MINUTES

EXECUTIVE COMMITTEE MEETING

ORLANDO, FL
February 8 and 12, 2025

Note: These draft minutes have not been approved and are not the official record until approved by the Executive Committee.

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February 8 and 12, 2025

PRINCIPAL APPROVED MOTIONS

Executive Committee Meeting

February 8 and 12, 2025

No. - Pg.	Motion
1 – 2	The minutes from the November 4, 2024 open session ExCom meeting be approved.
2 – 2	The Center of Excellence for Building Decarbonization (CEBD) requests the Board of Directors' Executive Committee (ExCom) recommend approval to the Board of Directors (BOD) to approve the CEBD Rules of the BOD (ROB) as shown in ATTACHMENT B.
3 – 3	The CEBD requests the BOD ExCom to approve the CEBD Budget for February 1, 2025, through June 30, 2025, in the amount of $1,4111,000, as shown in ATTACHMENT C, with a reallocation of the original budget savings of $1,122,355 and a new request of $288,645.
4 – 7	ExCom recommend to the BOD that the new MOU and work plan with the National Society of Black Engineers (NSBE), as shown in ATTACHMENT E, be approved.
5 – 8	ExCom recommend to the BOD that the MOU and work plan renewal with the Association of Physical Plant Administrators (APPA) be approved as shown in ATTACHMENT F.
6 - 8	ExCom recommend to the BOD that the MOU and work plan renewal with AABC/ACG/EMA (Associated Air Balance Council/Energy Management Association/AABC Commissioning Group) be approved as shown in ATTACHMENT G.
7 - 8	ExCom recommend to the BOD that the MOU renewal with REHVA (Federation of European Heating, Ventilation and Air Conditioning Associations) be approved as shown in ATTACHMENT H.
8 - 10	ExCom recommend to the BOD that the AI policy, as shown in ATTACHMENT I, be adopted by Society.

ACTION ITEMS

Executive Committee Meeting

February 8 and 12, 2025

No. - Pg.	Responsibility	Summary of Action	Status	Goal Date
1 – 2	McQuade	Work with UNEP and Jim Curlin to determine how to identify ASHRAE members who have appropriate technical expertise to participate in UNEP TACs. (Assigned January 20, 2024)	**Ongoing**	
2 – 2	Sekhar	Work with Pub and Ed Council to investigate how Society can offer trainings on A2L refrigerants and the future of A3 refrigerants. (Assigned January 24, 2024)	**Ongoing**	
3 – 2	Seymour	Report to ExCom on strategies to make topical conferences profitable. (Assigned March 14-16, 2024)	**Ongoing**	
4 – 2	Knight, McQuade and Maston	Develop a Presidential travel plan for the next several Society Years. (Assigned March 14-16, 2024)	**Ongoing**	
5 – 2	Staff	Reach out to ADS (Association for Dental Safety) and discuss how to engage them in our standards process. (Assigned June 22, 2024)	**Ongoing**	
6 - 2	Maston	Determine next steps related to the Strategic Advisory Panel and provide recommendations to ExCom. (Assigned June 22, 2024)	**Ongoing**	Orlando
7 – 7	Littleton	Draft the 'Future of ASHRAE Conferences Ad Hoc' charge for ExCom's review at the March meeting.		March 2025
8 – 7	McQuade	Follow up with Mr. Wentz on the IFHE work plan for review at the March ExCom meeting.		March 2025
9 – 9	Rakheja	Work with GTIC to strategically review the list of possible MOUs in the global south and make recommendations on which organizations Society should enter into an MOU with.		
10 – 11	Staff	Send the R3C report to all those involved in last year's industry roundtables.		

MINUTES
EXECUTIVE COMMITTEE MEETING
February 8 and 12, 2025

MEMBERS PRESENT:
Dennis Knight, President
Bill McQuade, President-Elect
Sarah Maston, Treasurer
Devin Abellon, Vice President
Wade Conlan, Vice President
Ken Fulk, Vice President
Chandra Sekhar, Vice President
Jeff Littleton, Secretary

GUESTS PRESENT:
Charles Bertuch
Christopher Hofland
Joe Sanders
Tim Wentz
Darryl Boyce
Patrick Marks
Doug Cochrane
Sun Woong Baek
Christine Miner
Richie Mittal
Bryan Holcomb
Erica Powell
Hande Akten Col
Tom Phoenix
Ginger Scoggins
Trent Hunt
Matthew Martinez
Jonathan Alo
Peter Ernzen
Dunstan Macauley
Joel Deddens
Kent Peterson
Patrick Ryan
Sierra Spitulski
Genevieve Lussier
Juliana Velez
Buzz Wright
Susanna Hanson
Bassel Anbari
Stephanie Kunkel
Mick Schwedler
Sherry Abbott-Adkins
Steven Gerazounis
Cheng Wee Leong

STAFF PRESENT:
Candace Denton, Sr. Manager - Board Services
Chandrias Jolly, Manager - Board Services
Lizzy Seymour – Director – Member Services
Vanita Gupta – Director - Marketing
Mark Owen, Director - Publications & Education
Kirstin Pilot, Director - Development
Stephanie Reiniche, Director - Technology
Alice Yates, Director - Government Affairs
Craig Wright, Director of Finance
Savanna Smith, Scholarship Coord./Exec. Asst.

CALL TO ORDER

The meeting was called to order at 8:30 am.

VALUE STATEMENT

Mr. Knight read the value statement and advised that the full code of ethics, core values and diversity statements were available online.

ROLL CALL/INTRODUCTIONS

Self-introductions were conducted; members, guests, and staff were in attendance as noted above.

REVIEW OF MEETING AGENDA

Mr. Knight reviewed the meeting agenda. He advised that the Headquarters Ad Hoc Report would be discussed in Executive Session. There were no other changes or additions.

APPROVAL OF MINUTES

Mr. Maston moved and Mr. Conlan seconded that

1. The minutes from the November 4, 2024 open session ExCom meeting be approved.

MOTION 1 PASSED (Unanimous voice vote, CNV).

REVIEW OF ACTION ITEMS

Action items 1, 3, 7-9, 11, and 13-15 were reported as complete. All other action items were reported as ongoing. **AI 1-6**

TREASURER'S REPORT

TREASURER'S PRESENTATION

Ms. Maston presented. The full presentation was shared with ExCom via email ahead of the meeting and is included in ATTACHMENT A.

Mr. McQuade asked why depreciation was different than anticipated. Mr. Wright advised that assets last year were fully depreciated but were missed, so this year's budget was updated.

MAJOR VARIATIONS AND FINANCIAL STATEMENTS – DECEMBER 2024

Ms. Maston reported that major variations and financial statements were attached to the agenda for ExCom's review.

REPORTS OF BODIES REPORTING TO EXCOM

CEBD

Mr. McQuade moved that

2. The Center of Excellence for Building Decarbonization (CEBD) requests the Board of Directors' Executive Committee (ExCom) recommend approval to the Board of Directors (BOD) to approve the CEBD Rules of the BOD (ROB) as shown in ATTACHMENT B.

Mr. McQuade read from the background, and it was shown on screen.

Mr. Peterson reported that the proposed changes had been reviewed by SRC and their provided comments were addressed.

MOTION 2 PASSED (Unanimous Voice Vote, CNV).

Mr. McQuade moved that

3. The CEBD requests the BOD ExCom to approve the CEBD Budget for February 1, 2025, through June 30, 2025, in the amount of $1,4111,000, as shown in ATTACHMENT C, with a reallocation of the original budget savings of $1,122,355 and a new request of $288,645.

Mr. McQuade read from the background, and it was shown on screen. He reported that ATTACHMENT D includes the list of items originally presented to the BOD for the CEBD's initial funding. About 90% of items in black and blue have been completed.

It was asked why there was such a large original budget savings. Mr. Peterson reviewed the items that were complete or in process. He reported that in many cases, ASHRAE volunteers gave their time and paid contractors were not needed. DOE funding was also received on multiple initiatives. He expressed that when volunteers and staff align on a common vision, it is amazing what can be done.

Mr. Peterson continued that there was great coordination between CEBD and Tech Council. Happy to say that we are doing great. Additional funding is being requested to keep CEBD projects moving forward.

Mr. McQuade reviewed CEBD's suggestion for additional funding sources; the recommendation was shown on screen and attached to the agenda. He reported that the recommendations were presented to Finance Committee and there were no concerns or pushback.

Mr. Peterson added that the general reserve fund recommendations are for guides and the like, while those that are more research focused are recommended to come from the research budget.

MOTION 3 PASSED (Unanimous Voice Vote, CNV).

Mr. Peterson expressed his appreciation for CEBD volunteers and staff; he reported that the group generates a lot of activity and requires a lot of coordination. He stated that things were going well and he lauded the team.

He suggested that liaison appointments may want to be made for more than one year. The final decision lies with the Councils, but this is CEBD's recommendation.

Mr. McQuade stated that Mr. Peterson had done a great job in looking for partners outside of Society. To ensure coordination throughout the industry, he encouraged CEBD to continue to look for partners in terms of both funding and work.

Mr. Knight thanked Mr. Peterson and Mr. McQuade for their report and the great work of the CEBD. He expressed that this technical information is dearly needed by the industry and is a testament to your leadership and the volunteers' passion.

ASHRAE-UNEP LIAISON COMMITTEE

Mr. Wentz reported that there were no recommendations for ExCom's consideration. The full report was attached to the agenda and shown on screen.

He stated that the report was based on the 2024-25 workplan which concludes in December of this year. Approval of a new workplan will be requested at the 2026 Winter Meeting.

He reported that a proposal was submitted to the Foundation requesting funding that, if approved, would allow co-branding of UNEP publications.

Winners of Innovation Awards will be recognized at the 2025 Plenary.

There is a pilot program to link ASHRAE Chapters with UNEP National Ozone Units (NOUs). The goal of the program is to help countries that are struggling to meet guidelines set by the Montreal Protocol.

Mr. Knight stated that he attended several UNEP meetings in the past. He expressed his appreciation to Mr. Wentz for doing a great job managing the liaison committee. He also thanked Mr. Rakheja for coordinating with GTIC. He expressed his opinion that NOUs put Society, chapters, and members in front of policy makers in multiple countries; promotes Society even more as a leader in technical leadership and technical advice.

Mr. Rakheja thanked Mr. Knight and ExCom for trusting GTIC with the task. He stated that GTIC would be discussing the possibility of developing technician training at their Sunday meeting; he invited those with an opinion to attend and provide GTIC with their input. He stated that the request to develop technician training has been made multiple times from different parts of the world.

MEMBERSHIP MODEL AND BENEFITS AD HOC REPORT TO THE BOD

Mr. Fulk reported on behalf of the ad hoc. The full report was attached to the agenda and shown on screen. He reported that the ad hoc discussed at length comments regarding student advisors and fees; a compromise was reached to adjust the proposed dues rate.

He expressed his opinion that what was being proposed would be great for Society. The membership grades are greatly simplified and the ad hoc feels that it is equitable and fair. Other large international technical associations use the World Bank system to divide their dues into tiers.

He expressed his opinion that the changes will encourage and lead to membership growth and shared membership growth forecasting from the report. He reported that, based on current membership numbers, the first year would result in a $200,000 deficit; but even when using the slow growth projections, Society would quickly break even.

He stated that the proposed elimination of Associate Member grade would open the door for more people to be Members, including those that may not be engineers but are in the industry. The elimination of this grade also would allow more Members to be involved at the Chapter and Society levels.

He stated that a change has been requested and discussed for quite some time. He suggested that the recommendations should be implemented and reevaluated after two full years of implementation.

The floor was opened for discussion and a summary of that discussion is below:

The Membership Model Ad Hoc was also charged with addressing Standards revenue.

Mr. Fulk expressed his opinion that the charge was addressed in the report.

This is the second MMAH that was organized, and the work of these groups always focuses on restructuring dues. The purpose of this group was to take a more holistic approach to address why more engineers are not joining ASHRAE. Where are the strong growth projections coming from?

Mr. Fulk responded that projections were based partly on outreach to middle school and high school students to expose them to the industry, leading to increased membership.

Some of that outreach is already happening with student forums, modernizing Society's education and training platforms, and new messaging to highlight Society's impact on the industry.

How do we get engineers to attend chapter meetings and join ASHRAE? This is an issue at nearly every chapter.

This ad hoc did not have the resources to address all possible issues. Feel that the group hit the mark to address sentiments towards the current dues model.

Agree with the proposed dues restructure but do not necessarily agree with the growth projections.

The new model would remove some of the barriers that have been potentially limiting membership growth by making membership open to anyone that is interested in the built environment. On average, about 100 volunteers are not allowed to volunteer because they are Affiliate Members. The proposed changes would also give access to Handbook Online to students.

Suggest that Society investigate a holistic approach to our value proposition.

Access to Handbook Online will help address recruitment and retention.

Echoed concern with revenue projections. Society has been modifying dues for quite some time and membership numbers have remained the same. If membership revenue is lower than the cost to service those members, gaining more members will create more of a deficit. If membership rates are being discounted, are membership benefits being adjusted to make up for that difference in cost? If not, then where is the additional revenue coming from? Must make sure that we are thinking in terms of providing more value to the members as opposed to currency and cost. Would like to see more as it relates to member proposition and member value and how those are tailored for members throughout the world.

Mr. Fulk stated that the group felt that access to Handbook Online was a key to retaining members; when dues lapse, access to Handbook Online lapses. Believe that the four-tier system will facilitate growth in other parts of the world, especially where there are significant financial barriers to joining.

Society needs to exceed billable hours in order to encourage and grow participation and membership. To truly make a difference, have to address billable hours versus ASHRAE membership. Suggest giving every member the tools to have that conversation and be able to address rebuttals.

When I speak to firms, don't address billable hours; instead, we discuss overhead and how employees come back better employees after an ASHRAE meeting, conference, or course.

See this as an evolution – the recommendations greatly simplify the dues structure. Expressed hope that the proposal would be looked upon favorably.

Society needs robust membership in tiers three and four because that is where the new buildings are going to be built.

Suggested that programs are the answer to membership growth and engagement. The chapters often need help from Society in this area.

This year, chapters were encouraged to move away from vendor training in favor of local firms and engineers presenting topics relevant to the local area and local workforce.

Mr. Knight thanked the group for the great discussion. He thanked Mr. Fulk and the ad hoc for their good work and great report. He stated that he was looking forward to discussion at the Sunday BOD meeting.

FUTURE OF ASHRAE CONFERENCES

Mr. Littleton stated that the Meetings team did a tremendous amount of work looking at data tied to Society conferences. There is a clear data line showing that revenue from the Annual Conference is declining. He expressed that he felt strongly that changes to the nearly 50-year-old conference model needed to be made.

Ms. McHan reported that staff put a great deal of time into the report. The full report was attached to the agenda and shown on screen. She stated that the report incorporates feedback from the March BOD meeting as well as a staff brainstorming session. Ms. McHan reviewed recommendations and data from the report.

Mr. Littleton reported that Society was committed to the Annual Conference through 2028. He reported that it was becoming increasingly difficult to find hotels that are willing to bid on or accept our Annual Conference. He suggested that a scaled down Annual Conference would serve Society well. He suggested that a Presidential Ad Hoc Committee be formed to do a deep dive.

Ms. Maston stated that the current Annual Conference model was developed at a time when Society was not conducting topical conferences; since that time, topical conferences have exploded. She suggested that this was a great opportunity to highlight technical aspects of the new Strategic Plan and transition the Annual Conference to more of a topical conference.

She expressed that topical conferences allow much broader participation across the building industry. This is an opportunity to reinvent the Annual Conference and revamp marketing strategies. She stated that there is currently a stratification of membership and years of experience at the conferences and more planned strategic discussions would bring in middle management.

Mr. McQuade stated that Society has learned a lot about sponsorships from the success that topical conferences have had in that area. Agree that a group should be formed to conduct a deep dive.

Mr. Knight stated that there was a general consensus that an ad hoc should be formed.

Staff will draft the 'Future of ASHRAE Conferences Ad Hoc' charge for ExCom's review at the March meeting. **AI - 7**

MOU UPDATES

Mr. Knight reported that the group would be discussing MOUs that are ready to be signed at this meeting; all other MOU discussions would be deferred to the March ExCom meeting.

IFHE (INTERNATIONAL FEDERATION OF HEALTHCARE ENGINEERS)

Mr. Littleton reported that this was a new group that recently came to leadership's attention. He reported that the proposed new MOU could be approved at this meeting but would not be signed until a later date. He acknowledged Mr. Walt Vernon, a member of the IFHE board of directors, and thanked him for attending the meeting.

Mr. Vernon reported that IFHE represents national membership organizations in healthcare facility management around the world. The WHO reached out to IFHE and ASHRAE in parallel to pursue work and efforts to improve healthcare around the world. He expressed that IFHE is ready and eager to collaborate with ASHRAE.

Mr. McQuade suggested that a work plan be developed to ensure definitive action.

Mr. Knight stated that further discussion and vote of the IFHE MOU would be deferred to the March meeting so that a work plan could be considered at the same time as the MOU.

Mr. McQuade will follow up with Mr. Wentz on the IFHE work plan for review at the March ExCom meeting. **AI - 8**

NSBE (NATIONAL SOCIETY OF BLACK ENGINEERS)

Ms. Hanson reported that the DEI Subcommittee had been working on the proposed new MOU and work plan with NSBE. She stated that NSBE's mission was well aligned with Society. She reviewed plans for cross promotion of rates, publications, and conferences.

She reported that the MOU was ready to be signed at this meeting.

Mr. Conlan moved and Mr. McQuade seconded that

4. ExCom recommend to the BOD that the new MOU and work plan with the National Society of Black Engineers (NSBE), as shown in ATTACHMENT E, be approved.

The draft MOU and work plan were shown on screen and attached to the agenda.

MOTION 4 PASSED (Unanimous Voice Vote, CNV).

APPA (ASSOCIATION OF PHYSICAL PLANT ADMINISTRATORS)

Mr. Boyce reported that the proposed renewed MOU with APPA would include complimentary memberships to APPA liaisons.

Mr. Littleton shared his opinion that the complimentary memberships was acceptable. He advised that as the MOU was a renewal, approval was under the purview of ExCom.

Mr. Sekhar moved and it was seconded that

5. ExCom recommend to the BOD that the MOU and work plan renewal with the Association of Physical Plant Administrators (APPA) be approved as shown in ATTACHMENT F.

The revised MOU and work plan were shown on screen and was attached to the agenda.

MOTION 5 PASSED (Unanimous Voice Vote, CNV).

AABC/ACG/EMA (ASSOCIATED AIR BALANCE COUNCIL/ENERGY MANAGEMENT ASSOCIATION/AABC COMMISSIONING GROUP)

Mr. Conlan reported that the proposed would be a reaffirmation of an existing MOU and work plan.

Mr. Conlan moved and it was seconded that

6. ExCom recommend to the BOD that the MOU and work plan renewal with AABC/ACG/EMA (Associated Air Balance Council/Energy Management Association/AABC Commissioning Group) be approved as shown in ATTACHMENT G.

MOTION 6 PASSED (Unanimous Voice Vote, CNV).

REHVA (FEDERATION OF EUROPEAN HEATING, VENTILATION AND AIR CONDITIONING ASSOCIATIONS)

Mr. Littleton reported that the proposed was a renewal of an existing MOU. He reported that the President of REHVA would be in Orlando and available for a signing, if approved. He reported that he did not have any major concerns with the proposed.

Mr. McQuade moved and Mr. Fulk seconded that

7. ExCom recommend to the BOD that the MOU renewal with REHVA (Federation of European Heating, Ventilation and Air Conditioning Associations) be approved as shown in ATTACHMENT H.

MOTION 7 PASSED (Unanimous Voice Vote, CNV).

ASHE (AMERICAN SOCIETY FOR HEALTH CARE ENGINEERING) WORK PLAN

Mr. Littleton reported that a new work plan with ASHE had been developed. The MOU with ASHE was previously approved by ExCom and the BOD.

The revised work plan was shown on screen and attached to the agenda.

There was consensus that a motion to approve the new work plan was not necessary. The ASHE work plan was acknowledged and would be reported to the BOD.

SOCIETY INTERACTIONS WITH THE GLOBAL SOUTH AND GTIC'S ROLE

Mr. Littleton reported that Mr. Rakheja and Mr. Leong compiled a list of organizations that Society could work with in the global south. Since then, conversations have continued as the global south is an area where Society would like to have more influence.

He suggested that there may be an opportunity for GTIC to assist in moving relationships and collaborations forward. He suggested that it may be appropriate for ExCom to ask GTIC to review the list of global south organizations and make recommendations.

Mr. Knight stated that this may be an opportunity for ASHRAE Members to be engaged with local engineers and code officials in the global south. He asked if GTIC was ready for the task.

Mr. Rakheja agreed that GTIC could be effective in the global south and would be happy to help as directed by ExCom.

Mr. Rakheja will work with GTIC to strategically review the list of possible MOUs in the global south and make recommendations on which organizations Society should enter into an MOU with. **AI - 9**

CARBON OFFSET PURCHASES

Mr. Littleton reported that the carbon offset purchases reported were for travel for him and the senior officers. He reported that staff reviews travel and determines if companions attended to fully account for carbon offset purchases needed. This initiative began during Ms. Scoggins' Presidential Year; ExCom agreed that it would be continued through this Society Year. Should these purchases be continued next Society Year?

The full report was shown on screen and attached to the agenda.

Ms. Seymour reported that offsets were also purchased for the DL program. She was unsure how the budgeted $10,000 would be used to offset carbon emissions moving forward.

There was consensus that scope 3 emissions and carbon offset purchases would be added to the March ExCom agenda for further discussion and consideration.

DOE RECI GRANT PROGRESS UPDATE

Mr. Littleton reported that Society's hired grant consultant advised that it is best practice to provide organizational leadership with regular updates on the status of grants. He reported that the purpose of the presentation, attached to the agenda, was to provide a snapshot of work performed thus far, including year-to-date spending.

He reported that there are some unknowns related to Society's grant and recent executive orders from the new administration. Society's hired subcontractors have indicated that they are not doing new work on any RECI grants until the direction of the new administration is clear.

It was suggested that the report be attached as an information item on the ExCom report to the BOD. There was no objection to this suggestion.

DRAFT AI POLICY

Mr. Littleton reported that a draft AI policy was attached to the agenda for ExCom's review and consideration. He reported that the draft policy addressed most of what the BOD and ExCom discussed recently. He reported that Society's legal counsel advised that it is best practice to not record meetings using audio recordings or AI bots.

Mr. Sekhar moved and Mr. Abellon seconded that

8. ExCom recommend to the BOD that the AI policy, as shown in ATTACHMENT I, be adopted by Society.

The floor was opened for discussion and a summary of that discussion is below:

Who played devil's advocate to ensure that there are no gaps in the draft policy?

Mr. Sekhar stated that he was convinced that the policy was ready to move forward; expressed that he was satisfied that concerns raised during ExCom's conference call were addressed in the policy.

Feel that Society needs guidance now as opposed to later.

Have heard that Chapters need guidance as well and feel that this policy would provide guidance on where AI can be appropriately used.

Don't see the policy addressing the use of AI and use of published tools, or as a central value to the proposition. Is that permitted under this policy?

Mr. Littleton reported that policy states that Society wants to take advantage of AI tools. The policy leaves the door open for Society to develop new initiatives, such as building an AI tool that has boundaries around ASHRAE materials.

MOTION 8 PASSED (Unanimous Voice Vote, CNV).

ROUNDTABLE REPORTS REVIEW

Mr. Abellon reported that industry roundtable discussions have been conducted at various CRCs. This opportunity has been used to engage with key stakeholders throughout the industry. A wealth of information is collected at the roundtables. What do we do with that information? How do we present that information in a way that is beneficial for the councils and committees? He reported that the R3C was formed to address these questions.

Mr. Abellon reported on behalf of the R3C. The report was shown on screen and is included in ATTACHMENT J. Included in the report are recommendations to the councils on items to be moved forward and incorporated into council MOUs. He stated that the goal was to make a living document that is updated on an annual basis.

Mr. Knight thanked Mr. Abellon and the R3C for their work. He expressed that the provided report and recommendations were a big step toward getting information from the roundtables through a pipeline to the councils in an efficient manner and providing guidance on action.

Mr. McQuade suggested that members of ExCom be responsible for incorporating information from the report into council MBOs.

It was confirmed that Society was committed to conducting roundtables at 2025 CRCs.

Mr. Abellon clarified that the R3C would meet to ensure consistency with roundtable questions and that they would be developed in conjunction with the President and President-Elect.

Mr. Littleton reported that feedback has been received that some Regions are experiencing difficulties conducting roundtables at the CRCs.

Mr. Knight suggested that guidance to the Regions should be concise and straightforward. He stated that having a senior officer at the CRCs would be helpful to the Regions as well.

Mr. McQuade suggested that those that participated in the roundtables needed to see the report as well, to complete the feedback loop.

Staff will send the R3C report to all those involved in last year's industry roundtables. **AI - 10**

It was suggested that the roundtables did not need to take place at CRCs.

Mr. Holcomb suggested that the industry roundtable feedback be included in the senior officer report that is made at CRCs. He also noted that guidelines for industry roundtables had not been added to the MCO.

Mr. Rakheja stated that, as the general chair for the Region XV CRC, he found that the roundtables were a good interaction point for senior officers attending the CRC. It also provided an opportunity for invited industry leaders to join ASHRAE and/or have their staff join. He expressed his opinion that providing feedback to the industry leaders would help to build the Region's relationship with those firms and individuals.

INFORMATION ITEMS

ACEC-CAMEE LIAISON REPORT

Mr. Austin reported. The full report was attached to the agenda and shown on screen.

He reported that things continue to move forward with the MOU and work plan; specifically, looking at ways for the organizations to coordinate marketing efforts. There are also plans to have ACEC-CAMEE present on workforce development at the 2025 Annual Conference.

Mr. Austin will be presenting on decarbonization at the ACEC-CAMEE meeting in the fall.

NBI LIAISON REPORT

Mr. Schwedler reported. The full report was attached to the agenda and shown on screen.

He reported that NBI had not named a new CEO yet. Mr. Schwedler will be meeting with NBI staff at this conference.

Ms. Reiniche reported that Society will not be participating in the NBI *Getting to Zero* collaborative. In the past, there were over 20 organizations that participated; this year there were only four. She

reported that staff has informed NBI that ASHRAE participation will be paused until a path forward is clearer.

Mr. Schwedler asked the group to reach out to him with any comments or questions.

LETTER BALLOT RESULTS – CHAPTER DECARB CHALLENGE ADDITIONAL FUNDING

Mr. Knight reported that ExCom conducted a letter ballot in between meetings. The ballot and the final vote, attached to the agenda, were provided as an information item and would be reported to the BOD.

WORKFORCE DEVELOPMENT SUMMIT REPORT

Mr. Knight reported that every summit attendee had been sent a personal letter in recognition of their contributions. He reported that the full report was attached to the agenda and had been provided to all the councils and committees.

UPCOMING MEETINGS

Mr. Knight reviewed upcoming meetings and CRC schedules.

EXECUTIVE SESSION

Executive session was called at 11:42 am.

Open session reconvened at 1:00 pm.

Mr. Knight advised that the meeting start time would be changed to 8:00 am on February 12, 2025.

Open session recessed at 1:00 pm on February 8, 2025.

Open session reconvened at 8:00 am on February 12, 2025.

Mr. Knight stated that this meeting was a continuation of the February 8th meeting.

VALUE STATEMENT

Mr. Knight read the value statement.

ROLL CALL/INTRODUCTIONS

Members and guests introduced themselves. All members were in attendance.

REVIEW OF MEETING AGENDA

Mr. Knight reviewed remaining agenda items. *BOD Orientation and Training* was added to 'New Business.'

REPORTS OF BODIES REPORTING TO EXCOM

PEAC

Mr. McQuade reported that the work of PEAC was going well. He reported that initiatives were reviewed and five of the six had seen significant progress.

Mr. McQuade presented a "second cut" of his Society Theme presentation and received great feedback from the group.

Mr. Knight thanked Mr. McQuade for the report and wished him luck with his trial run presentations at spring CRCs.

NEW BUSINESS

BOD ORIENTATION AND TRAINING

Ms. Maston stated that, historically, the incoming Treasurer was responsible for conducting BOD Orientation. She stated that the incoming Treasurer was advised that he did not need to attend BOD Orientation.

Also, historically, BOD Orientation has been paired with the Spring Appointments meeting but this year, the schedule is different.

She expressed that she did not think about it at the time, but organizing orientation as the incoming Treasurer gave her the opportunity to get to know new BOD members.

Is there an opportunity to conduct BOD Orientation just before the Annual Conference? She suggested that this schedule would prevent the need for additional travel for incoming officers and directors.

The floor was opened for discussion. A summary of that discussion is below:

> *Typically, staff directors are involved in BOD Orientation as well. The week before the Annual Conference may not be ideal.*
>
> *Would be challenging from a staff perspective, but we will do what is best for the volunteers. A big component to orientation is the team building exercise and it would be more challenging to do that on the eve of the Annual Conference. See pushes and pulls in both directions. Is it excessive for six ExCom members to conduct training for eight to nine incoming BOD members?*
>
> *Like the idea of reducing travel and the ask on volunteers. There is a benefit to having time between orientation and the Annual Conference.*
>
> *Suggested that members of ExCom could continue the discussion in the coming weeks.*
>
> *As a young BOD member, you feel that you are drinking from the firehose. Like the proposed schedule of training in May.*

No final decision was made. There was consensus that members of ExCom would continue the discussion in the coming weeks.

EXECUTIVE SESSION

Executive session was called at 8:15 am.

Open session reconvened at 8:37 am.

Mr. Knight stated that it had been a wonderful and exciting meeting. He expressed appreciation to ExCom for dedicating a week to ASHRAE work.

ADJOURNMENT

The meeting adjourned at 8:37 am.

Jeff Littleton

Jeff H. Littleton, Secretary

ATTACHMENTS:

A. Treasurer's Presentation – Winter 2025
B. Proposed CEBD ROB
C. Proposed CEBD Budget
D. TFBD Plan Progress
E. Proposed New NSBE MOU and Work Plan
F. Proposed Renewed APPA MOU and Work Plan
G. Proposed Renewed AABC/ACG/EMA MOU and Work Plan
H. Proposed Renewed REHVA MOU
I. Proposed AI Policy
J. Industry Roundtable Review, Findings, Critical Issues, and Ideas for Councils

Financial Update

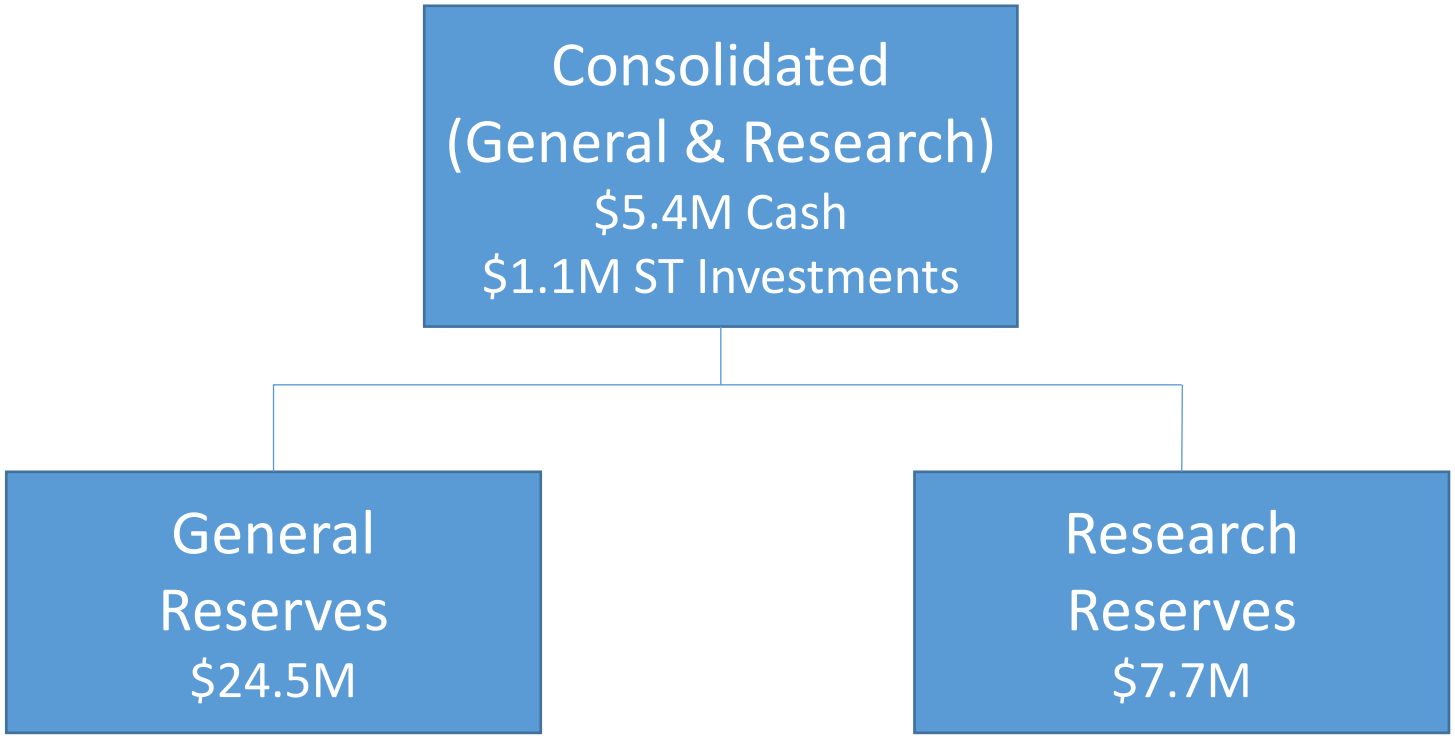
Board of Directors

Sarah E. Maston, Treasurer
February 9, 2025
Winter Meeting – Orlando

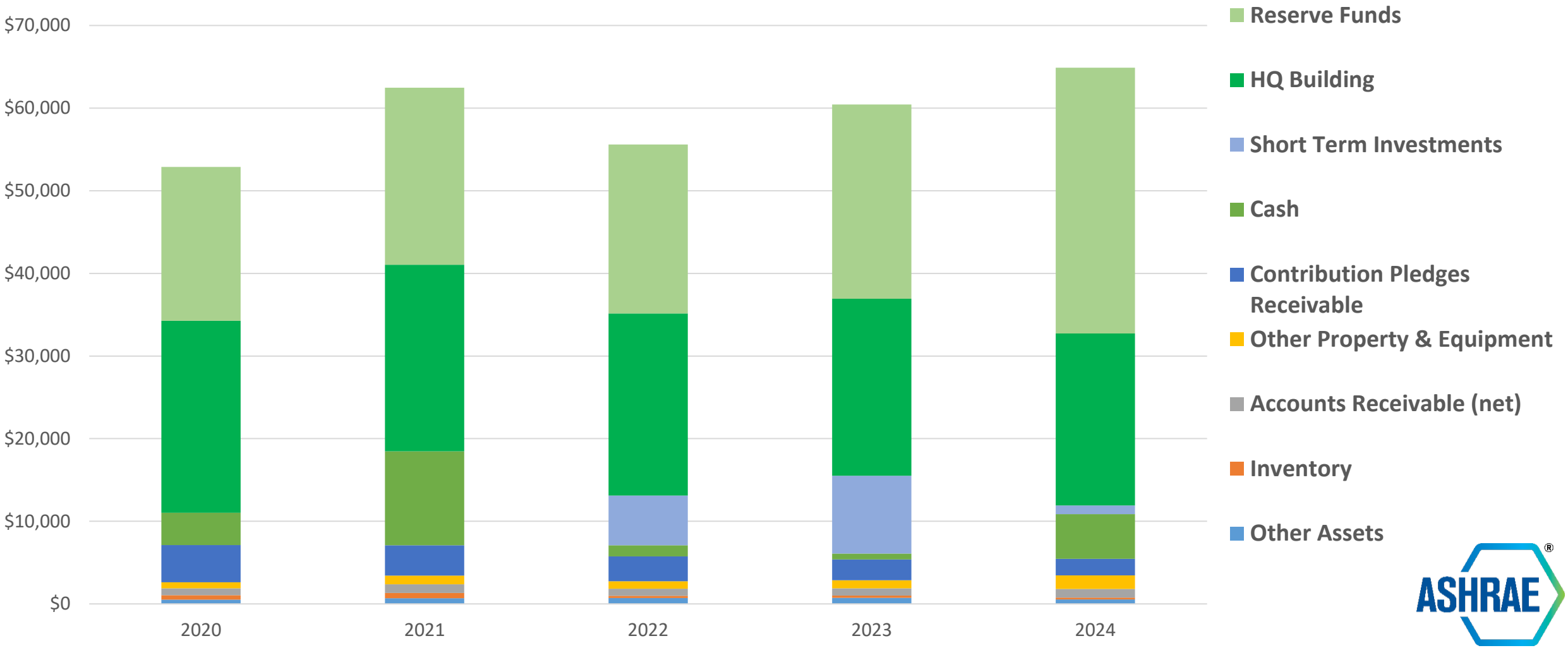
Financial Status

As of December 31, 2024

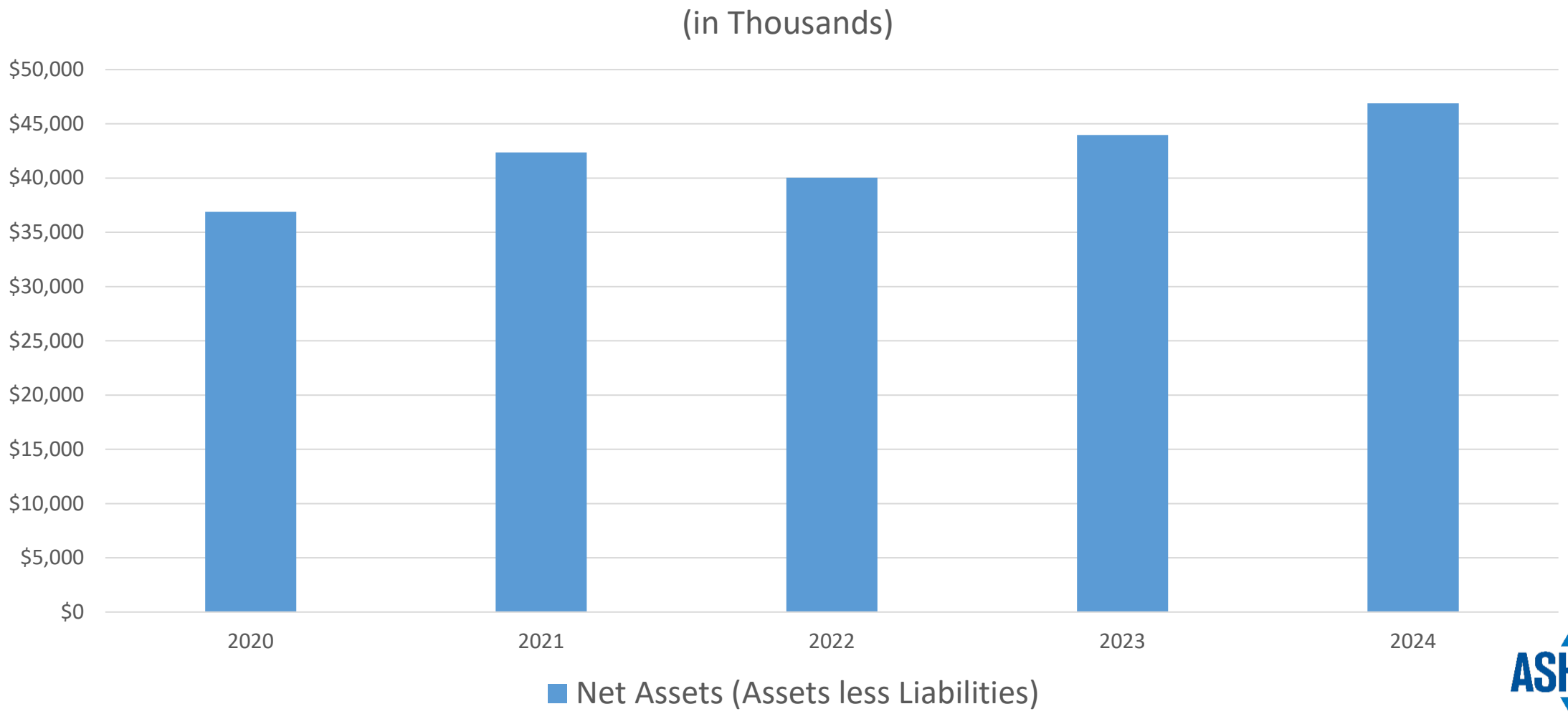
Fund Structure – as of 12/31/24



Consolidated Funds
Composition of Assets
As of December 31 (in Thousands)



Consolidated Funds
Cumulative Net Assets
As of December 31



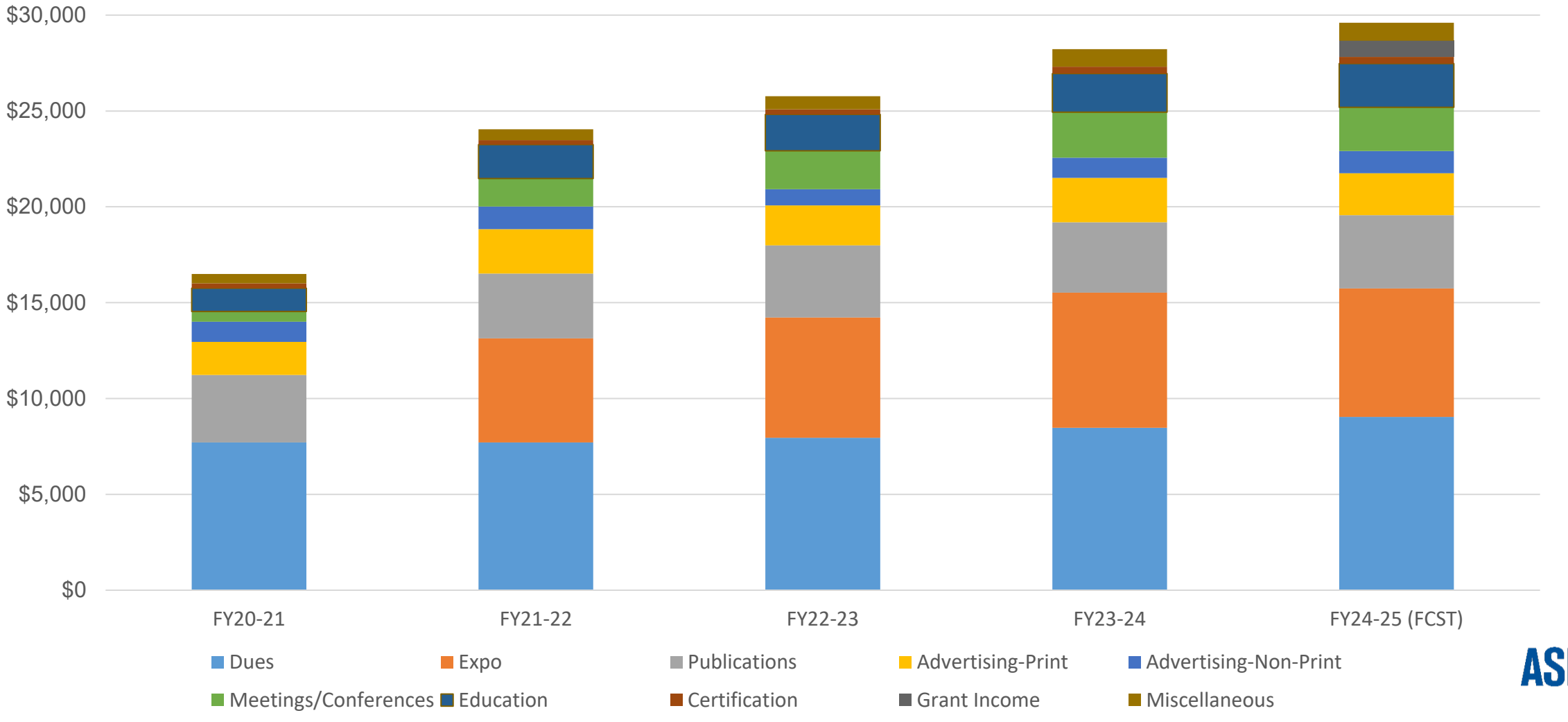
General Fund Revenue and Expenses

Forecast vs. Budget
Society Year 2024-25

(in Thousands)		SY 24-25 Forecast	SY 24-25 Budget
Revenues		$28,635.8	$28.449.8
Expenses		$28,586.7	$28,440.7
Surplus/(Deficit)		$49.1	$9.1

Revenue Trends – General Fund

(in Thousands)



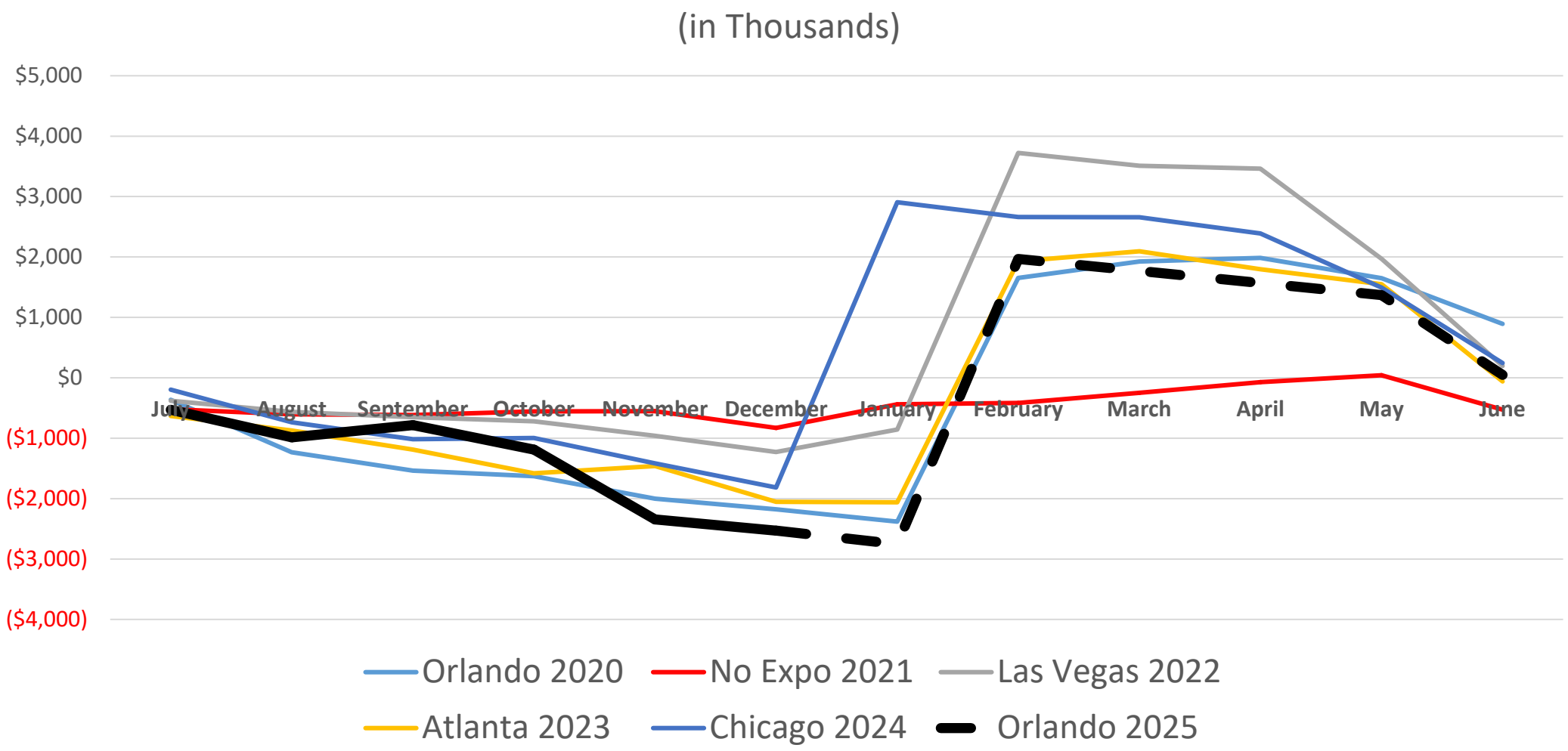
Major Variations (Forecast vs. Budget)
Revenue - General Fund

	12 Months Ended				
	Forecast FY 2025	Budget FY 2025	Difference $$	Difference %	Explanation
31 Membership Dues	$9,044.3	$8,844.3	$ 200.0	2%	Actual Dues are trending higher through December
32 Publication Sales	3,818.6	4,063.6	(245.0)	-6%	New editions of major standards (90.1, 62.1) won't be published until late 2025 and the 2nd edition of Handbook of Smoke Control Engineering was delayed.
34 Advertising Income - Print	2,192.4	2,343.0	(150.6)	-6%	Sales were very slow starting the fiscal year but have picked up since the election. Advertising sales since the pandemic continue to reshape themselves annually. The Journal continues to be strong which will hopefully somewhat offset the early part of the fiscal year.
34 Advertising Income - Non-Print	1,150.0	1,250.0	(100.0)	-8%	Webinar Ad sales are down dramatically from last fiscal year. The webinar features have been modified to encourage future sales along with more offerings, including ads alongside the read-only standards on the website and new topical newsletters.
35.1 Meetings/Conferences Registration	2,289.7	2,217.9	71.8	3%	Higher attendance than expected for topical conferences (Decarb and WIA)
35.2 Certification Registration	350.0	350.0	0.0	0%	
35.3 Education Registration	2,275.0	2,040.0	235.0	12%	Very strong HVAC Design Training registrations along with eLearning and In-Company/Chapter trainings.
36 Grant Income	839.2	939.2	(100.0)	-11%	Final Approval of RECI Grant wasn't approved until August 2024 (Budget assumed approval on or before 7/1/2025). Subrecipients also behind on their activities/responsibilities. DOE is currently not communicating but barring any further disruption at the Federal level, impact shouldn't be too significant.
38 Contribution Income	34.4	43.8	(9.4)	-21%	
41.1 AHR Exposition Income	6,700.0	6,500.0	200.0	3%	Original Estimate NSF - 500,000; Lastest NSF confirmation - 515,000
41.2 Contributions and Matching Gifts	(1,169.8)	(1,178.0)	8.2	-1%	
41.3 Exposition Income - Other Countries	0.0	0.0	0.0	0%	No AHR Expo Mexico in FY24-25
44 Reserve Transfers	171.1	130.0	41.1	32%	CEBD and TFBD Reserve Transfers (approved by BOD)
46 Miscellaneous Income	940.9	906.0	34.9	4%	Actual sponsorship income for Topical Meetings more than budgeted
TOTAL REVENUES	**28,635.8**	**28,449.8**			

Major Variations (Forecast vs. Budget)
Expenses - General Fund

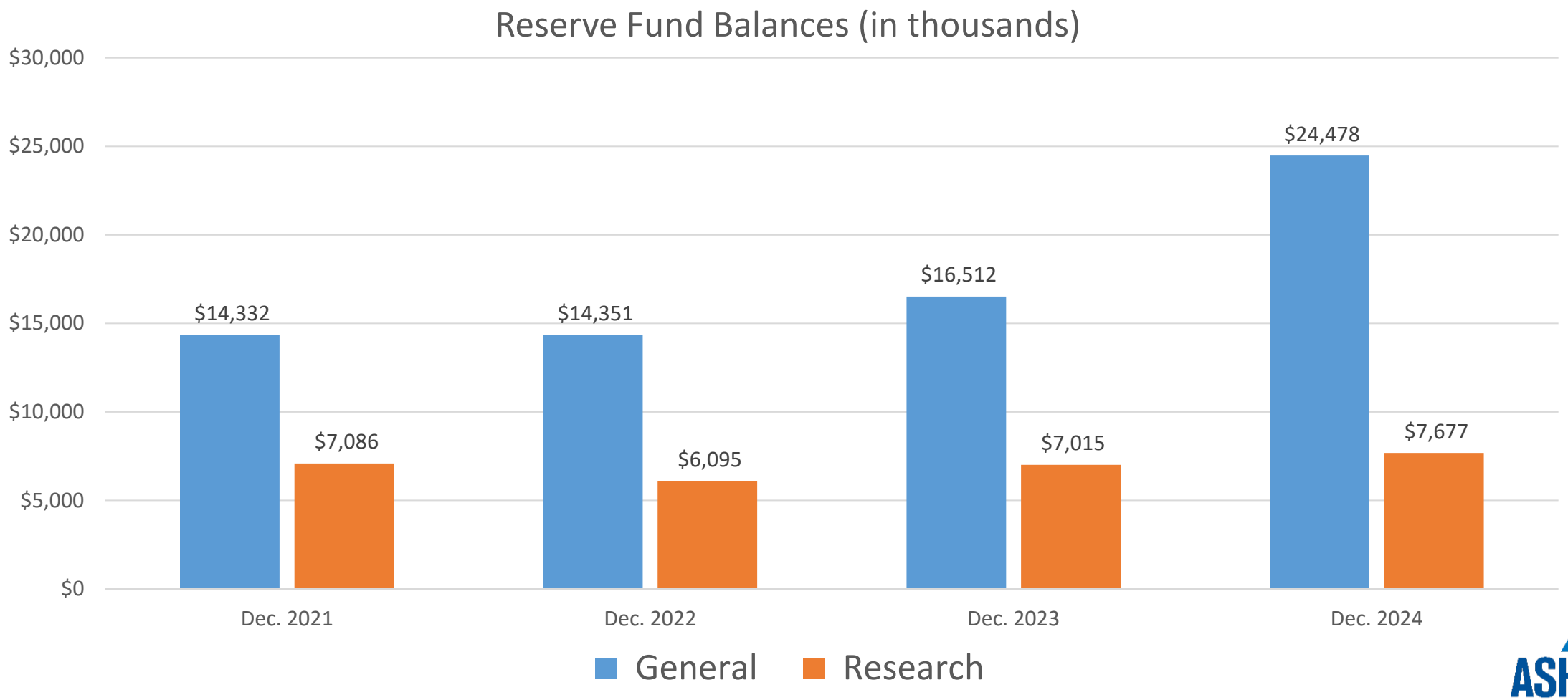
	12 Months Ended				
	Forecast FY 2025	Budget FY 2025	Difference $$	Difference %	Explanation
51 Salaries	10,768.8	10,768.8	0.0	0%	
52 Payroll Taxes, Benefits, Personnel	3,371.9	3,371.9	0.0	0%	
61 Publishing	1,325.4	1,273.8	51.6	4%	
62 Promotion (All Depts)	1,278.7	1,286.7	(8.0)	-1%	
64 Meetings/Conferences	2,725.6	2,644.9	80.7	3%	Topical Meeting Costs higher due primarily to greater than expected attendance
64 Education Courses/Trainings	700.5	700.5	0.0	0%	
66 Travel	2,261.8	2,247.4	14.4	1%	
68 Awards, Certif, Logo Cost of Goods Sold	131.1	140.6	(9.5)	-7%	
71 Research Projects & Grants	174.7	174.7	0.0	0%	
73 Special Projects	0.0	0.0	0.0	100%	
76 Public Relations	70.5	70.5	0.0	0%	
78 Occupancy & Insurance	928.1	912.2	15.9	2%	
82 Office Expense and Organizational Dues	1,492.5	1,432.6	59.9	4%	Postage expenses higher than budgeted.
84 Outside Services	2,771.9	2,764.0	7.9	0%	
88 Other Expenses	668.3	653.8	14.5	2%	
90 Depreciation	816.3	897.7	(81.4)	-9%	Greater number of assets fully depreciated than budgeted
91 Allocation of Overhead & BOD	(899.4)	(899.4)			
TOTAL EXPENSES	**28,586.7**	**28,440.7**			

Cumulative Net Revenue and Expenses (General Fund)



Investments

Investments



Questions?

2.413 CENTER OF EXCELLENCE FOR BUILDING DECARBONIZATION

2.413.001 SCOPE AND PURPOSE

The Center of Excellence for Building Decarbonization (CEBD) is focused on strategy, thought-leadership, industry collaboration, and public advocacy related to building decarbonization. The CEBD works with ASHRAE councils and committees that will provide operational execution of decarbonization activities.

The CEBD defines ASHRAE's strategy/roadmap for decarbonization. It will define the annual priority of all of ASHRAE's decarbonization projects aligned with that strategy and will work with ASHRAE Councils and subcommittees, to request/secure the funding to accomplish those projects from the Executive Committee. ASHRAE Councils and their subcommittees, standing committees, and technical committees will manage the funded projects.

2.413.002 MEMBERSHIP

2.413.002.1 Composition

The members of this committee shall be as follows:

A. Eight (8) voting members, the Chair (voting member) and the Vice Chair (voting member) for a total of ten (10) voting members.

B. Non-voting members include the Treasurer of the Society, who shall serve as Coordinating Officer, and a liaison appointed from each of the Councils (Members Council, Technology Council and Publishing and Education Council), and up to three (3) members of other organizations collaborating with the CEBD.

2.413.002.2 Qualifications

A. The Chair and Vice Chair shall hold the grade of Full Member or higher in the Society.

B. Voting members of the committee shall hold an Associate Grade or higher in the Society.

C. Liaisons from the Councils must be members of the Council they represent.

2.413.002.3 Term of Service

The term of service is intended to be one (1) year for the Chair, one (1) year for the Vice Chair and two (2) years for other voting members, subject to ROB 3.300 Election and Appointment Procedures.

2.413.003 OPERATION

2.413.003.1 Primary Responsibilities

The CEBD will take a leading role in strategic and operational activities related to building decarbonization. The following is a summary of these primary activities.

A. Strategy. Provide strategic direction for ASHRAE building decarbonization activities and work with the Planning Committee to incorporate appropriate goals into the Society strategic plan. ASHRAE's building decarbonization strategy shall be updated annually. Develop, prioritize, lead and/or participate in strategic initiatives, generally with partner organizations, that accelerate and advance building decarbonization on a global basis.

B. Thought Leadership. Monitor future issues and trends and publicize ASHRAE's global decarbonization work to establish ASHRAE's leadership position in partnership with ASHRAE Marketing.

C. Collaboration. Coordinate joint initiatives, events, and projects with other organizations whose work complements ASHRAE's building decarbonization activities.

D. Public Advocacy. Work with the Government Affairs Committee to provide reliable and scientifically based technical information on decarbonization to policymakers, media, and the public.

2.413.003.2 Supporting Activities

The CEBD shall take a supporting role in a number of operational activities and may lead an operational activity if it so chooses. Where the CEBD takes a supporting role, these activities shall be led by one or more relevant councils or committees across the global ASHRAE organization. These activities shall be coordinated by ASHRAE staff, with assistance provided by CEBD members as needed. The following is a summary of these activities.

A. Technical Resources. Expedite the delivery of technical resources that help design engineers and other industry professionals deliver and operate low-carbon buildings. Develop additional technical resources, system design, and operations guides related to building decarbonization.

B. Technical Review. Review technical content related to building decarbonization submitted to ASHRAE for comment and approval.

C. Standards Coordination. Coordination of ASHRAE and other industry standards for consistency in decarbonization related terminology, definitions and guidance.

D. Training Development. Develop on-demand and in-person building decarbonization related training seminar materials for society and chapter level audiences.

E. Resource Internationalization. Tailor existing technical resources and training materials for application outside of the United States and Canada.

F. Member Engagement. Encourage ASHRAE membership to embrace decarbonization-related practices and provide appropriate opportunities for volunteer engagement.

G. Development. Work with the Development Committee to help secure funding from industry partners, foundations, governments, and other external sources for the activities of the CEBD.

2.413.004 STRATEGIC PLAN

2.413.004.1 The committee shall develop procedures in coordination with the Planning Committee for recommending updates to the ASHRAE Strategic Plan and Research Strategic Plan on a continuous basis.

2.413.004.2 At a minimum, the committee shall submit a report or roadmap to the Executive Committee prior to the Annual Meeting that includes the status of each activity that supports the fulfillment of the committee's assignments under the strategic plan.

2.413.004.3 Prior to each Annual Meeting, the committee shall report to the Executive Committee all recommendations for changes to the strategic plan as reported by the Councils reporting to the committee at the Annual Meeting.

CEBD Budget

February 1, 2025 - June 30, 2026

Item	Amount	Funding Request Timing		Potential Funding Souce		
		Feb-25	Jun-25	General R	Research R	Operating
CEBD Led Activities						
Projects						
Evaluating Global ASHRAE Member Needs for Building Decarbonization Education	$ 10,000	$ 10,000	$ -	$ 10,000		
Streamlined, Flexible International Building Code Framework	$ 60,000	$ 60,000	$ -	$ 60,000		
	$ 70,000	**$ 70,000**	**$ -**	**$ 70,000**	**$ -**	**$ -**
Tech Council Led Activities						
Projects						
Refrigerant Emissions Management, Tracking and Compliance	$ 270,000	$ 270,000	$ -		$ 270,000	
Update HVAC Equipment Service Life Data		$ -	$ -		$ -	
Whole Life Carbon Gap Analysis	$ 80,000	$ 80,000	$ -		$ 80,000	
Standardizing Whole Life Carbon Calculations for Building Systems	$ 250,000	$ 250,000	$ -		$ 250,000	
Whole Building/MEP Benchmarking Data Research Project	$ 150,000	$ 150,000	$ -		$ 150,000	
Decarbonization Framework for Data Centers	$ 50,000	$ 50,000	$ -	$ 50,000		
Residential Retrofits: A Summary of Existing Resources			$ -			
Decarbonization Strategies for Supermarket Industry Archetypes	$ 100,000	$ 100,000	$ -	$ 100,000		
	$ 900,000	**$ 900,000**	**$ -**	**$ 150,000**	**$ 750,000**	**$ -**
Decarbonization Standard Development						
Expediting Carbon Related Standards	$ 50,000	$ 50,000	$ -	$ 50,000		
	$ 50,000	**$ 50,000**	**$ -**	**$ 50,000**	**$ -**	**$ -**
	$ 950,000	**$ 950,000**	**$ -**	**$ 200,000**	**$ 750,000**	**$ -**

CEBD Budget

February 1, 2025 - June 30, 2026

Item	Amount	Funding Request Timing		Potential Funding Souce		
		Feb-25	Jun-25	General R	Research R	Operating
PubEd Council Led Activities						
Training & Education						
eLearning Course Adjustments	$ 10,000		$ 10,000	$ 10,000		
Heat Pump Application and Operation Course	$ 20,000		$ 20,000	$ 20,000		
Building Decarbonization Retrofits for Existing Buildings	$ 20,000		$ 20,000	$ 20,000		
Building Decarbonization Audit Course	$ 20,000		$ 20,000	$ 20,000		
Whole Life Carbon ALI Course	$ 20,000		$ 20,000	$ 20,000		
Additional Course Material TBD	$ 20,000		$ 20,000	$ 20,000		
	$ 100,000	**$ -**	**$ 100,000**	**$ 100,000**	**$ -**	**$ -**
Publications						
Decarbonizing Building Thermal Systems - Version 2	$ 10,000		$ 10,000	$ 10,000		
	$ 10,000	**$ -**	**$ 10,000**	**$ 10,000**	**$ -**	**$ -**
Certification						
Decarbonization Certification			$ -			
	$ -	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	$ 110,000	**$ -**	**$ 110,000**	**$ 110,000**	**$ -**	**$ -**
Website and Marketing						
Updates to CEBD Website	$ -		$ -			
External Content Development			$ -			
	$ -	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Administrative Items						
Travel Expenses (SY 2025-2026)	$ 55,000	$ 24,500	$ 30,500			$ 55,000
Contingency	$ 226,000	$ 204,000	$ 22,000	$ 76,000	$ 150,000	$ -
Totals	**$ 1,411,000**	**$ 1,248,500**	**$ 162,500**	**$ 456,000**	**$ 900,000**	**$ 55,000**

June 2022 TFBD Plan Progress, SY 2022-23 and Beyond

☒ One set of aligned carbon definitions *(now in ASHRAE Terminology)*

Guides

☒ ASHRAE/DOE Building Performance Standards: A Technical Resource Guide
☒ ASHRAE/DOE Decarbonizing Building Thermal Systems: A How-to Guide for Heat Pump Systems and Beyond
☒ ASHRAE/ASHE Decarbonizing Hospital Buildings
☒ ASHRAE Grid-Interactive Buildings: Design and Operation Resource Guide
☒ ASHRAE/CIBSE TM65NA: Embodied Carbon in Building Services: A Calculation Methodology for North America
☒ ASHRAE Building Decarbonization Retrofits for Commercial and Multifamily Buildings
☐ ASHRAE Whole Life Carbon Guide for Building Systems *(Final publication in Apr 2025)*
☐ ASHRAE/USGBC/NYSERDA Guide for Strategic Decarbonization Planning *(95% Review Draft)*

Training

☒ Decarbonization 101 -45 minutes
☒ Enhance the Existing 3-hour ALI Courses
☒ Decarbonizing Hospital Buildings 3-hour course *(final review)*
☒ Grid Interactive Buildings for Decarbonization 3-hour course *(completed)*
☒ Heat Pump Application and Operation 3-hour course *(final review)*
☐ Building Decarbonization Retrofits for Commercial and Multifamily Buildings 3-hour course *(starting)*
☐ Building Decarbonization Audit full-day PDS
☒ Building Decarbonization Design Professional Certification
☒ Assist in Developing ASHRAE Building Decarbonization Conferences (2023 DC, 2024 Madrid, 2024 NYC)
☒ Building Decarbonization Game -45 minutes
☒ Decarbonization Retrofits -45 minutes
☒ Cold Climate Decarbonization Design -45 minutes
☒ Beneficial Electrification for Building Decarbonization -45 minutes
☒ How to Apply Whole Life Decarbonization Strategies to New Buildings -45 minutes

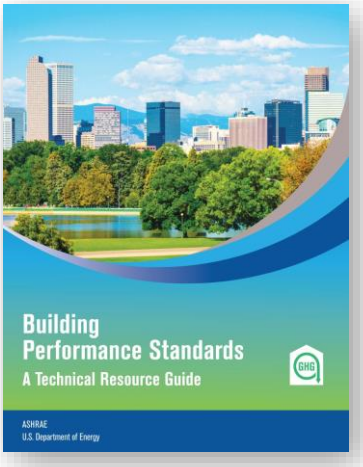
Standards

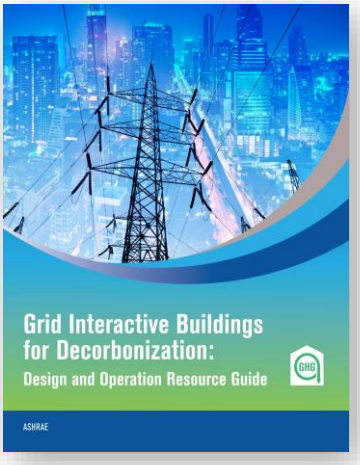
☒ ASHRAE Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings (Added informative code-intended language)
☒ ASHRAE Standard 90.2 Energy Efficient Design of Low-Rise Residential Buildings (Added code-intended language)
☒ ASHRAE Standard 100 Energy and Emissions Building Performance Standard for Existing Buildings
☒ ASHRAE Standard 211 Commercial Building Energy Audits
☒ ASHRAE/ICC Standard 240P Quantification of Life Cycle Greenhouse Gas Emissions of Buildings
☒ ASHRAE Standard 242P Standard Method for Calculation of Building Operational Greenhouse Gas Emissions
☒ ASHRAE Standard 244P Sustainability Assessment for Mechanical, Electrical, and Plumbing Products
☒ Expediting other carbon-related standards

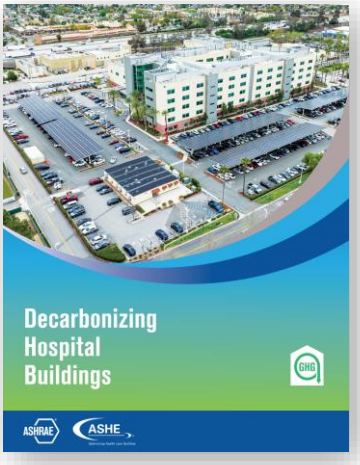
Outreach/Collaboration

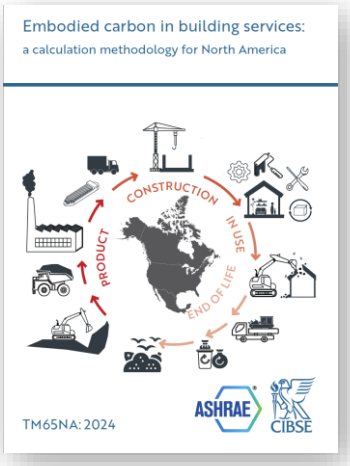
☒ Web site development ashrae.org/decarb
☒ Social media 90-180s videos - *Join us on the road to ZERO*
☒ Pivot in branding & marketing
☒ Web site videos
☒ Coordination with GAC on decarbonization-related PPIBs and White House interaction
☒ Creation of the ASHRAE Global Advisory Panel

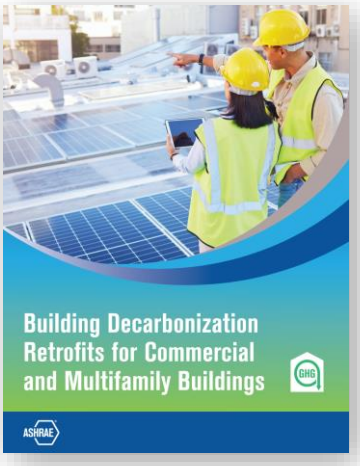
Guide Progress

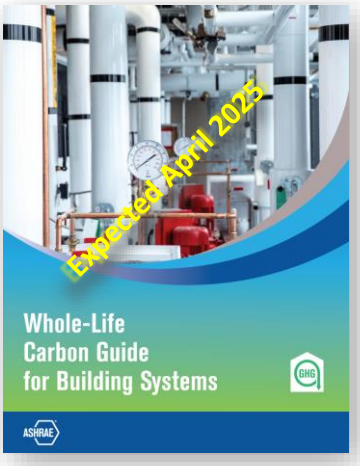


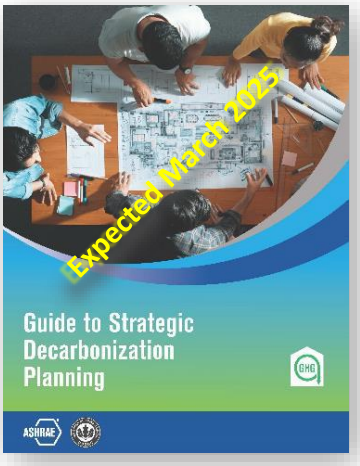












Memorandum of Understanding
ASHRAE and NSBE

Founded in 1894, ASHRAE, Atlanta, Georgia serves humanity by advancing the arts and sciences of heating, ventilation, air-conditioning, refrigeration and their allied fields. The ASHRAE vision is a healthy and sustainable built environment for all.

Founded in 1975, NSBE (National Society of Black Engineers) supports and promotes the aspirations of collegiate and pre-collegiate students and technical professional in engineering and technology. With more than 600 chapters and more than 24,000 active members in the U.S. and abroad, NSBE's mission is "to increase the number of culturally responsible black engineers who excel academically, succeed professionally and positively impact the community."

ASHRAE and NSBE agree to support the Memorandum of Understanding to advance and promote the mutual interests of their respective members. We are committed to working together toward on the following activities and goals:

ASHRAE~~/NSBE~~ shall take responsibility for initiating the first annual liaison meeting. Action items with assigned responsibilities shall be recorded at each meeting. The parties responsible for ensuring this MOU is actively pursued through the term of the agreement are:

For ASHRAE:

Jeff Littleton
Executive Vice President
ASHRAE
180 Technology Parkway
Peachtree Corners, GA 30092
Phone: 404-636-8400
Email: jlittleton@ashrae.org

For NSBE:

Danielle Mazzuchi
Manager, Collegiate and Professional Programs
National Society of Black Engineers
205 Daingerfield Road
Alexandria, VA 22314
Phone: 301-653-2762
Email: dmazzuchi@nsbe.org

CONFERENCES AND MEETINGS

Where mutually beneficial, each organization shall explore opportunities to ~~help~~ publicize the other organization's conferences. ~~on Facebook or LinkedIn to promote attendance~~.

ASHRAE and NSBE agree to meet virtually at least once a year to explore opportunities to provide speakers at the other organization's events, provide updates and perspectives on technologies and trends of mutual interest and connection between organizations.

LOGOs:

Both parties will share each other's logo on Community Partners page of the website with direct links to partner's website.

Commented [JL1]: ASHRAE does not have a community partners page and we do not post logos of other organizations (other than AASA members). We will include a copy of the MOU on our MOU web page. This should be re-written.

SCHOLARSHIPS

NSBE agrees to ~~:~~

- Provide relevant information, ASHRAE including scholarships, updates, and resources, to ~~our~~ the NSBE National Programs Chair. The National Programs Chair will then disseminate this information to the program chairs within NSBE's six regions.

PUBLICATIONS

ASHRAE agrees to:

- Provide NSBE Students with the current ASHRAE student discount to ASHRAE Publications, Handbooks (hard copy or digital copy)

Commented [JL2]: Remove bullet from formatting here and in Scholarships above. You don't need bullets if there is only one bullet.

TERMINATION

Either party may terminate this MOU, with or without stated cause, upon providing the other party with thirty (30) days written notice of intent to terminate.

TERM

This Memorandum of Understanding will be effective on the Effective Date and will continue for a term of one (1) year. The MOU will be re-submitted for additional one-year terms unless either institution provides written notice of termination at least thirty (30) days prior to the end of the current term. This Memorandum of Understanding (MOU) shall be effective commencing on **April 1, 2024**, and shall remain in effect through **March 31, 2025**, in accordance with NSBE's annual MOU cycle. The MOU may be renewed or extended by mutual written agreement of the Parties for subsequent annual periods.

~~The term of this Memorandum of Understanding shall begin when signed by both parties and shall terminate at the end of two (2) years unless extended at that time by written agreement.~~

LEGAL STANDING

This MOU reflects a commitment by ASHRAE and NSBE to continue and enhance their working relationship and individual efforts toward achieving mutual objectives described above. It does not create a binding obligation or agreement between the two organizations, and neither organization has an obligation to negotiate toward or enter into a binding written agreement. In addition, this MOU does not create a partnership, joint venture, fiduciary relationship or similar relationship between ASHRAE and [ORG]. Furthermore, it is understood that this Memorandum of Understanding is conceived as a dynamic document, meant to change as circumstances and priorities warrant. It may be modified or amended by written agreement between both organizations.

FOR ASHRAE	**FOR NSBE**
_____	_____
Printed Name/Title	Printed Name/Title
_____	_____

Signature

_____

Date

Signature

_____

Date

ASHRAE and NSBE
2024-2027 Work Plan
to Support the
2024 Memorandum of Understanding

This MOU is an agreement to advance and promote the mutual interests of their respective members. This Work Plan outlines activities the organizations agree upon to implement the goals of the MOU. The organizations will review and update this Work Plan quarterly.

UPDATED WORKPLAN: 012.2.2024

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
1. COMMUNICATION AND MEETINGS FOR THE MOU			
Main Liaison Meeting	Reps	Once a year	This virtual meeting shall be held outside of ASHRAE and NSBE conference schedule.
As appropriate and agreed upon, • ASHRAE will grant the use of the ASHRAE logo to NSBE as it relates to this MOU. • NSBE will grant the use of the NSBE logo as it relates to this MOU.	ASHRAE: Gupta NSBE: TBD		ASHRAE and NSBE will share logos and marketing material as it relates to the MOU.
2. MEMBERSHIP			
ASHRAE and NSBE will work together to explore opportunities to promote student membership at the local level.	ASHRAE: Membership NSBE: TBD		ASHRAE and NSBE will investigate methods to increase awareness among members/students about each other's organizations.
3. SCHOLARSHIPS			

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
ASHRAE will inform NSBE of scholarship and grant opportunities to students who are registered as ASHRAE members. NSBE to provide information about ASHRAE scholarships and grants to their National Programs Chair to disperse amongst their six regions' program chairs.	ASHRAE: M. Smith NSBE: TBD		https://www.ashrae.org/communities/student-zone/scholarships-and-grants https://www.ashrae.org/communities/student-zone/scholarships-and-grants/scholarship-program
4. PUBLICATIONS			
ASHRAE agrees to provide NSBE students (who are registered ASHRAE members) with the current ASHRAE student discount to ASHRAE Publications, Handbooks (hard copy or digital copy)	ASHRAE: Mark Owen		

KEY CONTACTS FOR WORKPLAN

NSBE Leads:					
MOU Executive Oversight					
MOU Project Manager					
Conferences and Meetings					
Publications, Communications, and Education					
Marketing and Promotion					
ASHRAE Staff Leads:					
Executive Oversight	Jeff	Littleton	Executive VP	jlittleton@ashrae.org	678-539-1100
DEI Advisory Subcommittee	Susanna	Hanson	DEI Chair	Susanna.hanson@honeywell.com	
DEI Advisory Subcommittee	Tanisha	Lisle	DEI Staff Liaison	tmlisle@ashrae.org	678-539-1111
Conferences and Meetings	Tony	Giometti	Interim Director of Member Services	giometti@ashrae.org	678-539-1155

			Senior Manager, Conference Programs		
Scholarships	Margaret	Smith	Manager of Development	msmith@ashrae.org	678-539-1201
Publications and Education	Mark	Owen	Director of Publications and Education	mowen@ashrae.org	678-539-1187
Marketing and Promotion	Vanita	Gupta	Director of Marketing	vgupta@ashrae.org	678-539-1150

Memorandum of Understanding
ASHRAE and APPA

Founded in 1894, ASHRAE, Atlanta, Georgia advances the arts and sciences of heating ventilating, air-conditioning and refrigeration to serve humanity and promote a sustainable world.

Founded in 1914, APPA, "Leadership in Educational Facilities" supports educational excellence with quality leadership and professional management through education, research, and recognition. ~~APPA's vision is *"Preparing for Every Future"* by creating a future of continuous learning.~~

ASHRAE and APPA agree to support the Memorandum of Understanding to advance and promote the mutual interests of their respective members. We are committed to working together on the following activities and goals for joint mutual benefit:

CONSISTENT LEADERSHIP COMMUNICATION

Recognizing the importance of communication in organizational collaboration, both organizations commit to hold a liaison meeting annually (either in person or via conference call) of designated ASHRAE/APPA senior representatives to:

- Ensure ongoing advancement of collaborative projects.
- Keep each respective organization informed of major initiatives.
- Discuss new opportunities for collaboration.

ASHRAE/APPA will appoint members to a joint MOU Coordinating Committee. This Committee will document action items with assigned responsibilities at each meeting and update the Work Plan.

Annex 1. The Coordinating Committee will be responsible for ensuring this MOU is actively pursued through the term of the agreement. The parties responsible for the ongoing management of this agreement are:

FOR ASHRAE:

Jeff Littleton
Executive Vice President, ASHRAE
~~1791 Tullie Circle, NE~~180 Technology Parkway, NW
~~——~~1643 Prince St.
~~Atlanta~~Peachtree Corners, GA 3009220~~——~~Alexandria, VA 22314
Tel: 404-636-8400
Email: jlittleton@ashrae.org

FOR APPA:

~~E. Lander Medlin~~Lalit Agarwal
~~Executive Vice~~ President & CEO, APPA
~~——————~~ ~~——————~~

~~———~~ ~~——————~~

Tel: 703-684-1446
Email: ~~lander@appa.org~~

MEMBERSHIP

Each organization agrees to provide the other with complimentary reciprocal membership for up to two individuals at a time. The list of individuals will be reviewed and updated as needed on an annual basis.

CONFERENCES AND MEETINGS

Each organization agrees to provide the other with a meeting invitation and two complimentary VIP registrations to the primary annual meeting.

ASHRAE and APPA agree to explore opportunities to provide speakers at the other organization's meetings to help provide updates and perspectives on technologies and trends of mutual interest.

Where mutually beneficial, each organization shall help publicize the other organization's meetings and promote attendance.

CHAPTER COLLABORATION

ASHRAE and APPA agree to coordinate promotion of joint grassroots meetings of respective members. Exchange of Region/Chapter/Section leader contact information will be considered as one way to accomplish this objective.

ADVOCACY

Where mutually beneficial and to the extent allowed by laws and corporate policies, ASHRAE and APPA agree to work together on common public affairs goals and ideologies. During annual liaison meetings, public affairs strategies will be discussed, and common goals identified. Collaborative opportunities to be considered include:

- Joint promotion of codes and standards at the local, state, and federal levels.
- Promoting mutually beneficial positions during the development and passage of state and federal legislation.
- Education of legislators on issues important to the members of each organization.

PUBLICATIONS

Recognizing that electronic and print publications are a primary means of disseminating new technologies, trends, and practices, ASHRAE and APPA agree to:

- Provide at least one complimentary subscription for the primary membership periodical to be received at the headquarters location of the other organization.
- Explore opportunities to jointly produce publications of mutual benefit.
- Cross-market each organization's publications where appropriate .and with industry standard distributor discounts.
- Use periodicals to promote the other organization's events, publications, and other activities.
- Explore mutually beneficial ways to translate ASHRAE publications into Spanish and French for distribution in Mexico and Canada, respectively.

EDUCATION

As leading providers of conventional and online educational services and in recognition of the vital role professional development has for our respective members, ASHRAE and APPA agree to:

- Cross-market educational offerings at the chapter, regional, national, and international levels.
- Explore opportunities to co-develop new courses or other training programs that take advantage of overlapping and complimentary expertise between ASHRAE and APPA.
- Discuss ways that certification programs can be promoted, jointly developed, or administered.

TECHNICAL ACTIVITIES COORDINATION

ASHRAE and APPA agree to foster technical cooperation in areas of common interest by:

- Encourage members in each organization to participate on technical committees and task forces.
- Provide opportunities to participate in and comment on proposed standards, guidelines, policies, and position statements developed on technical subjects as they relate to buildings and community developments.
- Establish liaison representatives to key technical committees where mutually beneficial to do so.

RESEARCH

Recognizing the importance research plays in accelerating the transformation to a more sustainable built environment, ASHRAE and APPA agree to:

- Identify opportunities for research funding from other sources.

ADMINISTRATIVE CONTACTS

The administrative contacts for actions tied to this MOU shall be:

FOR ASHRAE:

Jeff Littleton
Executive Vice President
ASHRAE
~~1791 Tullie Circle NE~~180 Technology Parkway, NW
~~——~~1643 Prince St.
~~Atlanta~~Peachtree Corners, GA 3009220
~~——~~Alexandria, VA 22314
Tel: 404-636-8400
Email: jlittleton@ashrae.org

FOR APPA:

~~E. Lander Medlin~~Lallit Agarwal
~~Executive Vice~~ President & CEO
APPA

Tel: 703-684-1446
Email: ~~lander@appa.org~~

TERMINATION

Either party may terminate this MOU, with or without stated cause, upon providing the other party with thirty (30) days written notice of intent to terminate.

TERM

The term of this Memorandum of Understanding shall begin when signed by both parties and shall terminate at the end of three (3) years unless extended at that time by written agreement.

LEGAL STANDING

This MOU reflects a commitment by ASHRAE and APPA to continue and enhance their working relationship and individual efforts toward achieving mutual objectives described above. It does not create a binding obligation or agreement between the two organizations, and neither organization has an obligation to negotiate toward or enter into a binding written agreement. In addition, this MOU does not create a partnership, joint venture, fiduciary relationship, or similar relationship between ASHRAE and APPA. Furthermore, it is understood that this Memorandum of Understanding is conceived as a dynamic document, meant to change as circumstances and priorities warrant. It may be modified or amended by written agreement between both organizations.

FOR ASHRAE:	**FOR APPA:**
Printed Name / Title	Printed Name / Title
Signature	Signature
Date	Date
Printed Name / Title	Printed Name / Title
Signature	Signature
Date	Date

ASHRAE and APPA
2025-2028 Work Plan
to Support the
2025 Memorandum of Understanding

These two organizations signed a Memorandum of Understanding (MOU) in the XXXXX of 2025 at the XXXXXXXX in XXXXXXX, XX. This MOU is an agreement to advance and promote the mutual interests of their respective members. This Work Plan outlines specific activities the organizations agree upon to implement the goals of the MOU. The organizations will review and update this Work Plan quarterly.

UPDATED WORKPLAN: 02-04-2024

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
COMMUNICATION AND MEETINGS FOR THE MOU			
Main Liaison Meeting	Liaisons	Semi -Annually – At ASHRAE Winter and Annual Conferences	These meetings should be scheduled a minimum of two weeks prior to the ASHRAE Winter and Annual Conferences.
1. CONFERENCES AND MEETINGS			
Provide meeting invitation and two complimentary VIP registrations to a primary annual meeting.	ASHRAE: TBD APPA: TBD	ASHRAE Winter Conference	MOU calls for each organization to provide meeting invitation and two complimentary VIP registrations to primary annual meeting.

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
ASHRAE and APPA agree to explore opportunities to provide speakers at the other organization's meetings to help provide updates and perspectives on technologies and trends of mutual interest.	ASHRAE speakers: TBD ASHRAE Technical Program: Giometti APPA:	ASHRAE Meetings are generally held in January and June APPA Spring Conference will be held in April	1. It will be the responsibility of the two liaisons to facilitate the implementation of the Work Plan within each organization. The implementation may involve forming work groups, task forces, or other vehicles to ensure opportunities are realized. 2. Share educational opportunities by announcements in each organization's publications (newsletter, webpage, Insights, etc.) 3. ASHRAE and APPA will share the list of APPA and ASHRAE chapters that may consider joint meetings with a local APPA /ASHRAE chapter/ASHRAEs
2. EDUCATION			
Cooperate to provide real-world education and experience for University students in an energy audit and assessment leading to a Building Energy Quotient (BuildingEQ) rating	ASHRAE: Student Activities Committee APPA:		
Share educational opportunities by announcements in each organization's publications (newsletter, webpage, Insights, etc.)	ASHRAE: Director of Marketing, Vanita Gupta APPA: Sr. Director of Learning & Certification, Michelle Frederick		Consider two one-hour educational sessions prepared by ASHRAE and one or two owner/operator sessions at the ASHRAE Annual Meeting.
Catalog of educational offerings reviewed by both organizations to find overlaps and potential gaps to be filled	ASHRAE: Director of Publishing and Education, Mark Owen APPA: Sr. Director of Learning & Certification, Michelle Frederick		

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
HVAC Design Courses at APPA Meetings	ASHRAE: Director of Publishing and Education, Mark Owen APPA: Sr. Director of Learning & Certification, Michelle Frederick		
3. TECHNICAL ACTIVITIES COORDINATION			

Jointly develop a 'Living Labs' initiative to bring together campuses from around the country that are actively engaged in the development and implementation on new strategies on how buildings operate and interact with the electric grid and electrical utilities.	ASHRAE:
	
	ACG:
			Examples of emerging trends include the Smart Grid, the Internet of Things (IoT), Distributed Energy Resources (DERS), renewable energy, batteries, etc.
			
			Living Lab initiative is designed to:
			• Share best practices
			• Data sharing, as appropriate
			• Expected results versus actual results
			• Implementation challenges
			
			Initial Living Lab participants identified
			• Montana State University
			• University of Arizona
			• Carleton University
			• Michigan State University
			• University of Iowa
			• Universities that have indicated interest but not yet confirmed include:
			  ○ Stanford
			  ○ Santa Fe Community College
			  ○ Montclair in New Jersey
			  ○ New Mexico State University
			
			Living Lab comparison matrix developed by APPA
			
			Recruiting additional campuses to be a part of the Living Lab Initiative

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
4. RESEARCH			
Promote research inareas where research results will add to the body of knowledge inTCO	ASHRAE: APPA:		• {Total Cost of Ownership), Energy & Sustainability, Key Performance Indicators & Metrics; and Facilities Management Standard

KEY CONTACTS FOR WORKPLAN

APPA Leads:					
MOU Executive Oversight	Lalit	Agarwal	President & CEO		
MOU Project Manager	Darryl	Boyce	APPA Liaison		
Conferences and Meetings					
Publications, Communications, and Education					
Technical Activities Coordination					
Policy, Government Affairs, and Advocacy					
~~RESEARCH~~					
Marketing and Promotion					
Grassroots/Chapter Outreach/Member Services					
Education/Publications					
Standards/Guidelines/Research					
ASHRAE Staff Leads:					
Executive Oversight	Jeff	Littleton	Executive VP	jlittleton@ashrae.org	678-539-1100
Board Liaison	Dunstan	Macauley	ASHRAE Liaison	dlmacauley@gmail.com	202-494-0874
Conferences and Meetings	Lizzy Tony	Seymour Giometti	Director of Member Services Senior Manager, Conference Programs	lseymour@ashrae.org giometti@ashrae.org	
Publications and Education	Mark	Owen	Director of Publications and Education	mowen@ashrae.org	
Technical Activities Coordination	Stephanie	Reiniche	Director of Technology	sreiniche@ashrae.org	
Policy, Government Affairs, and Advocacy	Alice	Yates	Director of Government Affairs	ayates@ashrae.org	
Marketing and Promotion	Vanita	Gupta	Director of Marketing	vgupta@ashrae.org	678-539-1150
Grassroots/Chapter Outreach/Member Services	Lizzy	Seymour	Director of Member Services	lseymour@ashrae.org	678-539-1104

Memorandum of Understanding
ASHRAE and AABC/ACG/EMA

Founded in 1894, **ASHRAE,** Atlanta, Georgia serves humanity by advancing the arts and sciences of heating, ventilation, air-conditioning, refrigeration and their allied field s. The ASHRAE vision is a healthy and sustainable built environment for all.

Founded in 1965, the **Associated Air Balance Council (AABC)** establishes industry standards for total system balance of building environments and is the only Association that exclusively certifies independent agencies. Members receive certification, technical training, continuing education, marketing, business resources, professional networking, and industry advocacy.

The **AABC Commissioning Group (ACG),** founded in 2005, and the **Energy Management Association (EMA),** founded in 2014, promote independent, third party, building systems commissioning and energy management services by providing members with industry leading certification, technical guidelines, education, training, advocacy, and networking opportunities.

ASHRAE and AABC, ACG and EMA agree to support the Memorandum of Understanding to advance and promote the mutual interests of their respective members. We are committed to working together toward on the following activities and goals:

[Note : When necessary or convenient to reference collectively, AABC, ACG and EMA-which are interrelated organizations with common management staff-will be referred to as "the Groups" for the remainder of this document.]

CONSISTENT LEADERSHIP COMMUNICATION

Recognizing the importance of communication in organizational collaboration, both organizations commit to hold a liaison meeting annually (either in person or via conference call) of designated ASHRAE/AABC/ACG/EMA senior representatives to:

- Ensure ongoing advancement of collaborative projects.
- Keep each respective organization informed of major initiatives.
- Discuss new opportunities for collaboration.

ASHRAE and AABC/ACG/EMA shall take responsibility for initiating the first annual liaison meeting. Action items with assigned responsibilities shall be recorded at each meeting. The parties responsible for ensuring this MOU is actively pursued through the term of the agreement are :

For ASHRAE:

Jeff Littleton
Executive Vice President
180 Technology Parkway
Peachtree Corners, GA
30092 Phone: 404-636-8400
Email : ilittleton@ashrae.org

For AABC/ACG/EMA:

Raymond Bert
Executive Diretor AABC &ACG
1015 18th Street N, Suite 603
Washington, DC 20036
Phone: 202-737-0202
Email: ray@.aabc.com

CONFERENCES AND MEETINGS

Each organization agrees to provide the other with a meeting invitation and two complimentary VIP registrations to the primary annual meeting.

ASHRAE and the GROUPS agree to explore opportunities to provide speakers at the other organization's meetings to help provide updates and perspectives on technologies and trends of mutual interest.

Where mutually beneficial, each organization shall help publicize the other organization's meetings and promote attendance.

ADVOCACY

Where mutually beneficial and to the extent allowed by laws and corporate policies, ASHRAE and the GROUPS agree to work together on common public affairs goals and ideologies. During annual liaison meetings, public affairs strategies will be discussed and common goals identified. Collaborative opportunities to be considered include:

- Joint promotion of codes and standards at the local, state and federal levels.
- Promoting mutually beneficial positions during the development and passage of state and federal legislation.
- Education of legislators on issues important to the members of each organization.

PUBLICATIONS

Recognizing that electronic and print publications are a primary means of disseminating new technologies, trends and practices, ASHRAE and the GROUPS agree to:

- Provide at least one complimentary subscription to the primary membership periodical to be received at the headquarters location of the other organization.
- Explore opportunities to jointly produce publications of mutual benefit.
- Cross-market each organization's publications where appropriate and with industry standard distributor discounts.
- Use periodicals including electronic newsletters to promote the other organization's events, publications and other activities.
- Explore mutually beneficial ways to translate publications for member benefit.

EDUCATION

As leading providers of conventional and online educational services and in recognition of the vital role professional development has for our respective members, ASHRAE and the GROUPS agree to:

- Cross-market educational offerings at the regional, national and international levels.

- Explore opportunities to co-develop new courses or other training programs that take advantage of overlapping and complimentary expertise between ASHRAE and the GROUPS.

TECHNICAL ACTIVITIES COORDINATION

ASHRAE and the GROUPS agree to foster technical cooperation in areas of common interest by:

- Encouraging members in each organization to participate on technical committees and task forces.
- Provide opportunities to participate in and comment on proposed standards, guidelines, policies, and position statements developed on technical subjects as they relate to buildings and community developments.
- Establish liaison representatives to key technical committees where mutually beneficial to do so.

RESEARCH

Recognizing the importance research plays in accelerating the transformation to a more sustainable built environment, ASHRAE and the GROUPS agree to:

- Promote research in areas where research results will add to the body of knowledge and support respective Society initiatives.
- Disseminate research results quickly, focusing on high-impact findings.
- Identify opportunities for research funding from other sources.

TERMINATION

Either party may terminate this MOU, with or without stated cause, upon providing the other party with thirty (30) days written notice of intent to terminate.

TERM

The term of this Memorandum of Understanding shall begin when signed by both parties and shall terminate at the end of three (3) years unless extended at that time by written agreement.

LEGAL STANDING

This MOU reflects a commitment by ASHRAE and the GROUPS to continue and enhance their working relationship and individual efforts toward achieving mutual objectives described above. It does not create a binding obligation or agreement between the two organizations, and neither organization has an obligation to negotiate toward or enter into a binding written agreement. In addition, this MOU does not create a partnership, joint venture, fiduciary relationship or similar relationship between ASHRAE and the GROUPS. Furthermore, it is understood that this Memorandum of Understanding is conceived as a dynamic document, meant to change as circumstances and priorities warrant. It may be modified or amended by written agreement between both organizations.

FOR ASHRAE

M. Dennis Knight
ASHRAE President 2024-2025

Signature

Date

Jeff Littleton
Executive Vice President

Signature

Date

FOR AABC/ACG/EMA

Doug Meacham
AABC President

Signature

Date

Troy Byers
ACG President

Signature

Date

Tim Gilbert
EMA President

Signature

Date

Raymond Bert
Executive Director, AABC and ACG

Signature

Date

AABC, ACG, EMA and ASHRAE

2025-2028 Work Plan
to Support the
2025 Memorandum of Understanding

These four organizations signed a renewed Memorandum of Understanding (MOU) in February 2025 at the ASHRAE Winter Conference in Orlando, FL. This MOU is an agreement to advance and promote the mutual interests of their respective members. This Work Plan outlines specific activities the organizations agree upon to implement the goals of the MOU. The organizations will review and update this Work Plan quarterly.

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
COMMUNICATION AND MEETINGS FOR THE MOU			
Main Liaison Meeting	Senior Reps	Semi - Annually – At ASHRAE Winter or At the AABC Annual or CxEnergy Annual Conference Or Virtual	These meetings should be scheduled a minimum of two weeks prior to meeting times Action Item: Ray Bert to set up meetings to align with AABC/EMA/ACG meetings. Action Item: ASHRAE Liaison to set up meeting to align with ASHRAE Winter Conference

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
Quarterly Check-In Meetings (communications and technical components of workplan)	ASHRAE: Liaison and Staff Director AABC / ACG /EMA: Staff Directors	March, September	Agendas will be developed for each call, and appropriate members/staff invited to each call. Action items and responsibilities assigned at the end of each meeting. Annual and Winter Conference meetings serve as the other two quarterly meetings.
1. CONFERENCES AND MEETINGS			
Provide meeting invitation and two complimentary VIP registrations to a primary annual meeting	ASHRAE: Seymour AABC / ACG / EMA: Kosova / Bert	ASHRAE Winter Conference AABC: October ACG/EMA: CxEnergy - Spring	MOU calls for each organization to provide meeting invitation and two complimentary VIP registrations to primary annual meeting. ASHRAE hosts a VIP luncheon at each Winter Conference. Action Item: Invitations to be sent for the VIP luncheon.
AABC/ACG/EMA to promote ASHRAE annual and winter conferences/meetings, when mutually beneficial	ASHRAE: Gupta AABC / ACG / EMA: Kosova	ASHRAE meetings are generally held in January and June	MOU calls for each organization to promote, when mutually beneficial. ACG reaches out to local Chapters to become Supporting Organizations of CxEnergy and lists their logo/description on the website. ACG promotes ASHRAE-member CxEnergy speakers on social media.
ASHRAE to promote AABC/ACG/EMA conferences/meetings, when mutually beneficial	ASHRAE: Gupta AABC / ACG / EMA: Kosova		MOU calls for each organization to promote, when mutually beneficial. ASHRAE can add conference information on their EVENTS section of the website.

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
As appropriate and agreed upon, ASHRAE and AABC/ACG/EMA will • Provide speakers or panelists at the other organization's meetings to help provide updates and perspectives on testing, adjusting, and balancing • Participate in or endorse a topical conference on topic(s) that cover issues of relevance to both organizations' constituencies; a project plan will be created and approved by both organizations for each conference (each activity requires approval through the relevant organization's regular processes)	ASHRAE speakers: Liaison and Staff Director ASHRAE technical program: ASHRAE CEC Staff Liaison AABC: Kosova / Bert		https://www.ashrae.org/conferences Action Item: All parties should review the relevant websites for listings of upcoming meetings or conferences. These conference dates should be discussed during the quarterly meetings.
2. PUBLICATIONS, COMMUNICATIONS and EDUCATION			
When mutually beneficial, ASHRAE and AABC/ACG/EMA will co-author a Conference Paper or other published vehicle on the importance and benefits to building performance of using TAB/commissioning/energy management "best practices"	ASHRAE: Owen/CEC Liaison AABC/ACG/EMA:		Concepts or ideas for articles should be discussed and the established processes to be used at the quarterly meetings.
Remind ASHRAE Chapters about benefits of holding joint meetings with other industry organizations, including AABC, ACG, and EMA	ASHRAE: Seymour AABC: Bert/ACG: Kosova/BertEMA: Kosova		This could include AABC, ACG, and EMA offering lunch and learns at the chapter meetings potentially sent to Chapter CTTC Chairs. If content is provided ASHRAE could include announcement annual in Chapter Notes.

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
Offer 20% discount to ASHRAE members on *CxEnergy* conference registration, the AABC *TAB & Cx Seminar*, and AABC *TAB Talk* webinars, ACG *Essential Cx Webinar* series, and EMA's EMP Seminar & O&M Training (*note: EMA webinars are free to all)*	ASHRAE: Gupta AABC/ACG/EMA: Kosova		ASHRAE will include one blurb in our newsletter that goes to 90K+ recipients (members and industry professionals).
ASHRAE/AABC/ACG/EMA to explore opportunities to create joint training programs where mutually beneficial	ASHRAE: Owen		Opportunities must not create competition with any organization's existing programs.
3. TECHNICAL ACTIVITIES COORDINATION			
Explore synergies between ASHRAE Commissioning Standard 202 and ACG's newly revised *Commissioning Guideline*, which relies on ASHRAE's document as the clear industry consensus standard.	ASHRAE: Reiniche ACG:		There is a natural synergy between these documents with having people as members to both the ACG document and ASHRAE documents. Goal is to determine if there is a pathway to promote the nexus between these documents through the quarterly meetings.
Explore opportunities to promote ASHRAE Standard 211 for energy audits, which EMA supports.	ASHRAE: Reiniche/Yates EMA: Shunk		Confirm if the new EMA course is using Std 211.
Explore opportunities to promote ASHRAE's Building EQ for use with energy audits	ASHRAE: Reiniche EMA:		
ASHRAE to provide an opportunity for at least one AABC, ACG, or EMA representative (as appropriate) to participate on relevant technical Committees.	ASHRAE: Reiniche AABC/ACG/EMA: Kosova		Reiniche to provide the link to the ASHRAE Technical Committees and Project Committees to AABC, ACG and EMA to review and provide guidance on participation annually. Reiniche to provide cover rosters where appropriate for relevant technical committees and project committees annually. Check on participation by AABC, ACG and EMA representatives during quarterly meetings.

ACTIVITY/TASK	RESPONSIBLE PARTY	TIMING	STATUS and COMMENTS
4. POLICY AND ADVOCACY			
Identify policy and advocacy priorities.	ASHRAE: Yates AABC: ACG: EMA:	Q1-2025	Share existing policy priorities and determine where there is alignment.
When appropriate, promote adoption and use of select codes and technical standards of mutual interest.	ASHRAE: Yates AABC: ACG: EMA:		
Advocate / educate on public policy priorities	ASHRAE: Yates AABC: ACG: EMA:		Joint advocacy be encouraged where public policy priorities align. Share letters for joint signatures where interests align.

KEY CONTACTS FOR WORKPLAN

AABC/EMA/ACG Leads:					
MOU Executive Oversight	Ray	Bert	Chief Executive Officer	ray@commissioning.org	
MOU Project Manager					
Conferences and Meetings	Anna	Kosova	Director of Operations	anna@commissioning.org	
Publications, Communications, and Education	Cassie	LaJeunesse	Publications Specialist	publications@commissioning.org	
Technical Activities Coordination					
Policy, Government Affairs, and Advocacy	Ray	Bert	Chief Executive Officer	ray@commissioning.org	
~~RESEARCH~~					
Marketing and Promotion	Anna	Kosova	Director of Operations	anna@commissioning.org	
Grassroots/Chapter Outreach/Member Services					
Education/Publications					
Standards/Guidelines/Research	Ray	Bert	Chief Executive Officer	ray@commissioning.org	
ASHRAE Staff Leads:					
Executive Oversight	Jeff	Littleton	Executive VP	jlittleton@ashrae.org	678-539-1100

Board Liaison	Wade	Conlan	Director-at-Large	wconlan@hanson-inc.com	407-716-9997
Conferences and Meetings	Lizzy Ragan	Seymour McCHan	Director of Member Services Senior Manager, Conference Programs	lseymour@ashrae.org rmchan@ashrae.org	678-539-1104 678-539-1219
Publications and Education	Mark	Owen	Director of Publications and Education	mowen@ashrae.org	678-539-1187
Technical Activities Coordination	Stephanie	Reiniche	Director of Technology	sreiniche@ashrae.org	678-539-1143
Policy, Government Affairs, and Advocacy	Alice	Yates	Director of Government Affairs	ayates@ashrae.org	(202) 833-1830
Marketing and Promotion	Vanita	Gupta	Director of Marketing	vgupta@ashrae.org	678-539-1150
Grassroots/Chapter Outreach/Member Services	Lizzy	Seymour	Director of Member Services	lseymour@ashrae.org	678-539-1104

Memorandum of Understanding on Co-operation Matters

1. Parties

This Memorandum of Understanding (MoU) is made between:

- **The Federation of European Heating, Ventilation and Air-conditioning Associations (REHVA),** which represents 24 member associations in Europe, encompassing more than 120.000 professionals in heating, air-conditioning, ventilation, refrigeration, energy performance of buildings, decarbonization and other related topics; REHVA is officially registered as a Not-for-Profit Entity under Belgian Law, headquartered at 40 Rue Washington, Brussels, Belgium

and

- **The American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)** which is an international in-person membership organization (with about 54,000 members), dedicated to serving humanity by advancing the arts and sciences of heating, ventilation, air-conditioning, refrigeration and their allied fields, engaging input from its members worldwide and others to support research and develop standards for international application; ASHRAE is headquartered at 180 Technology Parkway, Peachtree Corners, Georgia 30092 USA

2. Preamble

2.1. REHVA and ASHRAE have had a long relationship of cooperation for over 50 years. ASHRAE has always had members in Europe, and few were integrated in the REHVA governance. Similarly, REHVA has had individual members of their national associations who were integrated into ASHRAE governance.

2.2. REHVA and ASHRAE have had joint task forces on different topics of worldwide interest like COVID19, decarbonization etc.

2.3. REHVA and ASHRAE had been participating actively many times to their respective conferences (CLIMA, CLIMAMED, ASHRAE Winter and Summer conferences etc.) with presentations, workshops, courses etc.

2.4. Both organizations enter this MoU with a positive and constructive attitude, understanding that a favorable outcome will strengthen both parties and ultimately lead to technological advancements for the benefit of humanity.

3. Purpose

3.1. The strong foundation of this MoU is the parties' common belief that, by working together, both organizations can amplify their abilities to better serve their members and the entire society while simultaneously eliminating duplication and conflicts.

3.2. The purpose of this MoU is to strengthen the partnership between the REHVA and ASHRAE, by promoting consistent and tangible actions to enhance cooperation.
3.3. This MoU will also encourage both organizations to better address major issues facing our industry worldwide, including adaptation to a rapidly evolving climate condition and technology in the framework of mutual information exchange.

4. Objectives

4.1. The primary objectives of this MoU are to:

4.1.1. start a new era of potential cooperation, by investigating first collaborative activities and by agreeing to build their cooperation scheme with mutual benefit

4.1.2. promote mutual information exchange and eliminate duplication of efforts

4.1.3. address major global industry issues collaboratively

4.1.4. explore and enhance communication, cooperation, and, where applicable, coordination between REHVA and ASHRAE at the following levels:

a. globally, between ASHRAE and REHVA at the Society and Board levels

b. at European level, between ASHRAE Region XIV and REHVA

c. at a country level, between REHVA member association (MA) and the relevant ASHRAE Chapter(s)

d. individually, among members of the REHVA MA and ASHRAE members, in the frame of working groups, task forces etc.

5. Cooperation principles

5.1. The principles listed here below are essential to ensure a clear, mutual understanding of the expectations, commitments, and goals of the partnership at all levels, helping to establish a solid foundation for a productive and harmonious partnership and ensuring that both parties are aligned in their approach and committed to achieving mutual benefits.

5.2. Mutual Respect and Trust

Both parties agree to conduct their relationship based on mutual respect and trust, by acknowledge each other's strengths, expertise, and contributions.

5.3. Equity and Reciprocity

Both parties agree to ensure that the benefits and responsibilities of the cooperation are shared fairly, and to commit to reciprocal contributions and exchanges of knowledge and resources.

5.4. Transparency

Both parties agree to commit to open and honest communication regarding all aspects of the cooperation and to share relevant and non-confidential information promptly and accurately to facilitate collaboration.

5.5. Shared Goals and Objectives

Both parties agree to establish common goals and objectives that both parties aim to achieve through the cooperation, by aligning activities and initiatives with these shared objectives.

5.6. Complementarity

Both parties agree to leverage the complementary strengths and capabilities of each party to achieve better outcomes, by avoiding duplication of efforts by clearly defining roles and responsibilities.

5.7. Flexibility and Adaptability

Both parties agree to be flexible and adaptable in responding to changing circumstances and needs, by allowing always room for adjustments in plans and activities as necessary.

5.8. Commitment to Excellence

Both parties agree to strive for high standards of quality and excellence in all joint activities and initiatives, by encourage continuous improvement and innovation.

5.9. Accountability

Both parties agree to hold each party accountable for fulfilling their commitments and responsibilities, establishing mechanisms for monitoring progress and addressing any issues that arise.

5.10. Sustainability

Both parties agree to ensure that cooperative efforts contribute to sustainable development and long-term benefits, considering environmental, social, and economic impacts in planning and implementation.

5.11. Cultural Sensitivity and Inclusion

Both parties agree to respect and value the cultural diversity and perspectives of each party, by promoting inclusive practices that encourage broad participation and engagement.

5.12. Legal and Ethical Standards

Both parties agree to adhere to all applicable laws, regulations, and ethical standards, by ensuring that all activities are conducted with integrity and in accordance with best practices.

5.13. Innovation and Creativity

Both parties agree to encourage innovative thinking and creative solutions to address shared challenges, by supporting joint research, development, and dissemination of new ideas and technologies.

5.14. Periodic Review and Evaluation

Both parties agree to regularly review and evaluate the progress and outcomes of the cooperation, by using feedback to make improvements and adapt strategies as needed.

5.15. Resource Sharing

Both parties agree to share resources, expertise, and knowledge to maximize the impact of the cooperation, ensuring fair and equitable access to shared resources.

face-to-face or electronically, as conditions warrant.

6. Areas of cooperation and potential activities

6.1. ASHRAE and REHVA agree to cooperate in the areas listed in **ANNEX 1**, where potential activities are also proposed.

6.2. For 2024-2026, priority areas of cooperation and collaboration are listed in **ANNEX 2**.

7. Implementation

7.1. To help the implementation process, REHVA and ASHRAE will form a Liaison Committee (LC) to carry out the work with their official bodies' approval. The Liaison Committee will be composed by at least 3 members per party, chosen amongst their respective Board members, MAs and secretariats.

7.2. To achieve the objectives and to respect the MoU principles, ASHRAE and REHVA will:

7.2.1. hold yearly meetings of the LC, either face-to-face or online, at least in conjunction with the ASHRAE Winter Conference and the REHVA General Assembly, respectively, or whenever needed; the main purposes of the aforementioned meetings will be to ensure ongoing advancement and monitoring of collaborative projects underway and to keep each respective organization informed on major or new initiatives

7.2.2. Discuss new opportunities for collaboration

7.2.3. hold additional meetings, either face-to-face or online, as conditions warrant

7.2.4. ensure that all publications are available to members at member rates

7.2.5. promote the cooperation between ASHRAE and REHVA Committees
7.2.6. sponsor and jointly organize training and educational activities

7.3. The Parties shall also:

7.3.1. promote development of harmonized European, ASHRAE and international (ISO) standards

7.3.2. promote communication and information exchange between the organizations and their respective members through announcements in journals, websites, and other communication channels

7.3.3. promote cooperation in the frame of and participation to conferences and exhibitions globally

8. Participation in other MoUs and development of international bodies

8.1. Each organization remains free to participate in any other MoU or international initiative with the same goal and will inform each other of any such developments.

8.2. REHVA and ASHRAE agree to join efforts, in conjunction with other organizations, to help develop the Indoor Environmental Quality - Global Alliance (IEQ - GA) or other similar international organizations.

9. Duration, termination and renewal

9.1. This Memorandum of Understanding will commence on the date of signature and will remain in effect for a period of three years unless terminated earlier by either party with six months' written notice.

9.2. Renewal of this MoU shall be automatic for identical successive periods, with the corresponding updating of Annexes 1 and 2, if deemed appropriate by both parties. If any of the parties does not wish to extend the cooperation, it must inform the other party in writing at least 60 days prior to the expiration of the then current MoU.

10. Dispute Resolution

10.1. Any disputes arising from this MoU shall be resolved amicably through mutual consultation. Failing which, disputes shall be referred to mediation or arbitration as agreed by both parties.

11. Confidentiality

11.1. Both parties agree to maintain the confidentiality of any sensitive information exchanged under this MoU and to use such information solely for the purposes outlined herein.

12. Amendments

12.1. Any amendments to this MoU must be made in writing and signed by authorized representatives of both parties.

13. Indemnity and Liability

13.1. Each party shall indemnify and hold harmless the other party against any losses, damages, or expenses arising from any breach of this MoU. Neither party shall be liable for any indirect or consequential damages arising under this MoU.

14. Force Majeure

14.1. Neither party shall be liable for any failure to perform obligations under this MoU if such failure results from circumstances beyond reasonable control, including but not limited to

natural disasters, acts of war, or government actions.

15. Severability

15.1. If any provision of this MoU is found to be unenforceable or invalid, the remaining provisions shall remain in full force and effect.

16. Entire Agreement

16.1. This MoU constitutes the entire agreement between the parties and supersedes all prior negotiations, agreements, and understandings, whether written or oral.

17. Counterparts

17.1. This MoU may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same agreement.

18. Data Protection and Privacy

18.1. Both parties agree to comply with all applicable data protection and privacy laws. REHVA, as an EU entity, will adhere to the General Data Protection Regulation (GDPR). Any personal data exchanged shall be handled in accordance with these laws to ensure privacy protection.

18.2. When transferring personal data from REHVA to ASHRAE or any non-EU entity, appropriate safeguards compliant with GDPR, such as Standard Contractual Clauses (SCCs), will be implemented to ensure equivalent data protection. ASHRAE agrees to respect GDPR principles when handling personal data received from REHVA.

18.3. When transferring personal data from ASHRAE to REHVA, appropriate safeguards compliant with any such USA regulations or institutional policies will be implemented to ensure equivalent data protection. REHVA agrees to respect such principles when handling personal data received from ASHRAE.

FOR ASHRAE

Dennis Knight
ASHRAE President, 2024-2025

_____
Signature

_____...., 2024_____
Date

FOR REHVA

Cătălin-Ioan Lungu
REHVA President, 2022-2025

_____
Signature

___.... 2024_____
Date

ANNEX 1 to the REHVA-ASHRAE MoU

An annual work plan can be developed by the LC under the principles of the REHVA-ASHRAE MoU in force, based on the following:

LIST OF POTENTIAL COOPERATION TOPICS BETWEEN REHVA AND ASHRAE
(this list can be adjusted any time by the mutual agreement of the parties)

1. Climate Adaptation and Resilience

a) Joint research projects on HVAC&R systems designed for extreme weather conditions
b) Development of guidelines for resilient building designs
c) Organization of workshops and seminars on climate resilience strategies

2. Energy Efficiency, use of renewables and decarbonization

i. Collaborative development of energy-efficient technologies and practices
ii. Joint campaigns and projects promoting energy efficiency, renewable energy sources integration with HVAC&R systems, and decarbonization of buildings
iii. Co-hosting conferences focused on net-zero energy buildings
iv. Development of guidelines for renewable energy use in buildings
v. Hosting workshops on energy efficiency, renewable energy technologies and their applications, and decarbonization

3. Indoor Environmental Quality (IEQ) Improvement for healthy buildings

a) Joint research on the health impacts of indoor environmental quality
b) Development of new standards for indoor environment quality management
c) Creation of educational programs and webinars on IEQ best practices
d) Research on the impact of HVAC&R systems on occupant health
e) Development of wellness standards for indoor environments
f) Educational initiatives on health-focused building design

4. Digitalization and Smart Buildings

a) Joint development of smart building technologies and IoT applications (Internet of Things)
b) Research on the integration of digital tools in HVAC&R systems
c) Creation of a shared platform for data exchange and smart building management

5. Sustainable Building Practices

a) Promotion of sustainable, decarbonized materials and practices in building design
b) Development of joint guidelines for sustainable and decarbonized buildings
c) Organizing competitions and awards for healthy and sustainable building projects

6. Education and Training

a) Development of joint certification programs for HVAC&R professionals
b) Organization of international student competitions
c) Creation of joint educational modules and online courses

7. Policy and Advocacy

a) Joint advocacy for international policies promoting energy efficiency and sustainability
b) Collaboration on white papers and policy briefs
c) Engaging with policymakers through joint lobbying efforts

8. Standards Development and Harmonization

a) Collaborative efforts to harmonize European and international standards
b) Participation in international standardization committees
c) Joint publications on standards and best practices

9. Innovation and Research

a) Joint funding and support for innovative research projects
b) Establishment of research grants and fellowships
c) Co-authoring research papers and technical documents

10. Public Awareness and Outreach

a) Joint public awareness campaigns on the importance of HVAC&R systems
b) Development of informational materials for the public
c) Engagement through social media and other digital platforms

11. Global Conference and Exhibition Participation

a) Joint organization of global conferences and exhibitions
b) Coordinated participation in international trade shows
c) Joint presentation of new technologies and innovations

12. Resource Sharing and Collaboration Tools

a) Development of a shared digital library of resources and tools
b) Creation of collaborative online platforms for project management
c) Sharing of technical documents, case studies, and research findings

13. Technical Committees and Task Forces

a) Formation of joint technical committees on specific topics
b) Regular meetings and collaboration between technical experts
c) Development of joint technical reports and guidelines

IMPLEMENTATION PLANNING

To facilitate these cooperative activities, REHVA and ASHRAE can:

1. Establish a Liaison Committee (LC):
   i) Comprising at least 3 members from both organizations to oversee and coordinate activities.
   ii) Hold yearly meetings and additional meetings as needed; both organizations will schedule a LC meeting during the ASHRAE winter conference or REHVA annual meeting
2. Develop an Annual Work Plan:
   i) Define specific initiatives and activities for the upcoming year
   ii) Regularly review and update the work plan based on progress and feedback
3. Promote Communication and Information Exchange:
   i) Utilize journals, websites, and other communication channels for information

dissemination

ii) Ensure accessibility of publications to members at member rates

4. Organize Joint Events and Training:

i) Sponsor and organize training sessions, workshops, and conferences

ii) Encourage participation from both organizations in these events

iii) A workshop will be organized jointly by REHVA and ASHRAE during every ASHRAE winter conference and CLIMA congress

5. Monitor Progress and Outcomes:

i) Establish mechanisms for monitoring the progress of collaborative projects

ii) Regularly evaluate the outcomes and make necessary adjustments

By focusing on these innovative fields and implementing the outlined activities, REHVA and ASHRAE can strengthen their cooperation, drive industry advancements, and contribute to global sustainability efforts.

ANNEX 2 to the REHVA-ASHRAE MoU

The following priorities are defined for the period 2024-2026:

1. **Organize** at least ONE dedicated REHVA Technical Session at the ASHRAE Winter Conferences and at least ONE dedicated ASHRAE Technical Session at the CLIMA 2025 conference.

2. Develop common initiatives focused on the following topics**:**

Energy Efficiency, use of renewables and decarbonization

i. Joint campaigns and projects promoting energy efficiency, renewable energy sources integration with HVAC&R systems, and decarbonization of building.
ii. Co-hosting conferences focused on decarbonized and/or net-zero energy buildings.
iii. Co-hosting one or more workshops on energy efficiency, renewable energy technologies and their applications, and decarbonization in Europe.

Indoor Environmental Quality (IEQ) Improvement for healthy buildings

i. Creation of educational programs and webinars on IEQ best practices
ii. Development of wellness standards for indoor environments
iii. Develop educational initiatives on health-focused building design

DRAFT

ASHRAE Policy for Use of Artificial Intelligence (AI)

Purpose:
The purpose of this Artificial Intelligence (AI) policy is to guide the ethical and effective use of AI technologies to serve ASHRAE members. As a publisher of technical guidelines and standards, organizer of conferences, provider of educational programs, and a research institution, ASHRAE strives to ensure that AI is used in ways that align with our mission, upholds intellectual property rights, and promotes fairness, transparency, and accountability.

Scope:
This policy applies to all employees, contractors, volunteers, and third-party partners involved in the development, use, or management of AI tools and technologies related to ASHRAE programs including publications, conferences, educational programs, and technical research.

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1. Use Cases

AI is a powerful tool that can enhance ASHRAE's ability to create, share, and disseminate technical knowledge. However, it is crucial to ensure that AI is applied responsibly and within the scope of the following permissible use cases:

- **Research**: AI can be used for analyzing large datasets, identifying trends, and assisting in technical research. Outputs from AI systems should always be reviewed by ASHRAE experts for validity, accuracy, and relevance.
- **Content Editing**: AI can assist in editing content, such as improving grammar, suggesting alternative phrasing, or refining technical language. AI should **not** be used to independently generate technical guidelines, standards, or official publications.

- **Idea Generation**: AI can be used to generate ideas for new projects, innovations, or educational content. However, these ideas should always undergo human validation before implementation.
- **Educational Programs**: AI can be integrated into educational tools, such as chatbots for interactive learning, personalized course recommendations, or automatic grading. The use of AI should aim to support, not replace, human interaction in educational contexts.
- **Conference Management**: AI tools may be used to assist in tasks such as scheduling, organizing speaker sessions, or matching attendees with relevant content. AI tools used in the management of conferences must respect privacy and data security standards.

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2. Understanding AI

Artificial Intelligence (AI) refers to the simulation of human intelligence processes by computers. These processes include learning (acquiring knowledge and rules for using it), reasoning (using the rules to reach conclusions), and self-correction. Machine Learning (ML), a subset of AI, involves the development of algorithms that allow systems to learn from and make predictions based on data. AI can support decision-making, automate repetitive tasks, and analyze vast amounts of data at speeds beyond human capability.

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3. Definitions

- **Artificial Intelligence (AI)**: A branch of computer science that focuses on creating systems capable of performing tasks that normally require human intelligence.
- **Machine Learning (ML)**: A technique in AI where algorithms are trained to recognize patterns in data and make predictions or decisions based on that data.
- **Natural Language Processing (NLP)**: A subfield of AI focused on enabling machines to understand and interpret human language, such as text and speech.
- **Bias**: A systematic error in AI predictions or outputs due to biased data or flawed algorithms, often leading to unfair or discriminatory outcomes.

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4. Recording Tools

To protect privacy and confidentiality and to protect ASHRAE and its members legally, the use of recording bots or AI-based transcription tools during conferences, webinars, or meetings is prohibited unless explicitly authorized. All recorded data must comply with privacy laws and be reviewed by a human for compliance.

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5. Intellectual Property Rights and Risk Management

AI tools must be used in a way that protects the intellectual property (IP) of our organization and its stakeholders. This includes:

- **Respecting Copyright**: AI tools must not be used to infringe upon existing copyrights, whether by reproducing content verbatim or creating derivative works without appropriate permission. AI tools cannot be used to generate original content that is not validated
- **Data Security**: AI systems must handle sensitive data, including proprietary research, member information, and conference content, securely. AI tools should not be used to extract, process, or store proprietary data without ensuring compliance with data protection regulations.
- **Third-Party Content**: When using AI tools to generate or analyze content, users must ensure that they respect the ownership rights of third-party creators and sources.

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6. Bias and Fairness in AI

AI systems can unintentionally perpetuate or exacerbate bias due to biased training data or flawed algorithmic design. To ensure fairness and accuracy:

- **Human Oversight**: All AI-generated content, reports, or recommendations must be reviewed by a qualified human before being used in official documents, presentations, or public releases.
- **Bias Detection and Mitigation**: AI systems used at ASHRAE must be regularly assessed for bias, particularly when they affect decisions in research, education, or event management. We will prioritize the use of tools that promote fairness and transparency.

- **Inclusive Development**: Efforts will be made to ensure that AI development and implementation consider the diversity of the populations we serve, including underrepresented groups.

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7. Guidelines for AI Use in Content Creation

- **Technical Documents**: AI **cannot** be used to independently draft or finalize official technical guidelines, standards, or research papers published by ASHRAE. AI may be used to assist in research, gather preliminary information, or propose content structures, but all final content must be reviewed, validated, and approved by subject matter experts.
- **Research**: AI tools can assist in data analysis, hypothesis generation, and literature reviews. However, all AI-assisted findings must undergo rigorous human validation to ensure they meet the standards of scientific integrity and accuracy.
- **Idea Generation**: AI can support brainstorming and idea generation for new research initiatives or educational program development. However, human experts must critically assess these ideas before they are pursued or shared publicly.
- **Human Validation**: For all content generated by AI, human review is essential to ensure the information is relevant, accurate, and aligned with our organizational values and standards.
- **Meetings**: ASHRAE meetings at the Society, Regional or Chapter level should not be recorded using any means, including AI tools. AV Recordings of instructors or lecturers are allowed with permission as long as the recording does not take place at a meeting.

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8. Prohibited Uses

- **Sensitive Documents**: AI tools must not be used to process, analyze, or read documents containing sensitive or proprietary information that is not intended for public dissemination, unless specifically authorized. This includes technical research documents, internal communications, and unpublished works.
- **Deceptive Content**: AI should not be used to generate misleading or deceptive content, including content that misrepresents research findings or misleads the public or our stakeholders.

9. Transparency and Accountability

We commit to being transparent about our use of AI technologies. Any AI systems used by ASHRAE and its volunteers must:

- **Provide Clear Disclosure**: Stakeholders, including conference participants, students, and research collaborators, should be informed when AI is used in processes that affect them (e.g., data analysis, content generation, automated feedback).
- **Accountability Mechanisms**: We will establish mechanisms to monitor and evaluate AI systems to ensure they are used in compliance with ethical standards, organizational policies, and applicable laws.

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10. Compliance and Review

All volunteers, staff, contractors, and partners using AI tools must comply with this policy. Non-compliance with the AI policy may result in corrective actions or termination of contracts.

This policy will be reviewed and updated annually to reflect changes in technology, regulatory requirements, and best practices in AI use.

Conclusion

The responsible use of AI is integral to advancing ASHRAE's mission and vision. Through this AI policy, we aim to enhance the quality of our publications, research, educational offerings, and conferences while maintaining ethical standards and safeguarding the trust of our stakeholders.

ASHRAE Roundtables Review and Findings
January 2025

Notes have been collected for some 12 roundtable discussions held between January and October 2024. The roundtable reports are available on the BOD Basecamp here. Appendix A provides a simple executive summary of each roundtable. (Note: Other roundtable discussions may have occurred, but notes were not available.)

Fully 4 of the 12 roundtable discussions (33%) were held outside of the U.S. The locations are listed below in the order in which they were held.

1. Central Florida Chapter (Region XII), Orlando, FL, January 2024
2. Region VIII CRC Dallas, TX, April 2024
3. Region XI CRC Spokane, WA, May 2024
4. Region V CRC Cincinnati, OH, July 2024
5. Region IX CRC Boise, ID, August 2024
6. Region III CRC Bethlehem, PA, August 2024
7. Region I CRC Albany, NY, August 2024
8. Region X CRC Phoenix, AZ, August 2024
9. Region II CRC Toronto, ON, Canada, August 2024
10. Region XIV CRC London, UK, September 2024
11. Region XV CRC Udaipur, India, September 2024
12. Region-at-Large CRC Karachi, Pakistan, October 2024

Executive Summary

The notes from the 2024 Industry Roundtables all reflect an important need for better education, training and industry collaboration to address both short-term and long-term challenges in the HVACR industry. Most roundtables discussed focusing on preparing the next generation to meet the demands of a rapidly changing industry. A stronger connection between industry and academia is needed.

It is worth noting that the three earlier roundtables were conducted during President Scoggin's term in which the Society Theme was "Challenge Accepted: Tackling the Climate Crisis." The ten later roundtables were conducted during President Knight's term in which the Society Theme is "Empowering Our Workforce: Building a Sustainable Future." Topics covered in roundtables may have been dependent on the participants and the current Society theme.

Six common themes emerged from the feedback received during the Roundtables, providing opportunities for each of the councils to explore to better serve the needs of our members.

- **Publishing and Education Council** – Training and education, particularly for young professionals entering the industry is critically needed. Publishing and Education Council may consider:

    - Leveraging emerging technologies and alternative formats to create training materials that may be more accessible for young professionals
    - Developing additional training programs focused on HVAC fundamentals
    - Adapting ALI courses to be region/country specific
    - Developing resources to better educate the general public

- **Members Council** - Acknowledging President Knight's theme of workforce development, many of the discussions centered around the need to engage with students and young professionals, supporting and encouraging them in their career journey in the built environment. Members Council may consider:
    - Developing programs that focus on showing students (K-12, post-High including trade/technical schools) the impact they can have by choosing careers in the built environment
    - Encouraging chapters to include technical training on HVAC fundamentals
    - Encouraging collaboration with other industry organizations
    - Exploring alternative training options, such as podcasts, videos, hands-on technical tours
    - Developing a program to help facilitate internships for engineering students

- **Technology Council** – Decarbonization, IEQ and refrigerant regulations are issues that members at all levels need guidance on. Technology Council may consider:
    - Continuing to develop resources and practical guides on decarbonization, IEQ and refrigerants for manufacturers, design professionals, contractors, building owners/facility managers and building scientists
    - Providing guidance on how emerging technologies like AI can be used to improve productivity and optimize system performance
    - Providing more opportunities for technicians/operators to get involved in ASHRAE

These are just a few recommendations gleaned from the feedback received during the Roundtables. A summary of each of the discussions can be found below. We invite all councils, along with Planning Committee, PEAC and TRAC to review these notes to see what other opportunities there may be to better serve our members as MBOs are developed moving forward.

Critical Issues in the Industry

The 2024 roundtables highlighted several critical issues within the HVACR industry:

- The role that the industry is taking on reducing carbon emissions and adopting sustainable practices, through decarbonization and electrification
- Refrigerant regulations
- The growing generational gap in the workforce
- The lack of HVAC education presence in undergraduate curriculum
- The need for more collaboration between technicians, building owners, engineers, and architects on projects
- New, more interactive and engaging tools to train and educate new and young professionals

Some of the critical issues addressed at roundtables in 2024 were also addressed in roundtables in previous years. See Appendix B for the 2022-2023 roundtables summary with updates/additions from 2024 roundtables highlighted.

Decarbonization, Sustainability and Resiliency

ASHRAE can empower organizations, students, individuals and the general public to make carbon emission reduction goals. Educating all stakeholders (design engineers, architects, commissioners, technicians, building owners/operators, facility managers, etc.) on the importance of their work and the role it plays in reducing carbon is critical. The work the team does together makes a difference on every project.

Some regions in the US and globally are using the term "Resiliency" to encompass decarbonization, IEQ and sustainability practices. One roundtable suggested incorporating carbon calculations into all ASHRAE standards.

Refrigerant Regulations

The industry faces an overwhelming amount of regulatory information, creating confusion about which guidelines to follow for refrigerant regulations and safety. The challenges of flammable refrigerants, their impact on different sectors, and ongoing phaseouts further add to the complexity.

Education and Training

Several roundtables discussed the lack of specific HVAC training at colleges and universities around the world and the need for dedicated curricula. Workforce development initiatives such as vocational training, internships and professional mentorship programs can help bridge the gap between formal education and real-world skills. One roundtable suggested creating a university course that utilizes hands-on training of the universities HVAC system since all colleges and universities have large HVAC systems located on campus. On-the-job training and real-world experience were expressed as critical in learning this industry and currently there is a lack of this type of education in the HVACR space. On-the-job training also involves relationship skills that are needed for all the roles to work together on a project (i.e. technician/contractor, building owner/operator, facility manager, design engineer and architect). One roundtable suggested developing a "year in the field" approach to teaching engineering students about the practical side of the industry.

Training and education delivery was also discussed at most roundtables. There is consensus on evolving delivery methods to better engage the younger generation such as short YouTube training videos, podcasts, utilizing LinkedIn Learning platforms, interactive training tools such as VR and gamification. One roundtable even suggested creating a buildings/HVAC version or modification to Minecraft to support interest and understanding starting with an even younger audience.

Education and training must also be tailored geographically based on the needs of the audience. For example, Canada Net Zero goals are hard to achieve due to cost and implementation strategies while in the Middle East and Africa, there are challenges on how the HVACR industry is adapting to the rapidly changing climate conditions.

Industry Collaboration

The industry is currently working in silos based on their role and job title. Collaboration is key in moving the industry forward as well as motivating and educating the next generation to choose a profession within the HVACR industry. Industry collaboration with academia is needed to integrate HVAC curriculum and education into MEP programs. Collaboration and better communication between the different roles within the industry (engineers, technicians, building owners, etc.) is critical to understanding new technology and proper design and maintenance of building systems.

ASHRAE Standards are excellent and very valuable but mostly address design issues. Industry collaboration is needed to expand content in ASHRAE Standards to include commissioning and installation direction.

Development of New Tools

ASHRAE has incredible resources such as the ASHRAE Handbook, Standards and Guidelines. Many roundtables indicated that while the more seasoned professionals rely on these tools, the younger generation is looking for more efficient, quicker ways to access information, guidance, and data. One roundtable suggested having the TCs create short videos about their Handbook chapters for quicker content consumption. Another roundtable suggested a small language model AI tool for ASHRAE publications. Creating an ASHRAE Reddit Forum was another idea from a roundtable.

Additionally, there are opportunities to leverage emerging technologies such as AI not only improve access to technical resources, but to improve processes and optimize system performance. ASHRAE can take on a leadership position in how AI can be used in our industry.

Engaging and Retaining the Younger Generations

Several roundtables discussed inspiring the next generation, starting as early as with K-12 students, by messaging the "why" HVACR matters and how it can impact the world. If ASHRAE can message and show the real-world impact of HVAC systems, particularly in terms of sustainability and climate change, more young people will want to explore careers in the HVACR industry. K-12 STEM activities, career fairs, and design competitions were cited as successful outreach programs and events throughout the regions.

Roundtable Process

Market intelligence gained from roundtables is very valuable. Conducting roundtables should be adopted as the best practice for all CRCs. The Roundtable Reports Review Committee (R3C) should provide to the Executive Committee and Planning Committee summaries from roundtables held immediately preceding the Spring and Fall CRCs at the Winter Conference. The Executive Committee will allocate items to the appropriate Councils for consideration. Councils will use the roundtable reports to inform their MBOs and action items. Society Planning Committee will use the roundtable reports to inform Strategic Plans and support development of Council MBOs. Roundtable notes should be archived on the BOD basecamp.

Guidelines for conducting ASHRAE Industry Roundtables were updated in July 2024 and can be found on the BOD basecamp here. The guidelines include an overview, goals, attendance, invitees, coordination and discussion questions. R3C should review and update this guidance and distribute to DRCs and RMCR by the Annual Conference.

Appendix A. Abbreviated Roundtable Highlights

- **Central Florida Chapter (Region XII) Orlando, FL, January 2024**
  - Critical needs impacting our industry include technical and cost illiteracy associated with high performance building construction and renovations and reliability including IEQ.
  - ASHRAE can support the industry by providing resources to better education the public with general education of the importance of reducing carbon emissions and understanding the climate impacts.
  - Empowering organizations and even individuals (starting with students) to make carbon emission reduction goals. This includes educating facility technicians, maintenance personnel and commissioning agents who normally do not connect their work to carbon. Supervisors need to be better educated on that connection.
  - ASHRAE can support workforce development by reaching out to technical schools and supporting technicians to development.
  - Connect the dots to technicians that their work matters in addressing climate change – not just installing and servicing HVAC systems.

- **Region VIII CRC Dallas, TX, April 2024**
  - Critical issues impacting our industry include refrigerant regulations.
  - Another critical issue is there is too much information available without a clear and consistent message on which guidance to follow (i.e. ICC, ASHRAE, state-wide/county-wide minimal energy code, Building Codes, UL, etc).
  - Standards are being written by academics and then "tossed to engineers/operators to implement.
  - Additional education to the younger generation of students and professionals with more direct HVAC education.
  - Suggestions include an undergraduate curriculum on HVAC, Reddit Forum on ASHRAE, More Fundamentals Training resources that could be pushed down to the Chapter and use Chapter Leaders to train.
  - ASHRAE materials are great for the trainer but not for the student/trainee.
  - Chapter leaders could be certified to train chapter members on fundamentals and systems training so that chapter members get industry training baked into their chapter meetings.
  - Interactive pieces of the ASHRAE Handbook are needed.

- **Region XI CRC Spokane, WA, May 2024**
  - Most critical condition in our industry is the lack of well-trained engineers in the 35-45 age range.
  - Inexperienced new hires are the norm.
  - Colleges are more focused on non-building related mechanical engineering.
  - Better candidates are usually people who have experience on job sites (not just a degree).
  - ASHRAE can help by providing background on how codes are developed so that people think more critically when applying standards.
  - Not enough people are trained to service VRF systems therefore people are backing away from these systems.
  - ASHRAE could develop a "year in the field" approach to teaching engineering students about the practical side of their work.
  - It is important for owners and contractors to work together and stay engaged with one

another to support long-term success.
    - A joint ASHRAE/AIA effort to coordinate work between disciplines.
    - ASHRAE should create a standard for the various options/templates for the sequence of operations to support technicians.
    - One idea might be for ASHRAE to create a curriculum for a local ASHRAE member/professional to teach 30-minute sessions in advance of Chapter Meetings. Perhaps utilize TCs that develop applications and fundamentals handbook.
    - A suggestion for ASHRAE to provide educational content in short YouTube- type videos for easy consumption (ASHE does something like this).

- **Region V CRC Cincinnati, OH, July 2024**
    - Focus on decarbonization/resiliency changes how projects are approached.
    - Sustainability practices of the past are now mainstream and part of the project implementation.
    - "Resiliency" is a term that is more used in this region of the country and is also catching on in Asia as well. It encompasses decarbonization, IEQ, and energy sustainability.
    - Building owners are only concerned with budget and meeting minimum code requirements.
    - Incorporate carbon calculations into all ASHRAE standards.
    - AI, machine learning/automation, digital visualization need investment from our industry.
    - Using AI to train new workers faster but also keep "old-school" understanding of plans and projects must be maintained in training.
    - ASHRAE can increase passion in the industry by more K12 STEM activities, show real-life impact, focus on cutting edge technologies and teach kids/youth how to change the world through HVAC.
    - Required HVAC courses in university curriculum is a must. Right now HVAC is just a footnote in Mechanical Engineering classes. There is a disconnect between the need in society versus emphasis in college.
    - Disconnect between design engineers and building owners. What is designed is ignored because the owners can't operate the systems.
    - Messaging should be to younger generations that the industry can help save the world. Buildings have a long-lasting impact due to their long lifetimes.

- **Region IX CRC Boise, ID, August 2024**
    - A critical issue in the industry includes the increasing costs associated with labor and projects which stalls or limits projects.
    - There is a growing gap between industry professionals with 5-20 years of experience that is causing labor shortages which increases project time and expense. A&E firms are beginning to bring in vocational training, even at the high school level, to offset some of the labor shortages.
    - There is a missing opportunity in industry training related to the "why."
    - Too few schools offer HVAC/Buildings specific programs. Most universities only offer one semester of HVAC course work.
    - There needs to be better messaging from ASHRAE on why HVAC is important to the world.
    - Encourage more ASHRAE-specific career fairs at Student Branch schools.
    - ASHRAE Design Challenges have been successful at local colleges/universities to get students engaged in the work of the industry.

- Make more co-op internships available within the industry.
- There isn't enough time to train and mentor younger professionals. There is too much to do and all projects seem to be urgent recently, which doesn't allow time to train.
- More "real world" experience is needed for example, taking students and young professionals into the mechanical room and on job sites.
- More interactive training available (i.e. VR).
- AI needs to be integrated. The Handbook is great, but searching through a 1,000-page handbook for an answer is the research of the past.
- Programs for technical people are needed. ASHRAE scholarships don't allow for support of people in technical schools.
- ASHRAE does networking and mentoring well.
- If people in the industry aren't engineers, they feel like they don't have a place at ASHRAE and therefore don't become members.
- There is a need for more programming for owners and facility managers.

- **Region III CRC Bethlehem, PA, August 2024**
  - Critical issues in the industry include lack of personnel and basic understanding of fundamentals, technology and equipment.
  - Another issue is the building owners awareness of products and applications. Regulations and equipment are changing rapidly which is creating compatibility issues.
  - Idea to create applications that field personnel can use to help make job site decisions.
  - ASHRAE Standards are great, but they only address design issues, more support is needed with commissioning and installation direction.
  - Training is needed for those installing the systems that engineers are designing. There is a big disconnect between the two.
  - Learning materials are changing for the younger generation. They aren't using handbooks and books anymore. They learn in shorter segments with 15 minute videos on specific topics.
  - Ideas include:
    - Subscription based podcasts, YouTube channels of training content
    - Consider providing a free number of PDHs each year to members
    - Get the Lucy books adopted into K-5 curriculum
    - A "Minecraft" game of sorts that's dedicated to buildings and is used as a training tool for the younger generations.
    - TCs provide content for short educational videos to cover Handbook chapters
  - Another issue the industry is facing is flammable refrigerants and how they impact various aspects of the industry.

- **Region I CRC Albany, NY, August 2024**
  - Critical issues in the industry include attracting and retaining new people, electrification and finding new ways to decarbonize while making smart decisions, and trying to get building owners back-to-basics training and IAQ knowledge.
  - Contractors have picked up more design work recently at the expense of design firms.
  - More focus should be on existing buildings to save energy within existing structure.
  - More student knowledge and engagement with ASHRAE. Professors are not pushing ASHRAE so students don't really know what it is or why ASHRAE is important. There are limited HVAC specific college courses available.

- Companies are having to do the bulk of the fundamentals training with employees who are right out of college since college courses don't dive deep enough into HVAC.
- Creating shorter, detailed videos to capture the educational content (not long manuals or handbooks).
- Training needs to showcase how this industry aligns with their ideals of environment and health
- AI tools are needed for ASHRAE members specific to ASHRAE.
- New technology is needed, other than heat pumps, to meet decarbonization goals.
- Hands-on training strategies are also needed.
- LinkedIn learning has proven to be successful in some areas of this region.
- Encourage facility internships at colleges and universities. Every university has a large HVAC system.

- **Region X CRC Phoenix, August 2024**
  - Refrigerant phase outs is the most critical issue.
  - Another issue is electrification and high ambient temperatures.
  - Rely on ASHRAE Fundamentals Training to train employees right out of college who did not get much HVAC/Buildings training with college courses.
  - Lack of college courses available for HVAC at local universities.
  - Education takes a lot of time. Are there ways we can deliver education in different methods for easier consumption?
  - Internships are critical for graduates. How can ASHRAE be involved?

- **Region II CRC Toronto, August 2024**
  - Critical issues are climate change, the many solutions for decarbonization yet issues implementing, and the industry is working in silos.
  - Building owners and operators need more training to understand the impact on building performance related to actions on the equipment. There needs to be more connection between the design engineers and this group.
  - ALI courses and instructors should be tailored to the region/country. Some courses and instructors are very US-based and aren't tailoring presentations to support international audiences.
  - There is a trend of drifting operating performance once consulting firms leave the projects.
  - Universities do not have courses that cover equipment.
  - Need to bridge the gap between building operations and design. How can ASHRAE help building owners plan and educate them about energy efficiency.
  - Net Zero targets in Canada are a big challenge when balanced with realistic plans and costs.
  - ASHRAE needs education on publishing data benchmark on buildings. ASHRAE should be guiding the industry on benchmarking data.
  - Small language model for Handbooks.

- **Region XIV CRC London, September 2024**
  - Critical issue in Europe is lack of government leadership.
  - There are gaps between "official paths" and actual policy implementation.
  - Training gaps in the workforce are fundamentals and bridge the gap between technicians and engineers.

    - ASHRAE can incorporate new ideas into existing standards to help the industry.

- **Region XV CRC Udaipur, India September 2024**
    - Critical need for ASHRAE is MEP curriculum in last semester of engineering programs.
    - ASHRAE needs to connect with students in their last year of university.
    - Training for technicians is needed for installation and commissioning of the MEP system.
    - The salary gap between IT and engineers in India is great and most young professionals gravitate toward the IT industry because of the salary.
    - ASHRAE certification for installation or another area more geared toward technicians could be beneficial.
    - Government policy amendments to encourage decarbonization are needed.

- **Region-at-Large CRC, Pakistan, October 2024**
    - ASHRAE should invest more in AI:
        - AI usage in the HVACR industry is limited and not effectively advancing technology.
        - Education on how to use AI related to air conditioning is lagging.
    - Rapidly changing climate conditions leading to severe weather are impacting the economy and HVCAR needs to adapt more quickly.
    - Focus education to mirror current workforce and focus on technical and vocational training for technicians.
    - Training programs are needed for mid-level engineers and technicians that offer certification.
    - Enrollment in mechanical engineering programs is declining as students are invested in more money-making fields.

Appendix B. 2022-2023 Roundtable Summary
Updates from 2024 Roundtables are highlighted.

Broaden ASHRAE's Target Audience

The need to broaden ASHRAE's community to include both owner/operators and technicians/ contractors was cited at several roundtables again in 2024.

- According to the December 2024 membership dashboard, ASHRAE has 4,652 contractor members and 2,918 design/build members for a total of 7,570 or 14% of 54,486 members. Despite being the 3rd largest segment of ASHRAE's membership behind design engineers and manufacturers/reps, ASHRAE offers few programs designed specifically for contractors.
- Lack of qualified technicians is seen as a universal problem at roundtables. Advance MEP systems cannot be deployed without skilled technicians for both installation and service. Refrigeration technicians in particular are cited as being in low supply as demand for cooling grows globally.
    - The transition to mildly flammable, low GWP refrigerants underscores the need to provide training to both current and new technicians.
    - More complex mechanical and control systems will require technicians with higher skill sets.
- Improved communication between the owner/operator and the design communities is critical to accelerate the transition to healthier and more sustainable buildings. Increase owner/operator participation in ASHRAE is cited as benefiting the mechanical design community and ASHRAE's mission. One roundtable suggested bringing contractors, technicians, and building owners into project committees to bring their perspectives during the standard writing process.

Practical Guidance/Tools Needed

ASHRAE is the undisputed top global technical resource for HVAC systems. However, the Society lacks guidance on practical implementation of complex design best practices. Standards and handbooks are best-in-class, but simplified guidance is needed to bridge the gap between theory and implementation. Participants of the 2024 roundtables offered solutions such as creating short YouTube videos to cover content for each chapter in the ASHRAE Handbook, podcasts, VR and gamification (such a Minecraft modification focused on buildings and HVAC systems), and LinkedIn Learning.

This issue is linked to workforce development. The 'gray tsunami' of retirements drives the next generation's need for practice implementation guidance. Traditional delivery of technical information such as printed/electronic handbooks is not appealing to younger generations. Videos, apps, online tools, and interactive training is considered more valuable than complex printed guidance.

Similarly, guidance is needed on how to navigate through ASHRAE's volumes of technical guidance, training programs, publications and standards. Roundtable participants often cited difficulty in finding relevant information.

Young current and prospective members learn differently (interactively) and respond to being challenged. Practical solutions must be delivered in new ways to have broad appeal. A few roundtables suggested training local chapter members or leaders to be "certified" to teach industry basics to ASHRAE young and members for 30 minutes before Chapter Meetings begin so that local industry professionals can attend Chapter Meetings but also receive some industry training with peers in addition to networking

Labor Shortages are a Universal Issue

Workforce development was cited as a key issue at virtually every roundtable. Note that the workforce development conversation was prompted by questions in some roundtables rather than being volunteered independently by roundtable participants.

There was a universal call to improve the understanding of and the appeal of careers in HVAC&R ("convince me to be an HVAC&R engineer").

- Short videos
- Training needed to accelerate the learning curve of those new to HVAC&R.
- Tie HVAC&R buildings engineering to solving the climate crisis.
- Message to younger audience (K-12 even) and general public about the impact HVAC&R jobs have on the environment and the future of the world.

Chapters/Regions Need Flexibility, Resources for Localized Solutions

Challenge and opportunities differ widely in regions around the world, underscoring the importance of empowering and resourcing Chapters/Regions to provide localized benefits and services.

The degree to which language is a barrier for standards, training, etc. varies widely. For example, English is not a barrier in India but is considered an issued in Brazil and Turkey. Grid limitation is a significant issue driving energy efficiency in Monterrey. Declining population in Japan exacerbates HVAC&R workforce shortages.

Canadian roundtables noted the importance of ASHRAE courses being tailored to the region (i.e. climate, regulations, carbon emission and net zero goals, policies, etc.). The roundtable in India discussed their struggle with government advocacy and adoption of ASHRAE Standards and guidance.

The cost of ASHRAE products and services is a well-documented and growing issue for many countries, often driven by inflation, political turmoil and current valuations.

Practical Refrigerant Transition Strategies and Training is Needed

The transition to low-GWP refrigerants is paced differently around the globe. Standards and regulatory timelines are not aligned. Several roundtables underscore the importance of aligning refrigerant strategies.

A strong need for comprehensive training on the design and maintenance of systems using mildly-flammable refrigerants. The need for that training varies widely by region based on the regulatory timing. It is needed for design, but more significantly needed for technician/contractor/owner operation and maintenance.

Networking is Universally Valued

Multiple roundtables underscored the value of connecting with ASHRAE's global network of building professionals as a primary benefit of ASHRAE. The Society would be well-served to identify and increase opportunities for networking throughout the Society. Creating opportunities for cross-discipline networking between designers, contractors, researchers, building owners, and manufacturers was recommended as being particularly valuable.

Shaping Tomorrow's Global
Built Environment Today

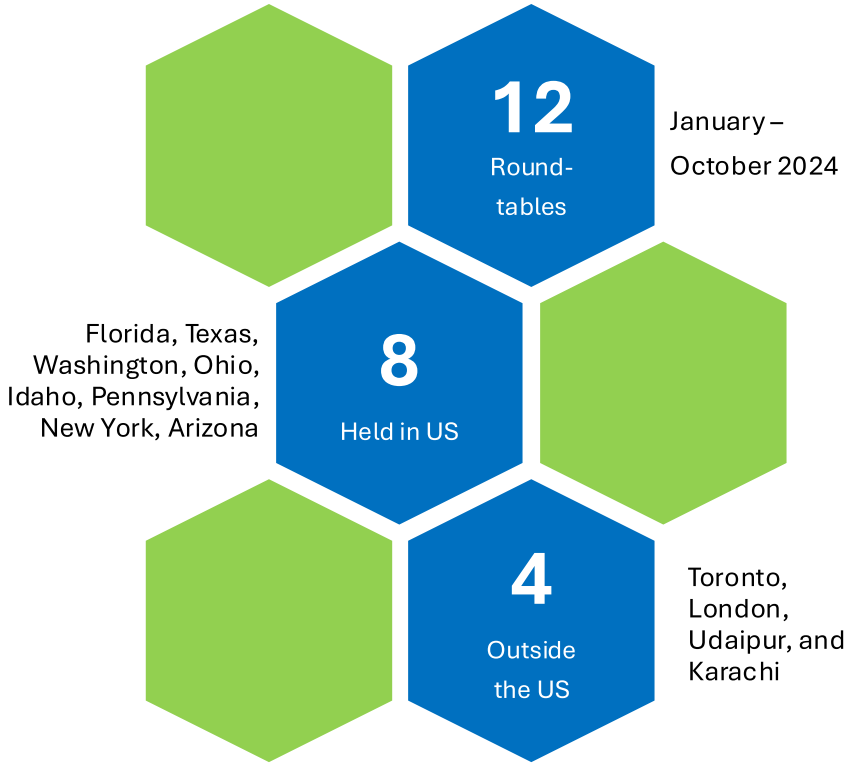
Industry Roundtables

2024 Critical Issues Summary and recommendations for Councils

ashrae.org

August 2024

2024 Industry Roundtable Critical Issues



- **Role of the Industry**
  The role that the industry is taking on reducing **carbon emissions** and **adopting sustainable practices**, through **decarbonization** and **electrification**
- **Refrigeration Regulations**
  The industry faces an overwhelming amount of regulatory information, creating confusion about which guidelines to follow for refrigerant regulations and safety. The challenges of flammable refrigerants, their impact on different sectors, and ongoing phaseouts further add to the complexity.
- **Workforce**
  The growing generational gap in the workforce.
- **HVAC in Higher Education**
  The lack of HVAC education presence in undergraduate curriculum.
- **Industry Collaboration**
  The need for more collaboration between technicians, building owners, engineers, and architects on projects.
- **New Educational Tools**
  New, more interactive and engaging tools to train and educate new and young professionals

Recommendations to Publishing & Education Council

Training and education, particularly for young professionals entering the industry is critically needed. Publishing and Education Council may consider:

- Leveraging emerging technologies and alternative formats to create training materials that may be more accessible for young professionals
- Developing additional training programs focused on HVAC fundamentals
- Adapting ALI courses to be region/country specific
- Developing resources to better educate the general public

Recommendations to Members Council

Acknowledging President Knight's theme of workforce development, many of the discussions centered around the need to engage with students and young professionals, supporting and encouraging them in their career journey in the built environment. Members Council may consider:

- Developing programs that focus on showing students (K-12, post-High including trade/technical schools) the impact they can have by choosing careers in the built environment
- Encouraging chapters to include technical training on HVAC fundamentals
- Encouraging collaboration with other industry organizations
- Exploring alternative training options, such as podcasts, videos, hands-on technical tours
- Developing a program to help facilitate internships for engineering students

Recommendations to Technology Council

Decarbonization, IEQ and refrigerant regulations are issues that members at all levels need guidance on. Technology Council may consider:

- Continuing to develop resources and practical guides on decarbonization, IEQ and refrigerants for manufacturers, design professionals, contractors, building owners/facility managers and building scientists
- Providing guidance on how emerging technologies like AI can be used to improve productivity and optimize system performance
- Providing more opportunities for technicians/operators to get involved in ASHRAE