

ASHRAE FALCON CHAPTER · UNITED ARAB EMIRATES

Chapter Newsletter

Volume 08 · July 2026 Edition

INSIDE THIS ISSUE

- President's Message & 2026–27 Leadership
- Falcon Chapter Shines in Austin, Texas
- Women & Young Engineers in the Field
- CRC 2026 · Cairo, Egypt
- ASHRAE President McQuade Visits the UAE
- Why ASHRAE Membership Matters
- Guest Feature: Data Centers & Emotional Intelligence

Disclaimer — This newsletter is an independent publication created specifically for the ASHRAE Falcon Chapter. It does not represent official positions or policies of the Society, nor has it undergone Society review. ASHRAE Chapters do not speak on behalf of the Society. For information on ASHRAE's global activities, please visit the official ASHRAE website.

A Message from the Chapter President

Dear Falcon Chapter Members and Fellow HVAC&R Professionals,

It is a profound honor to assume the role of Chapter President for the ASHRAE Falcon Chapter for the 2026–2027 Society year. Reflecting on our chapter's rich legacy, I am deeply inspired by the dedication, expertise, and passion that define our professional community here in the United Arab Emirates. Every milestone we have achieved is a direct testament to your commitment, and I am eager to build upon this solid foundation. Moving forward, the primary theme and vision for my tenure will center on **Elevating our Community through Membership Promotion**.

Our Strategic Vision: Growth and Engagement

The core strength of our chapter lies in the diversity and depth of our members' expertise. This year, we are dedicating our strategic efforts toward expanding our professional reach, enhancing member benefits, and ensuring that the Falcon Chapter serves as a valuable resource for every industry professional in the region. To achieve this, we must foster a more robust, active, and interconnected network than ever before.

An Invitation to Leadership: Join the Board of Governors & Committees

A thriving chapter requires diverse perspectives and proactive leadership. I cordially invite our members to step forward and shape the future direction of our chapter by joining the Falcon Chapter Board of Governors (BOG) or volunteering on our standing committees.

Whether your professional interests align with Technical Programs, Membership Promotion, Government Affairs, Student Activities, or Young Engineers in ASHRAE, there is a place for your talent. Volunteering with ASHRAE is a powerful catalyst for professional growth, offering unmatched opportunities to refine leadership skills, collaborate with regional experts, and expand your professional footprint.



2026–2027
Society Year

**Osama
Khayata**

President, ASHRAE
Falcon Chapter

To Our Colleagues: Shape the Future of the Built Environment

To the non-members, industry colleagues, and emerging engineers currently participating in our events or engaging with our community: I invite you to officially join the ASHRAE Falcon Chapter.

The regional HVAC&R sector is undergoing a profound transformation, driving critical advancements in decarbonization, energy efficiency, and indoor environmental quality. By becoming a member, you gain direct access to world-class technical resources, global standards, and a powerful local network. We encourage you to move beyond the sidelines, join us, and let us collectively shape the future of our industry.

Looking Ahead

In the coming weeks, we will launch our calendar of technical seminars, workshops, and networking events, all carefully curated to deliver maximum value to your professional journey. I look forward to working collaboratively with each of you over the next twelve months to make this year a landmark chapter in the Falcon story.

Thank you for your continued trust, dedication, and support.

PRESIDENTIAL THEME

Elevating our Community through Membership Promotion

2026–2027 Leadership Team

A New Chapter Begins

On July 1st, 2026, the ASHRAE Falcon Chapter proudly welcomed its 2026–2027 leadership team, marking the start of a new chapter of collaboration, expertise, and vision for the HVAC&R industry across the region. We extend our sincere gratitude to the outgoing 2025–2026 leadership team for the strong foundation they have built, and look forward to a year of impactful initiatives and continued growth.

Board of Governors



Committee Chairs



Committee Chairs



Chapter Facts

#175

ASHRAE Chapter Identification Number

2003

Chartered 7 December 2003

Region-
At-Large

Chapter region: ASHRAE Region-At-Large (RAL)

414

Members as of July 2026

63

Students as of July 2026

7

Student Branches across the UAE

◆ Your Career, Commissioned

Why ASHRAE Membership Is One of the Best Career Decisions You Can Make ?

Whether you are just starting out, navigating the middle years of a demanding career, or leading teams at a senior level, the people and resources around you determine how far you go. That is exactly what ASHRAE membership is about.

The ASHRAE Falcon Chapter UAE invites you to become part of a global community of over **50,000 engineers, designers, researchers, and industry professionals** united by a shared commitment to advancing the built environment. Beyond the global network, membership delivers something more personal, a tangible investment in your growth, credibility, and career trajectory.

In a competitive industry, certifications matter. ASHRAE offers a suite of globally recognized credentials that signal expertise and professional seriousness to employers and clients alike. These are not just letters after your name, they are proof of a standard the industry recognizes and respects.

Credentials That Set You Apart

◆ BUILDING DESIGN CERTIFICATIONS

**BEMP**

Building Energy Modeling Professional

**CHD**

Certified HVAC Designer

**HFDP**

Healthcare Facility Design Professional

**HBDP**

High-Performance Building Design Professional

◆ BUILDING PERFORMANCE

**BCxP**

Building Commissioning Professional

**BEAP**

Building Energy Assessment Professional

◆ BUILDING OPERATIONS

**OPMP**

Operations & Performance Management Professional

◆ BUILDING DECARBONIZATION

NEW!

**CDP**

Certified Decarbonization Professional

To help you get there, every new member receives a **free choice** of an eLearning course, a PDF of an ASHRAE Standard or Guideline, a Handbook PDF, or a Certification Study Guide, a head start on whichever credential matters most to you right now.

A Library of Knowledge at Your Fingertips

- ASHRAE Journal delivered monthly — research, standards, technology, and practice
- Free access to *Science & Technology for the Built Environment* — peer-reviewed research without the paywall
- Handbook Online — the full suite of ASHRAE Handbooks, anytime
- Discounted Handbook packages for print or offline access
- Member Bookstore discounts on all publications and standards
- HVAC&R Industry News to keep you informed

Learn, Grow, and Stay Ahead

- Member access to the Technology Portal with cutting-edge tools
- Conference, Bookstore, and education discounts that make continuous learning affordable
- One free Winter or Annual Conference registration — at no extra cost

A Community That Grows With You

- Network at the local, regional, and Society level
- Hold office and vote at Chapter, Regional, and Society level
- Participate on the committees that define how the industry operates

Membership That Works for Every Stage

ASHRAE membership meets you where you are, whether you are still in university, building your career, or recognized as a leader in the field. At every level, the benefits scale with your ambitions.

The question isn't whether you can afford to join; it's whether you can afford **not to**.

BOG Testimonial



Dr. Chithirai Pon Selvan

John Curtin Distinguished Professor

Student Activities Chair

A Decade of Service, Mentorship & Impact

My journey with ASHRAE over the past decade has been one of the most rewarding experiences of my professional career. ASHRAE has provided me with a platform not only to grow professionally but also to create meaningful opportunities for the next generation of engineers. As Student Activities Chair, I have had the privilege of connecting students across the UAE with industry and the wider ASHRAE community through guest lectures, industry visits, scholarships, undergraduate equipment grants, and travel grants to attend conferences.

Seeing students gain practical exposure, secure funding, present their work, and build professional networks has been immensely fulfilling. ASHRAE has enabled me to bridge the gap between academia and industry and to turn opportunities into tangible outcomes for students. I am proud to have contributed to developing future engineering professionals and deeply grateful to ASHRAE for a journey that has strengthened my commitment to service, mentorship, and a healthy and sustainable built environment for all.

Ready to join or renew?

Visit ashrae.org or reach out to the ASHRAE Falcon Chapter UAE — we would love to welcome you.

mp@ashraeuae.org

Three Landmark Engagements Across the RAL Region

A Presidential Visit to the UAE

June 5, 2026 marked a milestone for the ASHRAE Falcon Chapter UAE. As part of the ASHRAE Presidential Regional Activity Leadership (RAL) tour, **William McQuade, 2025–26 ASHRAE President**, visited the United Arab Emirates for a series of high-level engagements spanning national policy dialogue, industry collaboration, and chapter leadership. Across three meetings in a single day, the visit underscored ASHRAE's commitment to connecting global technical expertise with the region's ambitious sustainability agenda.

01

Meeting with the Ministry of Energy & Infrastructure (MOEI)

June 5, 2026 · UAE Ministry of Energy & Infrastructure, Dubai



As the day began, the ASHRAE delegation, led by President McQuade with Falcon Chapter representatives Dr. Ahmed Alaa Eldin, Abdallah Mahmoud MSc CEM®, Osama Khayata, and Eid Mohammed, was received by **H.E. Eng. Sherif Al Olama, Undersecretary of Energy & Petroleum Services**. The agenda covered AI in HVAC systems, energy efficiency mandates, decarbonization pathways, data center performance, national cooling strategies, and indoor air quality initiatives. A significant outcome was the opportunity for ASHRAE to support the UAE in developing evaluation and rating frameworks, a step that could shape national policy for years to come.

02

Meeting with Empower

June 5, 2026 · Empower Headquarters, Dubai

Afterwards, a delegation comprising President William McQuade and the Board of Governors of the ASHRAE Falcon Chapter UAE met with **H.E. Ahmad Bin Shafar, CEO of Empower**, one of the world's largest district cooling providers, for a substantive exchange on the future of district cooling and sustainable urban development.

Central to the discussions was the **District Cooling Guide**, an ASHRAE initiative designed to translate technical expertise into practical, implementable guidance. The conversation focused on the Guide's potential to improve operational excellence, enhance system efficiency, and support the region's long-term sustainability goals, objectives that align closely with Dubai's ambitions as a leader in smart, sustainable urban infrastructure.

When technical leadership and industry collaboration align, the impact extends far beyond the meeting room.



03

Chapter Leadership Meeting

June 5, 2026 · ASHRAE Falcon Chapter UAE Headquarters, Dubai



The day concluded with an intimate and open exchange between President McQuade and the ASHRAE Falcon Chapter leadership team. The evening offered a collaborative forum for candid conversation on the issues that matter most to the profession: sustainability, energy efficiency, and the trajectory of the built environment in the UAE and wider region.

The gathering reflected the spirit of ASHRAE at its best, practitioners and leaders coming together not for formality, but for genuine dialogue. President McQuade engaged directly with chapter members, listening to regional perspectives and sharing his vision for ASHRAE's role in a rapidly decarbonizing world.



A special evening that reinforced the strength of the ASHRAE Falcon Chapter community and its connection to global ASHRAE leadership.

President McQuade's visit was more than a courtesy call, it was a statement of intent. From national government to C-suite industry leaders to the chapter community, the day's engagements demonstrated the breadth of ASHRAE's reach and the depth of its relevance in one of the world's most dynamic built environments.

◆ A Conversation with the ASHRAE President

Healthy Buildings, Bold Futures, and the Road to Decarbonization

During his visit to the ASHRAE Falcon Chapter, 2025–26 ASHRAE President William McQuade sat down with our newsletter editor for a wide-ranging conversation on the future of the built environment, from the tension between ventilation and energy efficiency to the transformative potential of artificial intelligence.

| Ventilation vs. Energy: The Persistent Trade-Off

For engineers navigating the push toward net-zero buildings, the conflict between energy performance and occupant health is real, and ventilation sits at the center of it. "The most common tension is ventilation," McQuade said. "A lot of times, that's where people decide not to bring in more outside air because they have to condition that air, and that costs money."

His message, however, is that the trade-off is increasingly a false choice. Standards 241 and 62.1 have shifted toward a

"clean air" framework. Rather than relying solely on outdoor air, designers can deploy filtration, ultraviolet treatment, and in-room air cleaners as complementary strategies, reducing the conditioning load while still delivering effective clean air. You don't have to just bring in outside air; filtration, UV, and indoor air cleaners are all additive. He also highlighted right-sizing domestic hot water systems: downsizing piping to point-of-use fixtures enables smaller-capacity heaters, a meaningful energy saving with no sacrifice to indoor environmental quality.

| The Wild Card: Artificial Intelligence

Looking a decade ahead, McQuade was unequivocal: AI will reshape building design and operations in ways the industry has yet to appreciate. "AI is going to be the wild card," he said. "It's going to take building controls to a different level, one where the system is actually learning the building and making adjustments on the fly."

On operations, he envisions true predictive maintenance buildings that flag problems before failure. Yet he was careful to note what AI cannot replace: "You can't replace creativity with AI. You're still going to need the engineer with the creative mind to develop unique solutions." The engineers who thrive, in his view, will use AI to amplify their ingenuity not substitute for it.

Rewriting the Standards from Scratch

Asked how ASHRAE might redesign Standard 90.1 from a blank sheet today, McQuade offered a vision beyond kilowatt-hours. "If we were starting from scratch, I think we would be looking at carbon, both embodied and operating. It would be more of a total life cycle carbon emissions standard, more than just an energy standard."

Quantifying the Value of Health

ASHRAE's presidential theme, *Healthy Buildings: Designing for Life*, raises a practical question: how do owners justify investments in occupant health? For owner-operators, the case is tractable: productivity, absenteeism, and healthcare costs link back to indoor environmental quality. The picture is murkier for investment landlords: "It's very hard for them to

He also pointed to a longer-term goal ASHRAE is working toward: integrating indoor environmental quality metrics directly into energy standards. A single, unified framework would let designers genuinely balance occupant health and energy performance. "I think we'll eventually get to an integrated approach between indoor environmental quality and energy, so you could balance the two."

see the justification, because the healthcare costs of the employees don't come back to the building owner."

The implication for engineers and advocates: the pitch for healthy buildings must be tailored to the ownership model. A one-size-fits-all financial argument will not work.

Looking Back: What Changed

"Building automation has really changed what I thought was possible from an energy efficiency standpoint. The ability to monitor occupancy and turn down conditioning when buildings are lightly occupied, that's changed everything, and it's only going to get better."

Beyond the Blueprints

On a personal note, McQuade cited Jordan Peterson's *12 Rules for Life* for its emphasis on accountability and incremental improvement. "Take responsibility for your own actions. Don't blame other people. Work your way up. It's a good way to think."

The ASHRAE Falcon Chapter thanks President McQuade for his time and for the depth of insight he brought to this conversation.

◆ End of Year Celebration · June 18, 2026

Celebrating a Successful 2025–2026 and the Journey Ahead



The ASHRAE Falcon Chapter brought its 2025–2026 Society year to a memorable close with an end-of-year celebration honouring the chapter's outstanding achievements under the leadership of President Abdullah Mahmoud.

The evening was as much about people as accomplishments. Chapter leaders shared their personal journeys since joining the Falcon Chapter, reflecting on the growth they experienced, the skills they developed, and the networks they built. A recurring theme stood out in every story: what

began as professional networking has grown into lifetime friendships.

The celebration also marked the official passing of the torch, introducing the new Board of Governors and Committee Chairs for 2026–2027, to be led by incoming President Osama Khayata. The evening concluded with a dinner in a warm, welcoming atmosphere. The Falcon Chapter extends its sincere gratitude to President Abdullah Mahmoud and the outgoing board for a remarkable year.



ASHRAE Annual Conference 2026 · Austin, Texas · June 27–July 1

Falcon Chapter Shines in Austin

The ASHRAE Annual Conference 2026, held in Austin, Texas, from June 27 to July 1, brought together HVAC&R and building science professionals from around the world for a comprehensive program of technical sessions, committee meetings, and professional development opportunities. This year's program tackled some of the industry's most critical challenges, artificial intelligence, building decarbonization, and innovations in building design and systems. For the ASHRAE Falcon Chapter UAE, it was a particularly proud occasion, as **three of its leadership were recognized on the Society's global stage.**



Exceptional Service Award

Dr. Ahmed Alaa Eldin

One of the Society's most distinguished honours, reflecting years of commitment, leadership, and selfless service to the HVAC&R community.



Government Affairs Award

Eid Mohammed

Advancing ASHRAE's engagement with policymakers and regulatory bodies across the region.



YEA Individual Excellence

Mohamed Faizal

Recognizing his outstanding contributions as an emerging leader in the Society.

These awards honour more than professional achievement. They recognize individuals who dedicate their time, knowledge, and energy to serving others, strengthening the engineering community, and creating lasting impact through volunteer leadership — a source of pride for the entire Falcon Chapter and a reflection of the calibre of its members.

Congratulations to all three awardees. May your contributions continue to inspire, influence, and make a difference.

2026–2027 ASHRAE Society President

Sarah E. Maston: "Changing the Game, Retrofitting for Resilience"



ASHRAE has officially welcomed Sarah E. Maston as its 2026–27 Society President, bringing an energizing theme for the year ahead: **Changing the Game: Retrofitting for Resilience.**

In her opening message, President Maston addresses one of the greatest challenges of our time, climate change. She calls on "Team ASHRAE," with its wealth of knowledge and educational offerings, to help create a game plan for making existing buildings more efficient, healthy, and resilient.

01

Increasing awareness of the importance of building codes and their role in resilience.

02

Emphasizing cross-functional teams and a game plan to improve building operations.

03

The gamification of education, attracting the brightest minds to the industry's challenges.

The focus on retrofitting is especially timely. With most of the buildings that will exist in the coming decades already standing today, upgrading the existing building stock is one of the most powerful opportunities to reduce energy use and strengthen resilience worldwide.

Read the full presidential message at ashrae.org/president — and join President Maston in getting in the game.

Inter-University STEM Challenge 2026 · May 23, 2026

Shaping Tomorrow at Curtin University Dubai

40

University
Teams

Co-hosted by Curtin University Dubai and the ASHRAE Falcon Chapter UAE, the challenge brought together 40 university teams from across the UAE for a day that was equal parts competition, celebration, and inspiration.

Some events remind you exactly why this profession matters. The Inter-University STEM Challenge 2026 was one of them. What filled the room was something no program agenda could fully capture, the unmistakable energy of young engineers who are hungry to solve real problems.

The range of work on display was remarkable. Teams came prepared with research-driven concepts grounded in rigorous thinking, hands-on working prototypes that demonstrated technical ambition, and live demonstrations that showed how far students will push their ideas when given the right platform. The next generation of STEM professionals in this

region is not waiting to be invited to the table, they are already building it.

For the Falcon Chapter, participation goes beyond visibility. It reflects a genuine commitment to nurturing the talent pipeline that will carry forward the work of sustainable design, energy efficiency, and engineering excellence. A special thank you is owed to the organizing committee, judges, mentors, and volunteers, and to Curtin University Dubai for championing a platform that empowers student innovators across the UAE.



If the STEM Challenge 2026 is any indication, the future of engineering and sustainability in this region is in very capable hands.

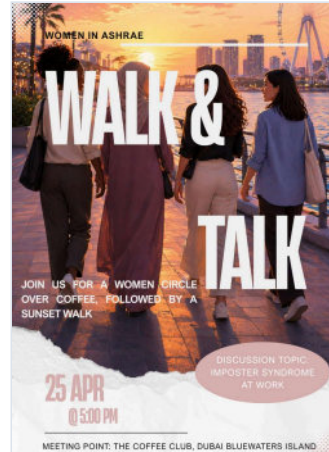
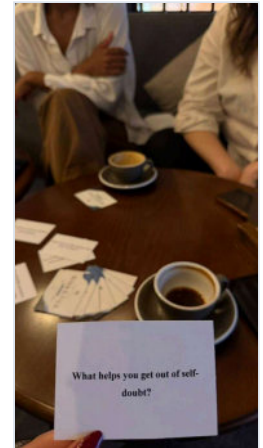
◆ Women's Circle · Bluewaters, Dubai · April 25, 2026

A Circle on Imposter Syndrome — and a Sunset Walk to Unwind

In a profession that moves from one deadline to the next, moments to pause and reflect are rare. Women in ASHRAE created exactly that space with a relaxed Women's Circle at The Coffee Club, Bluewaters, tackling a topic that resonates far beyond engineering: imposter syndrome at work.

In an open, supportive environment, attendees shared honest conversations and personal experiences, with no pressure to speak for those who preferred simply to listen. The circle was followed by a 30-minute sunset walk around Bluewaters Island to unwind and connect informally.

Gatherings like these reflect what makes the Women in ASHRAE community special: supporting the whole person, not just the professional. We look forward to the next circle.



◆ EmiratesGBC Women's Network · June 11, 2026

Women Connecting for a Sustainable Built Environment



There are events you attend, and then there are events you carry with you. The recent EmiratesGBC Women's Network afternoon was firmly the latter, bringing together women from across the industry for an afternoon built around genuine human connection.

The session wove together two experiences: an insightful discussion led by Dr. Eman Ismail Abdellatif, Ph.D, and a hands-on terrarium workshop with Taarushala, a reminder that sustainability is as much about how we relate to each other as it is a technical discipline.

Sincere thanks to the EmiratesGBC Women's Network, the Emirates Green Building Council, and event partners hansgrohe Group and Rheem Middle East and Africa.



To every woman studying or working in engineering: Women in ASHRAE is here for you. Come as you are, ask the questions you've been sitting on, and find a supportive community full of experienced women ready to walk alongside you.

Technical Engagement Across the Region

The Conversations Shaping Tomorrow's Buildings

Across a busy season of conferences and panels, ASHRAE Falcon Chapter members brought technical expertise to the industry's most important discussions, from cooling solutions and commissioning to refrigerant transitions and high-efficiency buildings.

MEP Leaders Conference 2026

JUNE 23, 2026



Falcon Chapter members contributed across several panel discussions, from selecting the right cooling solutions for different applications to commissioning, accountability, and proof of performance. The conference provided a valuable platform for technical knowledge sharing and cross-disciplinary collaboration.

Refrigerants Review 2026 · 5th Edition

January 21, 2026

The chapter joined the 5th Edition of Refrigerants Review 2026, organized by Climate Control Middle East in Dubai. President Abdallah Mahmoud, MSc, CEM®, with Mohamed Sakallah, GAC Co-Chair, joined discussions on the evolving refrigerants landscape and the future of HVAC performance in high-efficiency buildings.

- › Advancing energy efficiency across the region
- › Strengthening performance standards
- › Supporting sustainable refrigerant transitions
- › Driving innovation in HVAC & refrigeration





Green AI Conference 2026

JAN 24–25, 2026

Can AI Accelerate Sustainability at Scale?

At the 1st Dubai International Conference & Exhibition on Green AI, co-hosted by the Zayed International Foundation for the Environment, Dubai Police Academy, and Curtin University Dubai, the chapter was represented by President Abdallah Mahmoud, MSc, CEM®, with Dr. Chithirai Pon Selvan, Mohammed Shamroukh, and Mohamed Faizal, highlighting AI and analytics in advancing sustainability and healthier indoor environments.



Smart Building Summit 2026

JAN 12–14, 2026

Shaping Intelligent Buildings

Abdallah Mahmoud, MSc, CEM®, President of the ASHRAE Falcon Chapter, participated as a panelist at the Smart Building Summit 2026 by Light + Intelligent Building Middle East, sharing insights on the role of integrated systems in delivering smarter, more sustainable buildings, meaningful dialogue and strong collaboration driving our industry forward.

Data Center Expertise at DCIIS'26

JULY 4, 2026



Behind every AI application, cloud service, and digital experience stands a data center. As this sector expands rapidly across the UAE, the Falcon Chapter joined the Data Center Infrastructure & Innovation UAE Summit (DCIIS'26).

Representing the chapter, Vice President **Mohamed Sakallah** presented technical insights on data centers, demonstrating how ASHRAE standards, research, and thermal guidelines guide the design and operation of more efficient, sustainable facilities where reliability and sustainability go hand in hand.

The chapter looks forward to continued participation in initiatives that advance sustainable, high-performance building practices across the region.

Falcon Chapter Joins AMCA Executive Dinner, Strengthening Industry Ties

JULY 9, 2026

Bringing the HVAC community together, one conversation at a time, the ASHRAE Falcon Chapter UAE was pleased to participate in the AMCA Executive Dinner, hosted by AMCA Middle East. The evening offered an excellent opportunity to connect with industry leaders, exchange ideas, and strengthen collaboration across the HVAC sector.

The connection between ASHRAE and AMCA is a natural one, with both organizations sharing a commitment to advancing air movement and control technology, performance standards, and the professionals who put them into practice. The Falcon Chapter extends its sincere thanks to AMCA Middle East for hosting a memorable evening.



AHRI Talks MENA 2026: Regional Priorities Ahead of HVACR World

JULY 8, 2026



The regional HVACR conversation gathered momentum at AHRI Talks MENA 2026, where industry stakeholders addressed the developments shaping the sector, including high-ambient standards, certification, refrigerants, and cooling technology.

Endorsed by AHRI MENA and the ASHRAE Falcon Chapter UAE, HVACR World continues to strengthen its role as a regional platform for collaboration, knowledge exchange, and business growth. The conversation continues from 23–26 November 2026 at the Dubai World Trade Centre.

The ASHRAE Falcon Chapter contributed through its President-Elect, Hassan Younes, who delivered a presentation on radiant cooling. The collaboration between ASHRAE and AHRI was also highlighted by the Falcon Chapter President and the ASHRAE Global Training Center Manager, emphasizing the ongoing partnership and opportunities for future cooperation.



Gatherings like these build the relationships between organizations that ultimately translate into better standards, better practices, and a stronger industry.

◆ Bridging Classroom and Industry

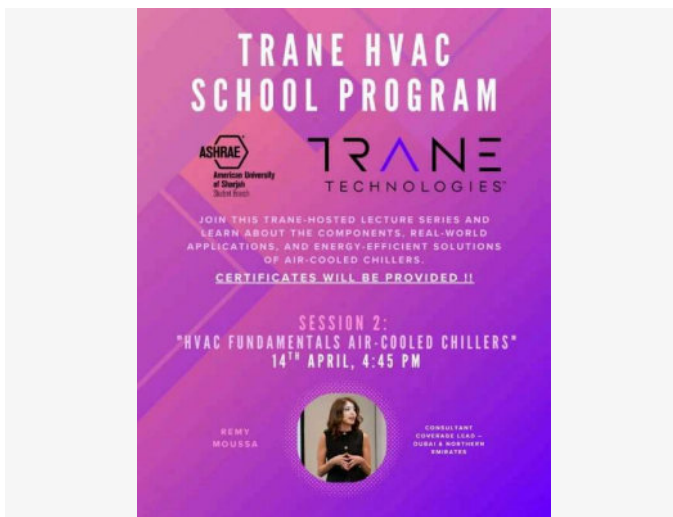
AUS Student Branch: Learning Beyond the Textbook

Trane HVAC School · Session 2 · April 14, 2026

HVAC Fundamentals: Air-Cooled Chillers

In collaboration with Trane Technologies, the ASHRAE AUS Student Branch hosted Session 2 of the Trane HVAC School Program. Delivered by **Remy Moussa, CEM®, MS Renewable Energy**, the session walked students through the components of air-cooled chillers, their real-world applications, and the industry's shift toward energy-efficient, sustainable solutions.

Sessions like these give future engineers direct access to practicing professionals, showing how classroom concepts are applied, specified, and optimized in actual projects. Participants also received official certificates recognizing their engagement.



Student Webinar · April 16, 2026

Indoor Air Quality & ASHRAE Standard 62.1

The AUS Student Branch, with the Falcon Chapter, hosted a webinar on achieving good indoor air quality through Standard 62.1, the Society's benchmark for ventilation. It featured **Eng. Mohamed Faizal**, IAQ Consultant at Intercool, and **Eng. Mohammed Murtaza, CEA™**, Managing Director of Your Air Specialist.

The speakers presented the chapter's latest project, "Healthy Classrooms for a Low-Carbon Future", showing how IAQ principles translate into real projects that improve learning environments while supporting decarbonization goals.



Through initiatives like these, the Falcon Chapter and its student branches continue to shorten the distance between graduation and industry readiness, connecting students with industry leaders and sharpening their technical skills.

EXECUTIVE VOICES

LEADING WITH HEART, WINNING WITH STRATEGY

**Maysa Mustafa**

Executive Director, Nottingham MEP Consulting Engineers



The most important decision an executive makes is rarely financial. It is not the next investment, the next acquisition, or even the next strategic initiative. More often than not, it is emotional.

Every conversation, every difficult decision, and every response during times of uncertainty leaves a lasting impression. It builds trust. It shapes culture. And that is where true leadership begins.

In today's business landscape, where change is constant and resilience has become a competitive necessity, Emotional Intelligence is no longer a desirable leadership trait — it is a business imperative. While strategy may define where an organization is going, emotional intelligence determines whether people are willing to follow.

Several years ago, I walked into what I expected to be a routine leadership meeting. The agenda was clear, the numbers were on target, the strategy was well defined. Yet something didn't feel right. People nodded in agreement, but the room lacked energy — no challenging questions, no different perspectives, no genuine discussion. Everyone agreed, but no one seemed truly engaged.

At that moment, I realized we didn't have a strategy problem. We had a trust problem. No strategy, no matter how

sophisticated, can succeed if people don't feel safe enough to speak up, challenge ideas, or share concerns.

That meeting changed the way I think about leadership. One of the greatest responsibilities of an executive is not simply making the right decisions — it is creating an environment where people feel confident enough to contribute to them. Leadership has taught me that success is rarely measured only by the results we achieve, but by the people we inspire along the way.

As leaders, we will always be remembered for the decisions we make. But even more, we will be remembered for how we made people feel while making them. The strongest organizations are not built solely on strategy, innovation, or financial performance — they are built on trust, respect, and the courage to lead with both confidence and compassion.

To me, Emotional Intelligence is not about leading with emotion. It is about leading with humanity. Because in the end, people may forget the strategy, but they will always remember the leader behind it.

TECHNICAL FEATURE

NAVIGATING THE REFRIGERANT LANDSCAPE: TECHNICAL REALITIES, SAFETY & THE FUTURE OF COOLING

Murad AbuSalima

Chair, AHRI MENA Refrigerant Working Group · Technical Advisor, Danfoss Climate Solutions – MENA Region



The global refrigerant transition is accelerating, reshaping HVACR markets at a speed not witnessed since the original ozone-depleting substance phaseout of the 1990s. In the MENA region, this transition presents an opportunity to modernize infrastructure while avoiding the disruptions seen in more mature markets. As Chair of the AHRI MENA Refrigerant Working Group, I have consolidated the key technical principles, safety considerations, regulatory trends, and refrigerant pathways that HVACR professionals in our region must understand.

1. Understanding Refrigerants: Foundations Before Strategy

Refrigerants are the working fluids enabling vapor-compression cooling systems. Their thermodynamic behaviour determines system performance, while their environmental impact, particularly Global Warming Potential (GWP), shapes their long-term viability. Today's landscape is defined by four broad families: HFCs (e.g., R410A, R134a) — non-flammable but high GWP, being phased down under the Kigali Amendment; HFOs (e.g., R1234yf, R1234ze) — low GWP but mildly

flammable (A2L); Blends (e.g., R454B, R455A, R513A) — balanced performance, though many introduce flammability; and Natural refrigerants (NH₃, CO₂, hydrocarbons) — very low GWP, but requiring special handling due to toxicity or flammability. There is no universal "best refrigerant." Each option is the result of compromises between safety, pressure, GWP, efficiency, climate conditions, and system size.

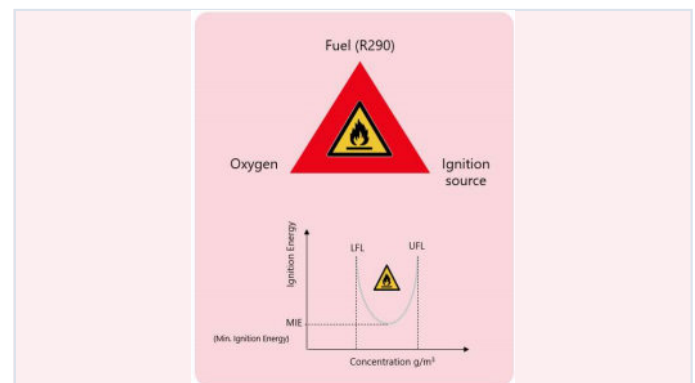
2. Safety Classification: ASHRAE 34 and ISO 817 Remain the Foundation

Nearly all refrigerant safety standards trace their data back to ASHRAE Standard 34; ISO 817 builds on this foundation. Both classify refrigerants by toxicity (A = lower toxicity, B = higher toxicity) and flammability (1 = no flame propagation, 2L = mildly flammable/low burning velocity, 2 = flammable, 3 = highly flammable) — producing classifications such as A1 (R410A, R134a) or A2L (R32, R1234yf). A2L

refrigerants play a dominant role in the future HVAC landscape, offering low GWP with manageable flammability. Hydrocarbons (A3) and ammonia (B2L) remain essential for specific applications, particularly supermarkets and industrial systems, but require strict compliance with ISO 5149, EN 378, and UL-based national codes.

3. Flammability & Risk Management

As MENA transitions to lower-GWP options, flammability must be treated with rigor: Lower/Upper Flammability Limits (LFL/UFL), Minimum Ignition Energy (MIE), and burning velocity are key parameters. R290 (propane), for example, has an LFL of 2.5% and an MIE of just 0.25 mJ — low enough that electrostatic discharge can ignite it, making anti-static precautions and electrical safety zones mandatory. Standards govern maximum charge limits, component certification, ventilation, and risk assessment. A structured risk assessment following ALARP ("As Low As Reasonably Practicable") is not optional — it is a legal and ethical requirement for designers and authorities.



ALARP in Practice: Charge Limits Under ASHRAE 15

A structured risk assessment based on ALARP is fundamental to modern HVAC&R system design. Under ASHRAE 15, refrigerant safety is governed through Refrigerant Concentration Limits (RCL) and categorized charge limits (m_1 , m_2 , m_3) based on occupancy, installation type, and mitigation measures, ensuring that under a worst-case release scenario, concentrations stay below flammability or toxicity thresholds. The basic allowable charge (m_1) is a function of allowable concentration and room volume; increased limits (m_2) may be permitted with mechanical ventilation or gas detection, while machinery rooms (m_3) allow higher charges under defined conditions.

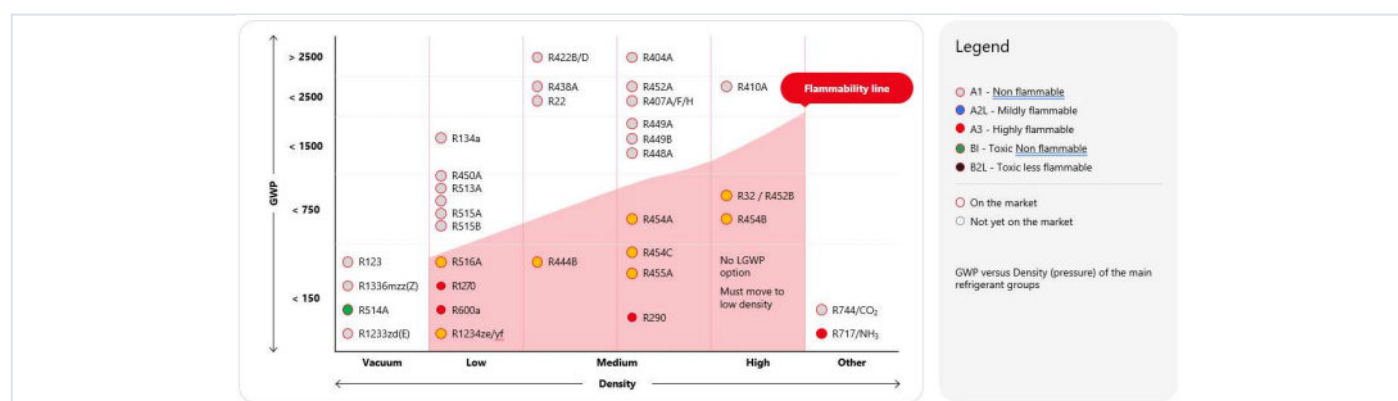
In the high-ambient environments typical of MENA, elevated temperatures influence system pressures, leakage behaviour, and dispersion, reinforcing the need for conservative design, effective ventilation, and reliable detection. A comparison of typical allowable charges illustrates the practical implications: for a small occupied space, A3 refrigerants such as R290 may be limited to roughly 0.2–0.3 kg, whereas A2L refrigerants such as R32 or R454B can allow charges on the order of 1.5–2 kg — a difference reflecting their higher flammability limits and lower burning velocities.

Illustrative example (not for compliance) — R290, 20 m³ occupied space: $m_1 \approx \text{RCL} \times V$, where $\text{RCL} \approx 25\%$ of LFL. With $\text{LFL} = 2.5\%$ and vapor density $\approx 1.8 \text{ kg/m}^3$, $\text{RCL} \approx 0.01125 \text{ kg/m}^3$, giving $m_1 \approx 0.225 \text{ kg}$.

4. Main Refrigerants in Play: The Transition Is Underway

Refrigerant selection is undergoing its most significant transformation in decades. Legacy systems rely heavily on R410A (GWP 2088), R404A (GWP 3920), and R134a (GWP 1430) — all being phased down for high GWP. For air conditioning, replacements include R32 (A2L, GWP 675, widely adopted but requiring system redesign), R454B and R452B (A2L, successors to R410A), R1234ze and R1234yf (A2L, used in larger chillers and automotive), and R513A (A1, a non-flammable alternative for some R134a systems). For refrigeration, R290 (A3, GWP 3) suits

small and medium systems, R744/CO₂ (A1, GWP 1) excels in supermarkets and commercial applications, R717/NH₃ (B2L, GWP 0) remains the industrial backbone, and R454C/R455A (A2L, GWP 148) serve as low-GWP blends for condensing units, alongside R448A/R449A as transitional solutions replacing R404A. Across all sectors, the trend is unmistakable: the future lies in A2L and A3 refrigerants, supported by high-efficiency design and strict adherence to safety standards.



5. The Kigali Amendment and the MENA Region: Timelines Matter

Under the Kigali Amendment, MENA falls under Article 5 Group 2, with an HFC baseline calculated as the average of 2024–2026 consumption, a freeze established in 2028, and a first 10% reduction step targeted by 2032. Unlike Europe, which enforced aggressive early cuts, MENA has a window to transition smoothly if action begins now. Europe's delayed transitions led to severe price spikes, shortages of high-GWP fluids, contractor capacity gaps, retrofitting challenges, and market disruption — lessons early adopters in MENA can avoid by preparing for A2L and natural refrigerants today.

6. Refrigerant Choice Is Not Technical Alone

Transition is shaped not only by technology but by economic conditions, cultural practices, climate, training availability, service infrastructure, regulation, and consumer priorities. In hot-climate regions like the Gulf, ambient temperatures above 45°C impose unique thermodynamic challenges, particularly for high-pressure options and CO₂ systems. Transcritical CO₂ systems face an efficiency penalty from elevated gas cooler temperatures, requiring ejectors, parallel compression, or adiabatic cooling to remain viable.

7. The Importance of Training: Technicians Determine Safety

Low-GWP refrigerants require new installation practices, brazing and leak-testing methods, component selection rules, electrical safety procedures, and ventilation/charge-management strategies. A2L and A3 refrigerants are perfectly safe when handled by trained professionals and installed to standard — without this, the region risks safety incidents that could slow regulatory approvals.

8. Looking Ahead: A Balanced, Safe, and Sustainable Refrigerant Future

This is not about finding a single "perfect" refrigerant — it is about choosing the right refrigerant for the right application, respecting safety boundaries, and preparing for regulatory change already underway globally. For MENA, the priorities are clear: adopt international standards and update regulations to include A2L and A3 safely; modernize technician training and certification; encourage early transition to avoid economic shocks; promote natural refrigerants where appropriate; and strengthen collaboration between policymakers, OEMs, and end users. With the right strategy, MENA can leapfrog legacy technologies and lead in next-generation cooling.

Refrigerant Comparison — Class, Toxicity, Flammability & GWP (AR4 / AR5 / AR6)

Refrigerant	Class	Tox.	Flam.	AR4 GWP	AR5 GWP	AR6 GWP
R134a	A1	A	1	1430	1300	1530
R410A	A1	A	1	2088	~1924	~2256
R404A	A1	A	1	3920	~3943	~4728
R32	A2L	A	2L	675	677	771
R454B	A2L	A	2L	467	~466	~478
R452B	A2L	A	2L	698	~676	~698
R1234yf	A2L	A	2L	4	<1	<1
R1234ze	A2L	A	2L	7	~1	~1
R513A	A1	A	1	631	~573	~631
R290	A3	A	3	3	~3	~3
R744 (CO ₂)	A1	A	1	1	1	1
R717 (NH ₃)	B2L	B	2L	0	0	0
R454C / R455A	A2L	A	2L	146	~148	~145

Toxicity: A = low, B = high. Flammability: 1 = non-flammable, 2L = mildly flammable, 3 = highly flammable. AR4/AR5/AR6 = IPCC assessment reports; AR4 is used for regulatory compliance under the Kigali Amendment.

SUSTAINABLE FUTURE

THE DATA CENTER ENERGY CHALLENGE: FROM COOLING TO CARBON REDUCTION

**Marwan AlObaidi**

Regional Director - Middle East, Russia & Central Asia at Midea Group



Over the past two decades, data centers have evolved from specialized facilities into the backbone of the digital economy. Every email, video call, cloud application, and AI query depends on data centers operating reliably behind the scenes. Their importance has never been greater.

At the same time, the industry faces a critical challenge, how do we support unprecedented growth while maintaining a sustainable path forward?

The rapid adoption of artificial intelligence and high-performance computing is driving demand for computing power to record levels. Facilities are becoming larger, rack densities are increasing, and power requirements continue to rise. While reliability and uptime remain essential, sustainability is now equally important. The future of our industry will depend not only on how much capacity we build, but on how efficiently we operate it.

This challenge is particularly relevant in the GCC region, where summer temperatures can exceed **48°C**. In such conditions, cooling represents one of the largest contributors to a data center's energy consumption. Yet many projects still prioritize immediate operational requirements over long-term energy optimization.

One of the most overlooked opportunities is **Thermal Energy Storage (TES)**. Often viewed as an emergency cooling reserve, TES can play a much greater role. By producing chilled water during cooler nighttime hours and utilizing that stored capacity during peak daytime demand, operators can improve chiller efficiency, reduce energy consumption, and lower operating costs. TES should be viewed not as a standby asset, but as an active component of an energy optimization strategy.

At the same time, AI workloads are accelerating the adoption of **liquid cooling** technologies. Unlike conventional air-cooled environments, liquid cooling systems remove heat more efficiently and operate at higher water temperatures. More importantly, they create an opportunity to recover and reuse thermal energy that would otherwise be rejected to the atmosphere. Heat should no longer be considered a waste product, but a valuable resource that can contribute to overall system efficiency.

This perspective naturally leads to another technology with significant long-term potential, **green hydrogen**. Across the Middle East, major investments are being made in hydrogen production, with both the UAE and Saudi Arabia positioning themselves as leaders in the emerging hydrogen economy.

What excites me most is the possibility of integrating these technologies into a single ecosystem. Imagine a data center powered by green hydrogen, utilizing recovered heat to drive absorption chillers, while thermal energy storage optimizes cooling demand throughout the day. Such an approach could significantly improve efficiency while reducing dependence on conventional energy sources.

There is unlikely to be a single technology capable of delivering carbon-neutral data centers on its own. The future will be built on complementary solutions working together. In my view, **Thermal Energy Storage** and **green hydrogen** represent two of the most promising opportunities, one delivering practical benefits today, and the other offering a compelling vision for tomorrow.

BUILDING A SUSTAINABLE DATA CENTER ECOSYSTEM

**THERMAL ENERGY STORAGE**

Optimize cooling demand, reduce energy use and cost.

**LIQUID COOLING**

Higher efficiency, heat reuse, better performance.

**GREEN HYDROGEN**

Clean energy source for a low-carbon future.

**SUSTAINABLE OPERATIONS**

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Commissioning Process in New & Existing Buildings (MENA) · <i>BCxP</i>	6h / 6 PDH	7 & 9 Sep 2026	Online
HVAC Design: Level I — Essentials (MENA)	18h / 18 PDH	21–23 Sep 2026	Dubai, UAE
HVAC Design: Level II — Applications (MENA) · <i>CHD</i>	12h / 12 PDH	24–25 Sep 2026	Dubai, UAE
Emerging Trends & Sustainable Design in Refrigeration & Cold Chain	3h / 3 PDH	6 Oct 2026	Online
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Standard 90.1: HVAC / Mechanical Design & Appendix G (MENA)	6h / 6 PDH	7 & 9 Dec 2026	Online
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● The Floor Is Yours

We want to hear from YOU.

The ASHRAE Falcon Chapter newsletter is only as strong as the voices behind it. Each volume, we pose a question to our community and invite members to respond with a short article. The best submission is featured in the next volume, read by your peers across the chapter.

This Volume's Question

"As AI begins to reshape the tools we use to design and operate buildings, what does it mean to be an engineer in 2026 and beyond, and what skills will define the next generation of HVAC and building systems professionals?"

Write a short article (300–400 words). Open to all chapter members. One selected article will be published in our next volume, with full credit to the author.



● Ask Us Anything — You Ask, We Write

Got a question you've been sitting on?

Each volume, we pick a reader-submitted question and dedicate a full article to answering it. No question is too basic, too niche, or too bold. We cover it all:

- › Technical topics — HVAC design, energy modeling, standards
- › Soft skills — leadership, communication, career growth
- › ASHRAE membership — certifications, committees, benefits
- › Standards & advocacy — what's changing, what it means
- › The engineering profession — trends, career pivots
- › Anything else on your mind as an engineer

Keep it short — a sentence or two. The best question each volume gets answered in the next issue, with a shout-out to the one who asked (or kept anonymous, if preferred).

Fun Fact

The world's largest dedicated cooling system?

The human body. If you uncoiled all the sweat glands in an average adult and laid them end-to-end, they would stretch nearly 6 miles (10 km), an incredibly efficient cooling plant.



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