM

Vendor Isolation

Isolating ITE systems deployed from different vendors

- ITE suppliers are responsible for the installation, maintenance and service of their equipment. This may include Service Level Agreements (SLA) guaranteeing levels of uptime and compute performance. The only way for the ITE supplier to be able to warrant the operation and performance of their equipment is to specify and control the TCS that provides the thermal management.
- It becomes impossible for ITE vendors to ensure adequate cooling and uptime if they do not monitor and control the TCS.
    1. Temperature, pressure and flow rate requirements differ
    2. Flow and pressure instability caused by the actions of a different ITE supplier's equipment may disrupt performance
    3. Contamination with particles, biology, or even air bubbles may create the need for expensive maintenance or replacement of damaged/contaminated components of the TCS. The source of this contamination may be difficult to trace, leading to disputes between ITE suppliers and delays in providing the required service.
- In the event of a system failure, a required step may be to shut down the CDU on the TCS. While many systems deploy redundant CDUs, the shutdown would impact cooling from all vendors' systems for the fault of one.

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The CDUs Critical Role of TCS and FWS Isolation in Cold Plate Deployments

Platform Requirements

Managing platform-specific requirements

- ITE requires a specific inlet temperature and pressure differential to ensure sufficient heat transfer and flow through the ITE TCS components for operation within stated thermal specifications. These requirements are often different between platforms, even for systems provided by the same vendor.
- A CDU isolates each zone of ITE and can ensure the specific temperature and pressure requirements for each platform.
- If a CDU is required to provide cooling to multiple systems, each with a different pressure differential, the CDU must be set to the highest-pressure differential required by any ITE on the TCS. Flow balancing valves or other pressure loss devices must be used to balance the flow. The necessary use of balancing valves will increase the energy consumption of a system compared to multiple systems with CDUs zoned to specific ITE solutions.

CapEx

Optimizing CapEx spend

- Although ever increasing CDU size is tempting, it potentially has a disproportionally high risk due to its size being unproven.
- By isolating incremental ITE deployments with CDUs, data center operators can add TCS capacity as the business grows rather than requiring a large investment at the time of data center construction.

Blast Radius

Minimizing the blast radius

- The blast radius is defined as the number of ITE impacted by a CDU service outage, whether due to maintenance or an operational fault.
- While most CDUs are designed with robust redundancy and serviceability features, maintenance is required, and failures do occur.
- Regular maintenance of the TCS could be required. While CDUs are often designed for concurrent maintainability, it is critical to acknowledge that not all CDU components can be serviced without impacting the cooling system. For example, the heat exchanger within a CDU is not concurrently maintainable, and failure may necessitate a full replacement. The impact of a TCS failure or maintenance outage is better managed by isolating smaller segments with different CDUs.
- Operators should establish clear expectations regarding Mean Time to Repair (MTTR) in the event of a catastrophic failure. Backup CDU strategies should be considered to mitigate risks, especially in high-reliability environments where liquid cooling downtime could impact ITE SLAs.

The CDUs Critical Role of TCS and FWS Isolation in Cold Plate Deployments

Scalability

Enabling scalability

- Rack power density regularly exceeds 100 kW for AI applications in 2025, and roadmaps are indicating that 500 kW or higher by 2030. With rack power increasing so rapidly, a large CDU and TCS piping network intended to cool a data hall will soon be cooling a row or even just a few racks. Building out smaller, CDU-isolated domains that can be more easily upgraded will often be more cost- and time-effective.
- While CDUs may be deployed in parallel configurations to add capacity, pipe sizing is limiting.
- TCS coolant, material compatibility, and cleanliness requirements may drive up costs for deployments of large diameter pipes. It is generally more cost-effective to distribute FWS coolant at scale.

Summary

A CDU performs critical roles in managing condensation, coolant temperature, coolant flow, and coolant quality for the TCS. CDUs also provide a critical role in isolating ITE systems in smaller, more manageable building blocks that enables the rapid growth and scaling of liquid cooling.

The operator is encouraged to check the compatibility of TCS requirements for different ITE systems and ensure that systems attached to a single CDU have compatible requirements. One approach to this would be to avoid large multivendor TCS loops and to be aware that TCS requirements may differ with the same ITE vendors product portfolio due to the high projected power-density growth-rate.

Smaller, platform-specific, CDU-isolated TCS loops enable optimal operating environments, simpler maintenance and service, and a scalable architecture where the TCS grows with the ITE deployment.

The ASHRAE TC 9.9 Datacom Encyclopedia provides additional information on CDUs, including various implementations, design considerations and controls.

Acknowledgements

TC 9.9 would like to thank the following contributors for their time and expertise in getting this necessary industry guidance published.

- Tim Shedd (Dell Technologies), Dustin Demetriou (IBM), Roger Schmidt (Syracuse University), John Gross (J.M. Gross Engineering), Vali Sorell (Oracle), Jerrod Buterbaugh (AMD), Dave Moss (Strategic Thermal Labs), David Grant (ORNL), Mark Steinke (Nvidia), Jason Matteson (Nvent)

