



Shaping Tomorrow's Built Environment Today

MINUTES (DRAFT) **Environmental Health Committee (EHC)** **June 29, 2026 – Annual Meeting**

These minutes have not been approved and are not the official, approved record until approved by this committee

MEMBERS PRESENT:

Max Sherman, Chair
Lisa Ng, Vice-Chair
Benjamin Jones
Bill Bahnfleth
Conor Murray
Corey Metzger (BOD ExO)
Devin Abellon (CO)
Dimitris Charalambopoulos
Donald Weekes
John McKeon
Jorge Donoso
Kathleen Owen, *Consultant*
Linda Lee
Nitin Naik
Seema Bhangar
Jennifer Pille, *Consultant*

MEMBERS NOT PRESENT:

Andrew Persily, *Consultant*
Brendon Burley, *Consultant*
Chandra Sekhar, *Consultant*
Paul Francisco, *Consultant*
Pawel Wargocki, *Consultant*
Richard Bruns
Steve Emmerich, *Consultant*
Bob Bowcock
Howard Kipen

GUESTS:

Abdel Darwich
Anuol Prabhu
Bill McQuade
Bryan Cummings
Charlene Bayer
Eduardo Maldonado, *Incoming BOD ExO*
George Gruetzmacher
Hoy Bohanon
Iain Walker, *Incoming Member*
Jelle Laverge, *Incoming Member*
Katherine Ratliff, *Incoming Member*
Larry Schoen
Mahesh Prabhu, *Incoming Member*
Mark Jackson, *Incoming Member*
Mark Jumper
Marwa Zaatari
Matt Hardwich
Nancy McClellan, *Incoming Member*
Nisha Naiu
Nuria Casquero
Paolo Tronville
Stephanie Taylor
Vassilis Zokos
Weixiu Wang

ASHRAE STAFF:

Emily Porcari, MSLGA
Heather Pierce, TSE
Leigh Lain Walker, MBD
Tara Thomas, TSC

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MOTIONS

No.	Motion	STATUS
1	that EHC approve the draft minutes from the Spring (April 24, 2025) meeting.	PASSED
2	that the Future of ASHRAE Conferences Ad Hoc Proposal will advance ASHRAE's mission.	FAILED
3	to reaffirm the <i>Environmental Tobacco Smoke (ETS)</i> Position Document (PD).	PASSED
4	to reaffirm the <i>Indoor Air Quality</i> PD.	PASSED
5	that appointment of the following members to the <i>Indoor Air Quality</i> PD committee be approved:	PASSED
6	that EHC approve the Per- and polyfluoroalkyl substances in the Indoor Environment EIB.	PASSED
7	that EHC approve the Lithium-Ion Battery Fires EIB.	PASSED
8	that EHC approve the Toxic Hazards of Community Drinking Water Entering a Building During Distribution System Free Chlorine Burns EIB.	PASSED
9	that revision of the Residential IAQ Guide be initiated.	PASSED
10	that EHC approves revision of the EHC Reference Manual.	PASSED
11	that EHC support the RP-1996 work statement.	PASSED
12	that EHC approve the Annual Trends and Gaps Report.	PASSED

LIST OF ATTACHMENTS

No.	Attachment
A	Final Report on SY 2025-2026 MBOs
B	CE-IEQ Strategic Planning Retreat Summary
C	CE-IEQ and EHC coordination presentation
D	ASHRAE Leadership Presentation
E	FOAC Ad Hoc Proposal Report
F	EHC comments on the Tech Council Reference Manual
G	Per- and polyfluoroalkyl substances (PFAS) in the Indoor Environment EIB
H	Lithium-Ion Battery Fires EIB
I	Toxic Hazards of Community Drinking Water Entering a Building During Distribution System Free Chlorine Burns EIB
J	Residential IAQ Guide revision recommendations
K	EHC Reference Manual
L	RP-1996 Work Statement
M	EHC Trends and Gaps Report
N	The Center for Green Schools IAQ Fellowship Opportunity Details

LIST OF ACRONYMS

AIHA	American Industrial Hygiene Association
ASHRAE	American Society of Heating Refrigerating and Air-conditioning Engineers
BOD	Board of Directors
CEBD	Center for Excellence in Building Decarbonization
CEC	Conferences & Expositions Committee
CE-IEQ	Center of Excellence for Indoor Air Quality
CO	Coordinating Officer
CNV	Chair Not Voting
DRSC	Document Review Subcommittee
EHC	Environmental Health Committee
EIB	Emerging Issue Brief
ENDS	Electronic Nicotine Delivery Systems
ETF	Epidemic Task Force
ETS	Environmental Tobacco Smoke
EX-O	Ex-Officio
FOAC	Future of ASHRAE Conferences
GAC	Government Affairs Committee

IAQ	Indoor Air Quality
IEQ	Indoor Environmental Quality
MBO	Management by Objectives
MOU	Memoranda of Understanding
OPS	Operations Subcommittee
PD	Position Document
PFAS	Per- and Polyfluoroalkyl Substances
PPIB	Public Policy Issue Briefs
RAP	Research Advisory Panel
RSP	Research Strategic Plan
SME	Subject Matter Expert
SRC	Society Rules Committee
SSPC	Standing Standard Project Committee
SY	Society Year
TPS	Title, Purpose, Scope
USGBC	US Green Building Council
VC	Vice-Chair

ACTION ITEMS

AUSTIN ANNUAL 26 MEETING

No.	Responsibility	Action Item	Status
1	EHC	Questions or comments on the FOAC Ad Hoc Proposal Report should be sent to Abellon.	
2	Charalampoboulos	Provide analytics to EHC on the Infection Control Webpage traffic.	
3	Bahnfleth	Send any editorial corrections to the EHC Reference Manual to the Education Subcommittee.	
4	EHC	Submit any potential nominees for the Bahnfleth Award to Staff.	
5	Lee	Check governing documentation to determine if there is a restriction from Tech Council members being nominated for the Bahnfleth Award.	
6	Pille	Send Jones the name of a liaison to assist with adding recommendations to the Trends and Gaps report.	

REMOTE SPRING 26 MEETING

No.	Responsibility	Action Item	Status
S1	EHC	Members that have work that may be better suited for CE-IEQ to complete should contact Metzger.	Complete
S2	EHC	Review the list of EIBs on the ASHRAE site to determine if they can be retired.	Complete
S3	EHC	Ideas for articles for the IEQ column should be sent to Burley.	Complete

LAS VEGAS WINTER 26 MEETING

No.	Responsibility	Action Item	Status
LV3	Jones	Review list of liaisons to determine assignments, reporting duties, format, etc.	Ongoing
LV4	EHC	Liaison members who would like to report on EHC issues should contact Jones	Complete

1) Call to Order & Welcome

The meeting was called to order at 8:05 am CDT.

- a) ASHRAE Value Statement – *In ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We celebrate diverse and inclusive communities, understanding that doing so fuels better, more creative and more thoughtful ideas, solutions and strategies for the Society and the communities our Society serves. We respect and welcome all.*
- b) Code of Ethics – Please review prior to meeting
- c) Core Values - Please review prior to meeting
- d) Diversity Statement – Please review prior to meeting

2) Review of Agenda

Bohannon added a work statement under item 7f.

3) Approval of Minutes

- (1) It was moved and seconded that EHC approve the draft notes from the Spring (April 14th, 2025) meeting.

BACKGROUND: Draft notes were emailed May 11th and posted to Teams for review.

MOTION 1 VOTE: 11-0-0 CNV – PASSED

4) Remarks from Chair/VC (Sherman/Ng)

- a) Motions from Past Meetings requiring higher approval

Winter Meeting

- **Motion 5:** that the BOD revise the ASHRAE Rules of the Board for 26-27 SY to add an additional five voting members to the EHC Roster **[Motion FAILED at the BOD]**
- That revision to the Environmental Tobacco Smoke (ETS) Position Document (PD) be initiated. **[motion PASSED Tech Council and BOD]**
- That revision to the Indoor Air Quality (IAQ) PD be initiated. **[Motion PASSED Tech Council and BOD]**
- That Standard 235P Standard for Indoor Environmental Quality (IEQ) in Buildings be initiated. **[motion passed Tech Council]**

Spring Meeting

- That revision to the Unvented Combustion Devices and Indoor Air Quality Position Document be approved. **[Motion passed Tech Council & BOD]**

- b) Hot Air Podcast

Sherman participated in a Hot Air Podcast episode on revisiting Environmental Tobacco Smoke (ETS) ([Link](#)).

- c) Review of Action Items

All action items were reported as complete except LV3. These will be discussed as they

arise in the agenda and summarized in minutes.

d) 2025/2026 MBOs and MBO Assignments

MBOs were reviewed and discussed as they arise on agenda and summarized in minutes. A final status report on EHC's 2025-2026 MBOs would be reported to Operations Subcommittee of Tech Council (**Attachment A**). Two of the three MBOs were reported as complete.

5) **Remarks from BOD Ex-O and CO**

a) BOD Ex-Officio – Metzger

A summary of the strategic Planning Retreat for CE-IEQ members (**Attachment B**) was shared detailing current conversations on distributing responsibilities between EHC and the Status of the Center of Excellence for Indoor Environmental Quality (CE-IEQ). The responsibilities and path forward between committees is laid out in **Attachment C**.

Metzger delivered the ASHRAE Leadership Presentation (**Attachment D**). Highlights for EHC include:

- IAQ/IEQ/Thermal Comfort are hot topics in Government Affairs
- [ASHRAE Strategic plan](#) is extended through 2030
- [Vision 2035](#) is now available and provides continuity across strategic plans
- Nominations for elected positions are due September 18, 2026 [here](#).
- A new ASHRAE calendar is going live July 15 with committee meeting information during the year. More information is available at:
www.ailogistics.com/societycalendar-ashrae/

Metzger reported on the Future of ASHRAE Conferences (FOAC) Ad Hoc Committee's proposal to transition all Annual Meeting committee meetings, with the exception of the BOD and Councils, to a virtual format. This Ad Hoc was generated because the Winter Meeting in 2031 is scheduled for March and there are concerns about the timing between meetings. Annual Meeting flights for standing committee members would no longer be covered under this proposal since the meeting is intended to be virtual.

The discussion highlighted broad concerns that moving meetings to a more virtual format would reduce networking, informal collaboration, and member engagement. Several participants noted that valuable interactions often happen outside formal meetings, and that virtual platforms cannot fully replicate face-to-face communication, body language, or opportunities for guests and new members to become involved.

Additional concerns included reduced participation due to time zone challenges, barriers to entry for guests, and evidence from the COVID-19 period that virtual meetings led to lower engagement. While some participants noted that breakout rooms can support collaboration, others emphasized the importance of in-person interactions and suggested improving hybrid meeting formats rather than replacing in-person meetings altogether.

McClellan disagreed with concerns about virtual participation, noting that there were similar objections before the American Industrial Hygiene Association (AIHA) made the same change. She argued that hybrid meetings offer significant advantages and that implementation challenges can be addressed over time and that participation will increase after several years of operating in a virtual format.

- (2) It was moved and seconded that the Future of ASHRAE Conferences Ad Hoc Proposal would advance ASHRAE's mission.

BACKGROUND: A report (**Attachment E**) includes details on the changes proposed. The BOD intends to take action on the proposal within 30 days.

MOTION 2 VOTE: 0-10-1 CNV – FAILED

b) Coordinating Officer - Abellon

A modified version of the FOAC Ad Hoc proposal went before the BOD. Abellon clarifies that this proposal does not discount the importance of having in-person meetings. The Winter Meeting would not be changed. The intent is to make meetings more accessible for ASHRAE members to participate, since in-person meetings take time away from work and a financial commitment for members to travel twice a year. Any questions or comments on the proposal's report or changes can be sent to Abellon (**Action Item 1**). A question from Sherman clarifies that some topical conferences may move to a virtual format as well. It is unclear at this time if this change would require a vote from ASHRAE members.

6) Policy & Advocacy Subcommittee (*Bahnfleth*)

a) EHC Advocacy Training (MBO #2)

This MBO has evolved throughout the year. The original goal was to develop training on IAQ issues in the Government Affairs Committee (GAC). GAC then wanted concise statements to add to their training events. The subcommittee has come up with a preliminary list of topics. They plan to complete this MBO before the Winter Meeting.

b) Position Document (PD) Updates

- *Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries*
Francisco is currently working on forming a PD committee to submit for approval soon. Revision is anticipated to begin with Francisco as chair.
- *Environmental Tobacco Smoke*
Persily is leading the Title, Purpose, and Scope (TPS) review. He has taken on the responsibility of proposing the chair and committee.

- (3) P&A recommends that EHC recommends that DRSC recommend to Tech Council to reaffirm the *Environmental Tobacco Smoke (ETS)* Position Document (PD).

BACKGROUND: This PD expired on June 28, 2026. A revision to the ETS PD was initiated at the Winter Meeting in Las Vegas. It is essential to reaffirm this important position document to ensure that the guidance remains available while the PD is under revision. EHC plans to recommend a chair and committee at a later meeting.

MOTION 3 VOTE: 11-0-0 CNV - PASSED

- *Indoor Air Quality*

- (4) P&A recommends that EHC recommends that DRSC recommend to Tech Council to reaffirm the *Indoor Air Quality* PD.

BACKGROUND: This PD expired on June 28, 2026. A revision to the IAQ PD was initiated at the Winter Meeting in Las Vegas. It is essential to reaffirm this important position document to ensure that the guidance remains available while the PD is under revision. EHC plans to recommend a chair and committee at a later meeting.

MOTION 4 VOTE: 11-0-0 CNV – PASSED

- (5) P&A recommends that EHC recommends that DRSC recommends to Tech Council that appointment of the following members to the *Indoor Air Quality* PD committee be approved:

Name	Possible Category
Iain Walker (Chair)	Public
Brent Stephens	General - Academic
Pawel Wargocki	General - Academic
Jeffrey Siegel	General - Academic
Cheri Marcham	General - Academic
Alex Mavrelis	General - Consultant
Max Sherman	General - Consultant
Donald Weekes	General - Consultant
Bruce White	User

BACKGROUND: All expressed a willingness to participate in the revision. The members represent relevant ASHRAE committees and outside expertise. ASHRAE bios for ASHRAE members are available on [Basecamp](#). The Tech Council Reference Manual limits PD committee membership to 8 members. This proposed committee would require an exception to this rule.

MOTION 5 VOTE: 11-0-0 CNV - PASSED

- *Infectious Aerosols*

Revision is underway with work expected to resume soon. Progress has been slow due to some members' employers. McQuade notes that ASHRAE received a letter from the Department of Energy and has come to an understanding. The Department of Energy has pledged to remove restrictions for National Lab employees, allowing them to move forward in working with ASHRAE.

- *Indoor Chemistry*

A proposal is underway. This is on its third title and will likely be on the fourth iteration before submission. The TPS is drifting away from its initial topic. Edits are still being made to the scope to convey the intended message. A draft proposal with possible committee members and background has been developed. The PD proposal may be expected soon.

c) Tech Council Reference Manual Position Document (PD) Process Review

EHC submitted comments on the Tech Council Reference Manual to OPS (**Attachment F**). This includes comments on editing the language to make the PD process more clear and reflect current procedures.

d) Emerging Issue Briefs (EIB)

- Per- and polyfluoroalkyl substances (PFAS) in the Indoor Environment

(6) P&A Subcommittee moves that EHC approve the Per- and polyfluoroalkyl substances in the Indoor Environment EIB.

BACKGROUND: The final EIB is given in **Attachment G** and will be posted to the ASHRAE Website. Initiation of this EIB was approved in Phoenix, with the effort being led by Ng.

MOTION 6 VOTE: 11-0-0 CNV - PASSED

- Lithium-Ion Battery Fires

(7) P&A Subcommittee moves that EHC approve the Lithium-Ion Battery Fires EIB.

BACKGROUND: The final EIB is given in **Attachment H** and will be posted to the ASHRAE Website. The EIB scope will include equipment such as lawn tools and hand tools rather than being limited to phones or other handheld devices. The aim is to raise the issue so the appropriate ASHRAE or outside group will develop documentation.

MOTION 7 VOTE: 11-0-0 CNV - PASSED

- Indoor Smoke-Generating Events

A draft is underway. There is a current lack of ASHRAE guidance on smoke generation in cultural religious ceremonies. Several draft versions have been prepared, but this EIB is not quite ready for review. A completed draft is anticipated for the Fall meeting.

- Toxic Hazards of Community Drinking Water Entering a Building During Distribution System Free Chlorine Burns

(8) P&A Subcommittee moves that EHC approve the Toxic Hazards of Community Drinking Water Entering a Building During Distribution System Free Chlorine Burns EIB.

BACKGROUND: The final EIB is given in **Attachment I** and will be posted to the ASHRAE Website. This practice has the potential to cause damage to plumbing systems and bring legionella into building water systems. The aim is to raise the issue so the appropriate ASHRAE or outside group will develop documentation.

MOTION 8 VOTE: 11-0-0 CNV – PASSED

e) Government Affairs Committee (GAC)

- ASHRAE staff have tracked 47 indoor environmental quality (IEQ)-related bills this year, including several carried over from 2025 legislative sessions.
- Members noted that the quarterly coordination meetings have helped drive increased activity and collaboration over the past year.

- EHC members have provided support on numerous legislative issues, particularly at the state level.
- While not all aspects of IEQ are currently represented in legislation, most bills focus on schools, public health, and indoor air quality.
- A guest noted that several organizations are working to implement ASHRAE Standard 241 in schools while minimizing the financial burden of compliance.
- Legionella prevention and water management continue to be common topics in IEQ-related legislation.
- Members discussed the importance of considering whether EHC's outreach efforts should be focused more on the city, state, or federal level.
- As a future opportunity, EHC could develop a presentation or outreach materials to raise awareness of IEQ issues and ASHRAE resources.

7) Education Subcommittee (Lee)

a) Residential IAQ Guide (Murray)

- (9) EHC recommends to Publications Committee that revision of the Residential IAQ Guide be initiated.

BACKGROUND: EHC was asked by Publications Committee to review the Residential IAQ Guide and give a recommendation on whether it requires an update. Recommendations for revision of the Residential IAQ Guide publication are given in **Attachment J**. This attachment explains what should be updated and why.

MOTION 9 VOTE: 11-0-0 CNV – PASSED

Recommended revisions include considering the different groups who may have an interest in this publication including homeowners, architects, and engineers and incorporating guidance for regions around the world. Murray recommends looking into empowering residents and including guidance for homeowners around the world. A guest notes there is a large gap between ventilation guidance given and the current industry practices.

Ng suggests that it cannot be decided if EHC will be the cognizant committee for revision until it is decided how the work will be completed. Others note it might be best to let another committee complete the work such as Special Projects, Standards Committee, or a Technical Committee. Sherman suggests sending a motion to Tech Council to revise and let them decide how the work will be completed.

b) EHC Programs

EHC co-sponsored TC 9.06 Seminar 17 titled “They’re Living Among Us! They Are Invisible! What Should We Do about the Building Microbiome?,” which went well with positive feedback.

EHC co-sponsored TC 9.06 Seminar 60 titled “Beyond Ventilation: Integrating Emerging Technologies, Immunity Science and Standards for Comprehensive Infection Risk Management.”

The deadline for submitting programs for the 2027 Winter Conference in Chicago is August 3rd. The full deadline schedule and other information is available at <https://www.ashrae.org/conferences/2027-winter-conference/2027-winter-conference-technical-program>.

c) Infection Control Website (MBO #3)

This website went live on May 15th ([link](#)). The goal was to pull all information on Infection Control including ASHRAE Standards and information from other organizations. The Hot Topics section includes information from ASHRAE as well as related news. It was noted that Hot Topics may generate more traffic if it branches out on topics other than ASHRAE news. Charalampoboulos is collecting analytics from ASHRAE Staff to gain insight into how the site is being used. A spreadsheet is tracing which links on the site are most active. Analytics will be provided to EHC (**Action Item 2**).

d) Reference Manual Update

A reference manual was sent for EHC review. Members suggest including guidance on the update schedule of the Infection Control website. Bahnfleth will send an editorial correction to Education Subcommittee (**Action Item 3**).

(10) It was moved that EHC approves revision of the EHC Reference Manual.

BACKGROUND: The latest version of the EHC Reference Manual is included as **Attachment K**.

MOTION 10 VOTE: 11-0-0 CNV – PASSED

e) IEQ Column Update (Burley)

There are currently enough articles for the column through the August issue of the ASHRAE Journal. One suggestion is to develop an article that communicates what an EIB is and which ones have been developed to a broader audience.

f) Work Statement (Bohannon)

Bohannon is looking for additional support with his work statement for RP-1996 Test Method to evaluate Cross Contamination in Energy Recovery Wheels in Critical Spaces – Part 2 (**Attachment L**). The project would study ventilation systems with exhaust and supply where Standard 90.1 and other standards require energy recovery.

(11) It was moved (Lee) and seconded (Bhangar) that EHC co-sponsor the RP-1996 work statement.

BACKGROUND: Testing has found that exhaust air and associated chemicals can leak back into buildings. Currently, there is no standard measurement methodology, so this effort will study the chemical makeup of re-entrained air and identify designs that minimizes this effect.

MOTION 11 VOTE: 11-0-0 CNV – PASSED

g) Donald Bahnfleth Environmental Health Award

Criteria for this award is available in the Reference Manual. Nominations are due on October 1st. Nominees cannot be current EHC members. EHC should submit any

potential nominees for the Bahnfleth Award to Staff (**Action Item 4**). Please feel free to renominate those who have not won in the past.

Though not in the reference manual, it was noted that Tech Council members are also ineligible for the Bahnfleth award. Lee will check the governing documentation to confirm this (**Action Item 5**). If this is not included in any governing documentation, Lee will consider including this requirement in the Reference Manual.

8) Outreach & Coordination Subcommittee (*Jones*)

a) EHS Trends and Gaps Report

A white paper with six main points was drafted following discussion (**Attachment M**). There were quite a few comments on the original draft. Standards and Research use this report to develop a priority list for future projects. There is uncertainty whether anyone else uses this report. Some suggestions are to publish highlights in the ASHRAE Journal, including actions with the recommendations, or listing committees that might have an interest. Sherman asks that recommendations be explicitly included in future reports.

There is uncertainty whether this report is used beyond developing a Standards and Research developing a priority list. It is suggested that EHC be more precise in what happens after development and approval. One suggestion is to send the report to relevant committees to share the information. Weekes suggests publishing the highlights in the ASHRAE Journal. McKeon suggests that each item have an action attached to recommendations as a result of these findings to bridge gaps and which committees they would be most of interest to. Jone adds that he does hint at an action in his final sentence of each point and that not being explicit is the point of the report. Sherman asks that, moving forward, recommendations be more explicitly included.

Pille will give Jones the name of a liaison who can assist with including recommendations (**Action Item 6**), since they require a comprehensive understanding of ASHRAE. Bhargar suggests including a requirement for including recommendations in the Reference Manual.

(12) P&A Subcommittee recommends that EHC approve the Annual Trends and Gaps Report.

BACKGROUND: As part of EHC's responsibility (ROB 2.406.001) to identify major environmental health trends impacting the practice of HVAC&R and inform the ASHRAE leadership and membership of these trends and their potential impacts.

MOTION 12 VOTE: 11-0-0 CNV – PASSED

b) Long Term IEQ Conference Planning Document

Two EHC members, Weekes and Jones, have developed similar planning documents. They will work to combine these into one. They need the Center of Excellence for Indoor Air Quality (CE-IEQ) to let EHC know what they plan on doing in the IEQ Conference planning. This planning document is intended to be information that can give the CE-IEQ a starting point. It is unclear which committee will be responsible for specific tasks at this time.

c) IEQ2028 Conference Planning Steering Committee

Meetings with ASHRAE staff as well as past conference chairs and vice-chairs were

productive. A few potential locations for the IEQ2028 conference include: Madrid, UK, Ireland, and Brazil. ASHRAE conference staff will let the steering committee know which locations are most feasible. The 2027 steering committees will be responsible for deciding final details.

d) List of Liaisons

Formal efforts have begun on compiling a list of liaisons. This is expected to be formalized in the next several months and added to the Reference Manual. Little input has been received from EHC members on relevant groups to be included in this list. A guest notes that Annex 101 will have their first meeting this year with members from Latin American countries. There is currently no specific funding for this group. Rather, funding depends on the country and can range from member travel to funding projects.

9) New Or Other Business

a) Center for Green Schools IAQ Fellowship Opportunity

The Center for Green Schools IAQ Fellowship Opportunity (**Attachment N**) is a paid fellowship opportunity for school districts staff that combines energy efficiency and IAQ work. It is suggested that EHC spread the word to colleagues so that anyone interested may apply.

10) New Society Year

a) Recognize Outgoing Members

Chair Max Sherman and members Bob Bowcock, Dimitris Charalambopoulos, Jorge Donoso, Howard Kipen and Conor Murray are rolling off the committee and were recognized with Certificates of Appreciation for the volunteer efforts over their term.

b) Recognize Incoming Members

Incoming voting members in attendance Mark Jackson, Jelle Laverge, Nancy McClellan, Mahesh Prabhu, Katherine Ratliff, and Iain Walker were welcomed.

11) Next Meetings

a) EHC Fall Meeting – September TBD

b) ASHRAE Winter Meeting – January 25, 2027– Chicago, IL

12) Adjournment

The meeting is adjourned at 11:57 am CDT.

MBO Submissions to Planning Committee

Committee: Environmental Health Committee

Chair: Sherman Max
Vice-chair: Ng Lisa Chen

MBO #	Description	Metric (how do we determine success?)	Completion % /Date	Financial Assist Req'd?	Staff Assist Req'd?	MBO Comments
1	Standards Project Committee on IEQ	Approved SPC Membership	Annual meeting 2026		Yes	LEAD SUBCOMMITTEE: Outreach and Coordination Several EHC MBOs from 2024-25 supported the need for a new standard related to IEQ (e.g. metrics, definitions). O&C will convene a virtual workshop during 2025 to present these efforts to interested parties and get feedback. Based on the results of that workshop (which are to be presented to EHC no later than the Winter meeting in 2026), they will work with Standards Committee to develop a Title Purpose and Scope to create a new SPC including chair and membership. 100% complete. Standard 235P Standard for Indoor environmental Quality (IEQ) in buildings was initiated.
2	EHC Advocacy Training	Training Video/Presentation	Annual meeting 2026		Yes	LEAD SUBCOMMITTEE: Policy and Advocacy Many ASHRAE volunteers and some staff interact with policy makers and other external groups who deal with HVAC-related issues. Those representing ASHRAE should be sufficiently aware of relevant environmental health issues to give "elevator speeches" as needed. This MBO is to create a training video, recorded seminar or similar self-study course to bring appropriate ASHRAE volunteers up to speed. 23.1% complete. The project has evolved to work on developing concise statements on IEQ for training events. This is expected to be completed before the Winter Meeting in Chicago.
3	Infection Control Website	Operational public facing website	Winter meeting 2026	Yes	Yes	LEAD SUBCOMMITTEE: Education Based on existing preliminary website, work with staff to have a fully operation website styled after and including the archive of ETF website. Website should include all existing ASHRAE activities specifically related infection control including Standard 241, any related appendices in other standards such as 62, and important information from outside ASHRAE. 100% complete. This website is available at https://www.ashrae.org/technical-resources/infection-control. Analytics are being collected to give information on web traffic.

ASHRAE CE IEQ STRATEGIC PLANNING RETREAT

Meeting Summary for April 23–24, 2026 • Washington, D.C. (Hybrid)

ASHRAE Center of Excellence for Indoor Environmental Quality

Thursday, April 23, 2026 1PM-6:30PM ASHRAE Gov Affairs Office	
Topic	Lead
Welcome & Review of Objectives - Welcome & introductions - ASHRAE Values Statement - Meeting logistics - Meeting objectives and agenda	Wade/Marwa
Review Activities (Completed & Ongoing) - HLT/CE IEQ Update - ROB update, MOP review and vote (Wade) ~10 min - RFP update (Corey) - Ref Manual update (Stephanie)	Various
Alignment between CE IEQ and Other Committees, Councils and Liaisons - EHC - IEQ Conference path forward - Expectation of Liaisons - Level of involvement and meeting cadence - Division of priorities and responsibilities - Cross-over and gaps/opportunities - Current requests for engagement (ARPA-H BREATHE, National Academies)	Wade/Marwa
Breakout Session Overview - Overview of breakout session structure and expectations. - Goal: develop a prioritized list of actions the CE IEQ should take in 2026–27 and beyond.	Marwa
Society-level Roadmap Document for Advocacy/Briefings and Marketing Plan Breakout Session A (parallel sessions)	Marwa
A.1 – CE IEQ Roadmap Priority Topic: Society-level Harmonization Strategy Commitments (guidance memo, checklists, templates, etc.)	Lead: Bill Bahnfleth Megan Tosh, Erik Miller-Klein, Matthew Archey, Stephanie Reiniche, Mark Jackson John McKeon (Remote)
A.2 – CE IEQ Roadmap Priority Topic: External Coordinated Health/IEQ/IAQ Nexus Commitments (Decarbonization, Energy)	Lead: Corey Metzger Hailey Mick, Hassan Younes, Meghan McNulty, Wade Conlan, Leigh Lain Walker Adrienne Thomle (Remote)
A.3 – CE IEQ Roadmap Priority Topic: Marketing plan	Lead: Robert Bean Amr Suliman, Jason Hartke (suggested), Don Weekes, Marwa Zaatari, Alice Yates Bill McQuade (Remote)
Potential Liaisons and Partner Organizations Internal and External Advocacy and Collaborations	Wade

Thursday, April 23, 2026 Meeting Summary

Day 1 Meeting - Overview

The CE IEQ convened a strategic working session to review completed and ongoing activities, clarify alignment with internal committees and councils, assess external engagement and liaison requests, and establish priorities for Society Year (SY) 2026–27. The meeting reinforced CE IEQ's evolving role as ASHRAE's strategic, outward-facing leader on IEQ, with a strong emphasis on harmonization, policy influence, and external coordination. The meeting confirmed CE IEQ's transition into a **strategic, outward-facing leadership role** for IEQ across ASHRAE—focused on harmonization, policy influence, external partnerships, and long-range prioritization—while strengthening alignment with crucial ASHRAE committees such as EHC, GAC, CEBD, as well as key external stakeholders.

Governance and Organizational Matters

The CE IEQ confirmed successful establishment of its governance foundations:

- The **Rules of the Board (ROB)** have been approved by the ASHRAE Board of Directors.
- The **Manual of Procedures (MOP)** was reviewed and unanimously approved; 8-0-0, CV.

The committee agreed that the MOP appropriately establishes CE IEQ's operating framework. Targeted clarifications rather than structural revisions are needed, particularly related to member qualifications, liaison expectations, and coordination with key committees. These updates will be addressed through the Reference Manual.

IEQ Standards and Technical Initiatives

The CE IEQ was updated on the progress of the **IEQ Standard RFP seed document**, which is ready for review and will be posted for input. The document is intended to seed development of an IEQ standard that complements existing ASHRAE standards, particularly by addressing operational performance and outcomes not fully covered today. The committee discussed the relationship to Standards such as 189.1 and reinforced that CE IEQ's intent is not duplication, but thoughtful integration and gap-filling. Broad feedback from CE IEQ will inform next steps, with a proposed six-month development window.

Alignment with Environmental Health Committee (EHC)

A key outcome of the meeting was formal clarity on the functional alignment between CE IEQ and the EHC:

- **CE IEQ** will lead on *IEQ strategy, prioritization, harmonization across the Society, external coordination, and long-term IEQ Roadmap*.
- **EHC** will continue to lead *technical execution*, including development of the trends and gaps report, policy and position document development, handbook content for Environmental Health chapter, ASHRAE Journal IAQ column, conference programming along with CEC, review RTARS, communicate policy and interface 241 and position documents as coordinated with Technology Council, and administer the EHC Award.

CE IEQ will also support EHC in long-range planning for future IEQ conferences and will provide prioritized topic areas following completion of CE IEQ's strategic planning process.

Government Affairs and Policy Engagement

The Council discussed enhanced coordination with the **Government Affairs Committee (GAC)**, emphasizing the importance of alignment across CE IEQ, EHC, and GAC.

Key themes included:

- A triangular working relationship in which CE IEQ provides strategic and outward-facing leadership, EHC provides technical depth, and GAC provides legislative and policy insight.
- A focus on scalable approaches such as **model policies and legislation**, rather than jurisdiction-by-jurisdiction advocacy.
- The need to formalize coordination practices and liaison expectations within CE IEQ governance documentation.

External Engagements and Strategic Partnerships

The Council reviewed several external engagement opportunities and discussed the need to set parameters for vetting collaborations and guest speakers in CE IEQ meetings, with particular discussion on:

- **National Academies Health & Buildings Roundtable** participation, which was viewed as strategically valuable for influence, thought leadership, and cross-sector collaboration.

- **ARPA-H's BREATHE Program**
- Agreement to pursue modest, targeted participation (e.g., limited travel support) rather than formal sponsorship, while ensuring that insights from these engagements are translated back to the ASHRAE community.

The Council also recognized a growing volume of external liaison and partnership requests and agreed on the need for clearer evaluation criteria tied to CE IEQ's strategic priorities, scope, and long-term obligations.

Liaison Strategy

The Council reviewed and narrowed a list of potential liaison organizations and discussed the distinction between **formal liaisons** and more limited, ad hoc engagements. Final liaison selections were scheduled for completion immediately following the meeting, with the intent to limit total commitments, avoid duplication with existing Society liaisons, and retain flexibility for future needs.

The meeting confirmed CE IEQ's trajectory in SY 2026–27 as a **strategic integrator and external-facing leader** for IEQ across ASHRAE. The actions set from this meeting will position CE IEQ to more effectively elevate IEQ within ASHRAE and across the broader built environment community.

Action Items & Next Steps:

- Discuss Breakout Session action priorities to help inform CE IEQ Roadmap development.
- Collect CE IEQ feedback on the IEQ Standard RFP seed document (Deadline: April 30). Leigh Lain Walker to distribute the document link.
- Clarify external engagement and liaison strategy – build out member and liaison job description.
- Update the CE IEQ Reference Manual with targeted clarifications (member qualifications, committee coordination, liaison expectations). Target timeline is 6 months completion before Winter Conference.
- Provide prioritized IEQ topics to EHC for future conference planning.
- Share CE IEQ strategic goals with GAC and formalize coordination practices.
- Finalize liaison selections and document expectations.

Friday, April 24, 2026 8AM-11:30PM Daikin Sustainability and Innovation Center (DSIC)	
Topic	Lead
Arrival and Breakfast	
Thursday recap and Friday Agenda • Summary of key themes and discussions. • Review agenda. Breakout Session Discussion Prep • Equal time for all sessions • Develop a list of actions the CE IEQ could take.	
Breakout Session Summaries (~10 min each) • Session A: A.1, A.2, A.3, — Session leaders present.	<i>Session Leaders</i>
• CEBD Update ~20 min • Alignment between CEBD and CE IEQ	<i>Blake/Carrie Marwa/Wade Stephanie</i>
Prioritization of CE IEQ Activities • Review the full action list generated across all sessions. • Add any missing items. • Voting & prioritization: results will drive CE IEQ actions for 2026–27 and beyond.	<i>Marwa</i>
Closing Reflections and Wrap Up • Lessons learned from outgoing members (~5 min each).	<i>Outgoing Members/Marwa</i>
Daikin Tour and co-ASHRAE Centers of Excellence Luncheon	

Friday, April 24, 2026 Meeting Summary

Day 2 Meeting - Breakout Session Strategic Priority Outcomes:

1. **Develop IEQ Operator Checklist and Standards-Specific Guidance (4 tasks by Annual Meeting 2027)**
 - a. **Working Group:** Erik (lead), Hailey, Meghan, Robert, Chris
2. **Develop a Holistic IEQ Briefing Document (4 tasks by Winter Meeting 2027)**
 - a. **Working Group:** John (lead), BillB, Wade, MeganT, Amr, Hailey
3. **Develop Metrics for IEQ and Carbon, Energy Nexus (3 tasks within 2 years)**
 - a. **Working Group:** Hassan (lead), Don, BillB, Corey, Marwa, CarrieB (CEBD), Hailey
4. **Review and Strengthen Organizational Relationships (3 tasks within 6 months).**
 - a. **Working Group:** Marwa (lead), Wade, Alice, Stephanie
5. **Announce and Activate CE IEQ (4 short-term tasks).**
 - a. **Working Group:** Wade (lead) BillM, et al.

Priority Liaison Outcomes:

Formal Liaisons to extend an invitation to attend meeting and have a voice in CE IEQ discussion, pending assignment acceptance:

- International Facility Management Association
- Health & Human Services / MAHA
- American Institute of Architects
- Illuminating Engineering Society
- International WELL Building Institute (IWBI)

Discussed opportunities for all other informal relationships and cross-CE IEQ interdisciplinary cohorts that can be engaged through regular updates on CE IEQ activities and strengthened through staff-to-staff communication. Suggestions included building relationships with IAQ colleagues, supporting IEQ-related conferences outside of ASHRAE expertise, and tapping into staff-to-staff relationships for ongoing communication, as well as helping with fundraising with Development and CEC.

The day ended with closing reflections and lessons learned from Outgoing HLT Members. Marwa wrapped up with an overview of the priorities discussed and a co-ASHRAE Centers of Excellence Luncheon.

ASHRAE CE IEQ Membership & Attendees

	ASHRAE CE IEQ Attendees	Role/Title
1	Wade Conlan	CE IEQ Chair/Incoming Coordinating Officer (Treasurer) SY 26-27
2	Marwa Zaatari	CE IEQ Vice Chair/Incoming CE IEQ Chair SY26-27
3	Amr Suliman	CE IEQ Member Y26
4	Don Weekes (Remote)	CE IEQ Member Y26
5	William "Bill" Bahnfleth	CE IEQ Member Y26-29
6	Erik Miller-Klein	CE IEQ Member Y26-29
7	Robert Bean	CE IEQ Member Y26-29
8	John McKeon (Remote)	CE IEQ Member Y26-29
9	Hailey Mick	CE IEQ Member Y26-29
10	Meghan McNulty	CE IEQ Member Y26-29
11	Hassan Younes	CE IEQ Member Y26-29
12	Matthew Archey	Members Council Liaison to CE IEQ Y26
13	Megan Tosh	PubEd Council Liaison to CE IEQ Y26
14	Corey Metzger	Tech Council Liaison to CE IEQ Y26/Incoming Consultant SY 26-27
15	Adrienne Thomle (Remote)	Incoming Tech Council Liaison to CE IEQ SY 26-27
16	Jason Hartke	International WELL Building Institute Liaison to CE IEQ SY 26-27
17	Stephanie Reiniche	Staff Liaison, ASHRAE Director of Technology
18	Leigh Lain Walker	Staff Liaison, ASHRAE Mgr. of Building Decarbonization
	Guests	Role
19	Alice Yates	ASHRAE Managing Dir. of Government Affairs
20	Mark C. Jackson	IEQ SME Daikin Applied Americas
21	Ivan Rydkin	Daikin Dir. Regulatory and Industry Affairs
22	Blake Ellis	CEBD Chair (incoming ASHRAE Vice President SY 26-27)
23	Carrie Brown	CEBD Vice Chair (incoming CEBD Chair SY 26-27)
24	Ginger Scoggins	CEBD Member (incoming CEBD Vice Chair SY 26-27)
25	Mark Lessans	CEBD Member
26	Amanda Webb	CEBD Member
27	Mark Lessans	CEBD Member
28	Stet Sanborn	CEBD Member
	Absent	
	Bill McQuade	ASHRAE President SY 25-26/Incoming CE IEQ Vice Chair SY 26-27
	Robert "Bob" Bowcock	CE IEQ Member Y26
	Ashish Rakheja	Coordinating Officer (Treasurer) Y26
	Chris Wolgamott	CE IEQ Member Y26-29



Center of Excellence for Indoor Environmental Quality (IEQ)

Wade H. Conlan, Chair of CE IEQ

Marwa Zaatari, Vice Chair of CE IEQ

ASHRAE Annual Meeting- Austin

Charge to the IEQ Hub

Strategic Evaluations Ad Hoc

The Hub was to determine if there is a need for an IEQ Board Subcommittee as well as:

- Define the “why.”
 - The unique ability of ASHRAE to bring all facets of IEQ together
 - The need to be elevated to be seen as equivalent to CEBD
- Define the “what.”
 - ASHRAE’s strategic direction for IEQ
 - Advance the health of building occupants providing resources
 - Collaborate with the CEBD
- Define the “how.”
 - Organizational structure
 - Interaction within ASHRAE and outside of ASHRAE to raise stature
 - Strategic coordination with the CEBD.



Organizational Structure

The structure mirrors the CEBD structure and reports to Board ExCom

Voting Members:

- Chair and Vice Chair
- Two voting members outside of the US and Canada.
- Two voting representatives from major stake holder organizations or a public health officials with IEQ expertise outside of ASHRAE's core scope.
- A past Chair of the Environmental Health Committee.
- A current member of the Environmental Health Committee.

Liaisons:

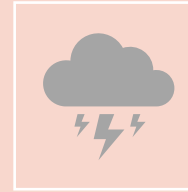
- One from each Council
- One from CEBD
- Additional outside organizations



Primary Responsibilities



Strategy. Provide strategic direction for ASHRAE IEQ activities. Develop and prioritize strategic initiatives that accelerate and advance IEQ on a global basis.



Thought Leadership. Monitor emerging issues and trends to ensure that ASHRAE remains relevant and the forefront leader in IEQ.



Collaboration. Coordinate joint initiatives, events, and projects with organizations whose work is complementary to ASHRAE's IEQ activities to accelerate and advance building IEQ.

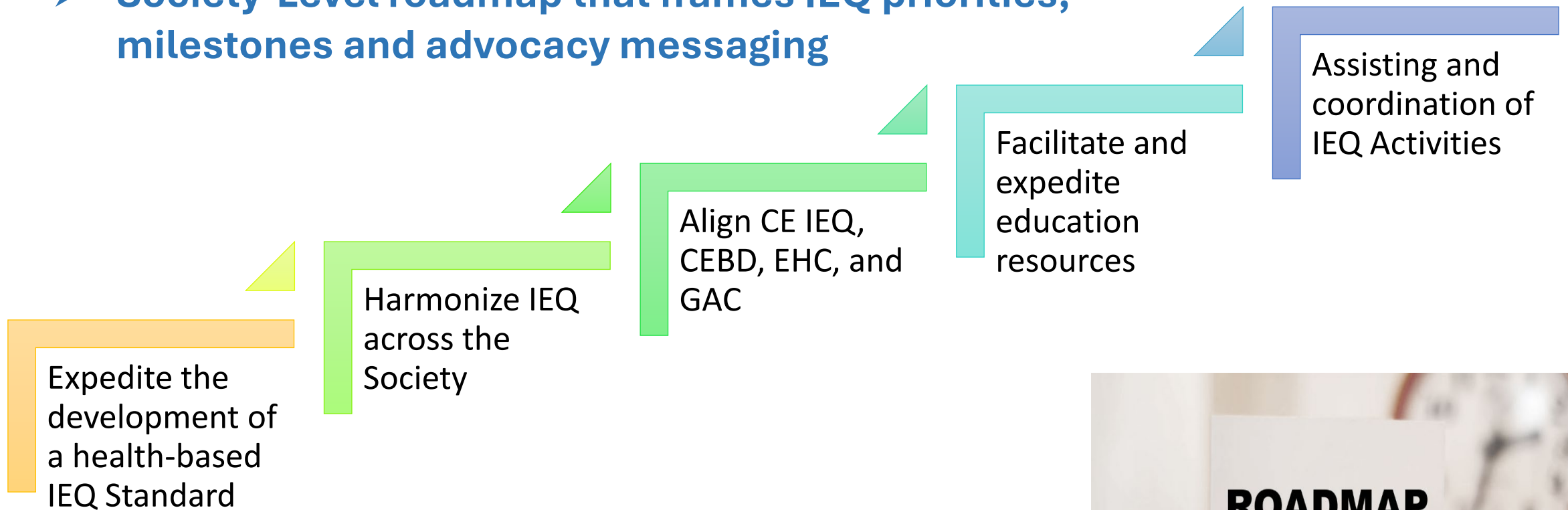


Public Policy, Advocacy and Outreach. Work with Government Affairs and outside organizations to provide reliable technical information on IEQ to policymakers, media, and the public. Develop policy and outreach programs to address major IEQ issues through initiatives and programs being proactive and not reactive.

IEQ Roadmap & Initial Priorities

Develop an IEQ Roadmap

- **Society-Level roadmap that frames IEQ priorities, milestones and advocacy messaging**



Organizational Relationships

Internal Alignment & Coordination

- Coordination with CEBD, EHC, GAC
 - Regular coordination meetings
 - Information exchanges
 - Strategic alignment
- Strengthen Committee & Council relationships
- Enable staff & liaison alignment

External Advocacy & Collaboration

- Prioritized Formal Liaisons to the CE IEQ
 1. International Facility Management Association (IFMA)
 2. Health & Human Services/MAHA (HHS)
 3. American Institute of Architects (AIA)
 4. Illuminating Engineering Society (IES)
 5. International WELL Building Institute (IWBI)
- Identified informal liaison relationships with multiple industry-related organizations



Alignment between CE IEQ and CEBD

Effective alignment of the Centers of Excellence depends on:

- Relying on Committee leadership
- Utilizing Committee Liaisons to communicate activities/efforts
- Partnering with staff liaisons

EHC – IEQ Conference Path Forward

CE IEQ Role: *Assist EHC in Long Range planning for IEQ Conference*

- Long Range: Next 3 Conferences, EHC provides to CE IEQ
 - Year
 - Potential Month
 - Potential Chair
- Short Range: Next Conference, EHC provides to CE IEQ
 - Actual Dates for Conference
 - Location
 - Chair / Vice Chair and Tech Chair
 - Potential Theme / Tracks
 - Completed form submitted to CEC

EHC – CE IEQ Alignment (as presented to BOD)

Items transferred from EHC to CE IEQ

1. Develop strategic plan
2. Recommend new activities (such as product development, future challenges, etc.)
3. Recommend policy documents for ASHRAE to create on IEQ
4. Identify potential topics for new position documents
5. Prioritize IEQ research topics
6. Facilitate the expediting of education resources, review courses, and choice of topic
7. Oversee harmonization of IEQ across society
8. Provide external coordination with outside organizations and relationship maintenance
9. Assist EHC in the long-range plan for IEQ conferences

Items staying with EHC

1. Develop trends and gaps report (will feed into the strategic plan)
2. Develop policy documents they deem necessary and as suggested by the CE IEQ
3. Develop position documents
4. Manage ASHRAE Journal IAQ Column
5. Maintain Handbook Chapter on Environmental Health
6. Propose conference programs
7. Lead the specific IEQ Conference programming and event planning (in association with CEC)
8. Control and update website content
9. Administer EHC Award
10. Communicate policy (such as Emerging Issue Briefs)
11. Review RTARs
12. Interface 241 and Position Documents assigned by Technology Council



Center for Excellence in Indoor Environmental Quality



(CE IEQ April 23-24 in Washington, DC)

Strategic Planning Retreat

- ✓ Develop IEQ Roadmap
- ✓ Harmonize Current & Expedite Future IEQ Guidance
- ✓ Strategize Alignment with CE BD, EHC, & GAC
- ✓ Create External Engagement & Liaison Strategy
- ✓ Develop Future Strategic Priorities

SY 2026-2027 Strategic Priorities

- ✓ Announce and Activate CE IEQ
- ✓ Develop IEQ Operator Checklist
- ✓ Develop Standards-specific Guidance
- ✓ Continue Support for 235p and RFP
- ✓ Develop a Holistic IEQ Briefing Document
- ✓ Develop Metrics for IEQ & Energy Nexus
- ✓ Review & Strengthen Organizational Relationships



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2026 ASHRAE Annual Conference

LEADERSHIP PRESENTATION

Code of Ethics

We will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and we shall avoid all real or perceived conflicts of interest.

Value Statement

In ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We celebrate diverse and inclusive communities, understanding that doing so fuels better, more creative and more thoughtful ideas, solutions and strategies for the Society and the communities our Society serves. We respect and welcome all.

Harassment and Discrimination

ASHRAE strictly prohibits and does not tolerate discrimination against members or applicants for membership because of such individual's race, color, religion, age, sex, sexual orientation, national origin, physical or mental disability, pregnancy, genetic information, veteran status, uniformed service member status, or any other category protected under applicable law.

Commercialism

ASHRAE's Commercialism Policy allows for Society activities that fulfill the mission of technological advancement with adherence to business plans that generate income to offset operational expenses such as AHR Exposition, ASHRAE periodicals, website, and Society conference events such as the Welcome Party, luncheons, registration kits, and receptions.

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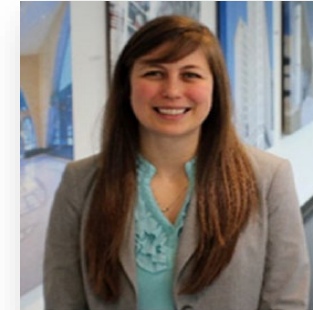
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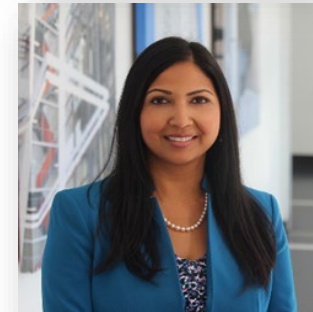
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Lizzy Seymour



Administrative
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Technology
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ASHRAE Acronym Guide

Download this quick guide for an easy reference of acronyms commonly used in ASHRAE. Easily see and search through over 400 terms!

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ASHRAE President

Bill McQuade, P.E., CDP, Fellow ASHRAE, LEED AP is ASHRAE's President for the 2025-26 term.

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ASHRAE Branding Guide

Reference this quick and informative resource for all of your ASHRAE branding needs and questions including logos, color palettes, chapter information, and typography.

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Visit Marketing Central for marketing materials and resources.

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ASHRAE Society Calendar



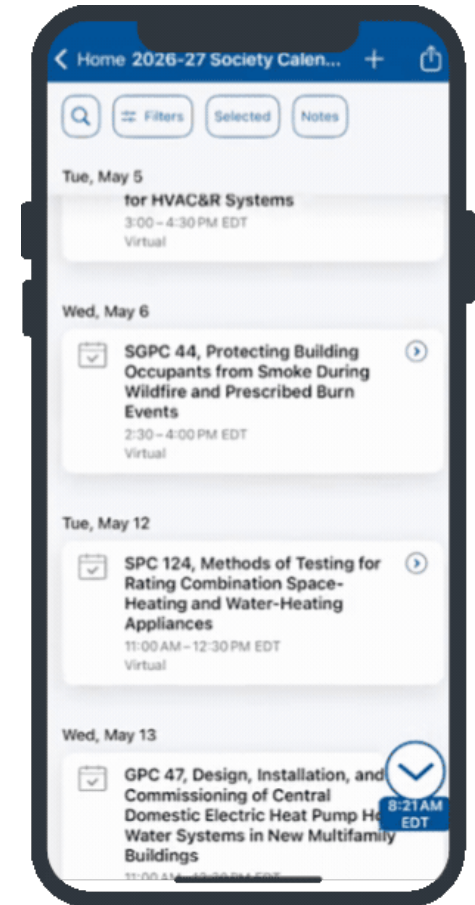
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NOTE: ASHRAE Conferences will continue to have detailed events in ASHRAE 365. Chapter and Region events will not be included.



Look for it July 2026!
ashrae.org/calendar

Vision 2035 Now Available



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Check out the new Vision 2035!

ashrae.org/vision2035

Vision 2035 and previous long-range vision plan editions serve as time-bound milestones advancing ASHRAE's overall [Mission and Vision](#). It provides guidance for continuity across [Strategic Plans](#) through 2035.

Focus Areas

- ✓ Personalized and Resilient Environments
- ✓ Regenerative Development
- ✓ Human Centered and Equitable Design
- ✓ Intelligent Building Lifecycle
- ✓ Low Carbon and Circular Built Environments

Update: [ASHRAE Strategic Plan is extended through 2030](#)
ashrae.org/strategicplan



President's Luncheon



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Monday, June 29 | 12:15 PM

Ticket Required

Welcome new board members and
thank outgoing members at the
President's Luncheon.

Hear incoming Society President Sarah
Maston introduce the Society Theme:

**Changing the Game:
Retrofitting for Resilience**

Hot Topics in Government Affairs



AI / Data Centers



EPCA Modernization (DOE
Appliance and Equipment Standards)



IAQ/IEQ/Thermal Comfort



Refrigerant Transition



Energy Codes, Resiliency and Affordability



Workforce Development (trades and STEM)

Sign up for the Government Affairs Update
online or email GovAffairs@ashrae.org

Projections for Society Year ending June 30, 2026



\$2.8M Raised through Research Promotion Campaign



\$275,000 Awarded through 79 Scholarships



\$35,000 Raised by College of Fellows and Life Members Club



\$830,000 Raised for Endowments with the ASHRAE Foundation



\$2M Raised for ASHRAE Research

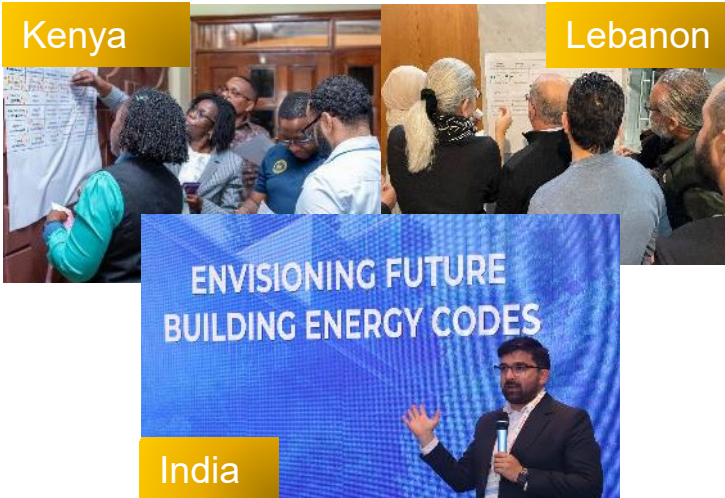


\$1.2M Given by ASHRAE Regions, Chapters and Sections

More than 3,500 contributions from Members, Organizations and other Associations



CEBD Strategic Planning Retreat



Building Code Workshops

Strategic Planning Retreat *(Held April 24-25, 2026 in Washington, DC)*

- ✓ Strategized Alignment with CE IEQ
- ✓ Developed Future Strategic Initiatives & Existing Enhancements

SY 2026-2027 Strategic Initiatives

- ✓ Asserting Leadership in Whole Life Carbon
- ✓ Charting the Path to 2050
- ✓ Accelerating Market Adoption & Insight

Enhancements to Existing Priorities

- ✓ Additional Building Code Assessment Tool (BCAT) Workshops
- ✓ CEBD Chapter Engagement & Ambassador Program
- ✓ Strengthen Committee-to-Committee Collaboration

Additional Activities

- ✓ Tech Council: Five (5) Research Projects Underway
- ✓ Members Council: Distinguished Lecturer Presentation on Decarbonization Retrofits
- ✓ Publication & Education Council: Two (2) Design Guides and Two (2) eLearning Courses
- ✓ Building Code Workshop held at Developing Economies Conference



CE IEQ April 23-24, Washington, DC

Strategic Planning Retreat

- ✓ Develop IEQ Roadmap
- ✓ Harmonize Current & Expedite Future IEQ Guidance
- ✓ Strategize Alignment with CEBD, EHC, & GAC
- ✓ Create External Engagement & Liaison Strategy
- ✓ Develop Future Strategic Priorities

SY 2026-2027 Strategic Priorities

- ✓ Announce and Activate CE IEQ
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- ✓ Develop Standards-specific Guidance
- ✓ Continue Support for 235p
- ✓ Develop a Holistic IEQ Briefing Document
- ✓ Develop Metrics for IEQ & Energy Nexus
- ✓ Review & Strengthen Organizational Relationships



Available July 1, 2026 at
ashrae.org/CEIEQ



NEW! AI Data Center Framework



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**A one-stop shop
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Commissioning and
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Operations and
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Retrofit and
Modernization Strategies



Tools, Standards,
and Resources

Standards & Guidelines



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New Standards

STANDARD

ANSI/ASHRAE/IES Standard 90.1-2025
(Supersedes ANSI/ASHRAE/IES Standard 90.1-2022)
Includes ANSI/ASHRAE addenda listed in Appendix P

Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings (I-P Edition)

See Informative Appendix C for dates of approval by ASHRAE, the Illuminating Engineering Society, and the American National Standards Institute.

This Standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely consideration of requests for changes to any part of the Standard. Procedures for how to submit a change can be found at www.ashrae.org/standards.

The latest edition of an ASHRAE Standard may be purchased from the ASHRAE website (www.ashrae.org) or from ASHRAE Customer Service, 190 Technology Parkway, Piquette Center, GA 30091. E-mail: orders@ashrae.org; Fax: 678-525-2125; Telephone: 404-536-6400 (worldwide), or toll-free 1-800-527-4723 (for orders in US and Canada). For reprint permission, go to www.ashrae.org/permissions.

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STANDARD

ANSI/ASHRAE/ASHE Standard 170-2025
(Supersedes ANSI/ASHRAE/ASHE Standard 170-2021)
Includes ANSI/ASHRAE/ASHE addenda listed in Appendix G

Ventilation of Health Care Facilities

See Informative Appendix C for approval dates by ASHRAE, the American Society for Health Care Engineering, and the American National Standards Institute.

This Standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely consideration of requests for changes to any part of the Standard. Procedures for how to submit a change can be found at www.ashrae.org/standards.

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PDF or hard copy for your convenience. Click on a reference to a section, table, figure, or appendix to jump to its location. Results for all product pages are included in this.



STANDARD

ANSI/ASHRAE Standard 231-2026

A Control Description Language for Building Environmental Control Sequences

Approved by ASHRAE and the American National Standards Institute on February 27, 2025.

This Standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely consideration of requests for changes to any part of the Standard. Procedures for how to submit a change can be found at www.ashrae.org/standards.

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STANDARD

ANSI/ASHRAE Standard 169-2025
(Supersedes ANSI/ASHRAE Standard 169-2021)
Includes ANSI/ASHRAE addenda listed in Appendix C

Climatic Data for Building Design Standards

See Informative Appendix C for approval dates.

This Standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely consideration of requests for changes to any part of the Standard. Procedures for how to submit a change can be found at www.ashrae.org/standards.

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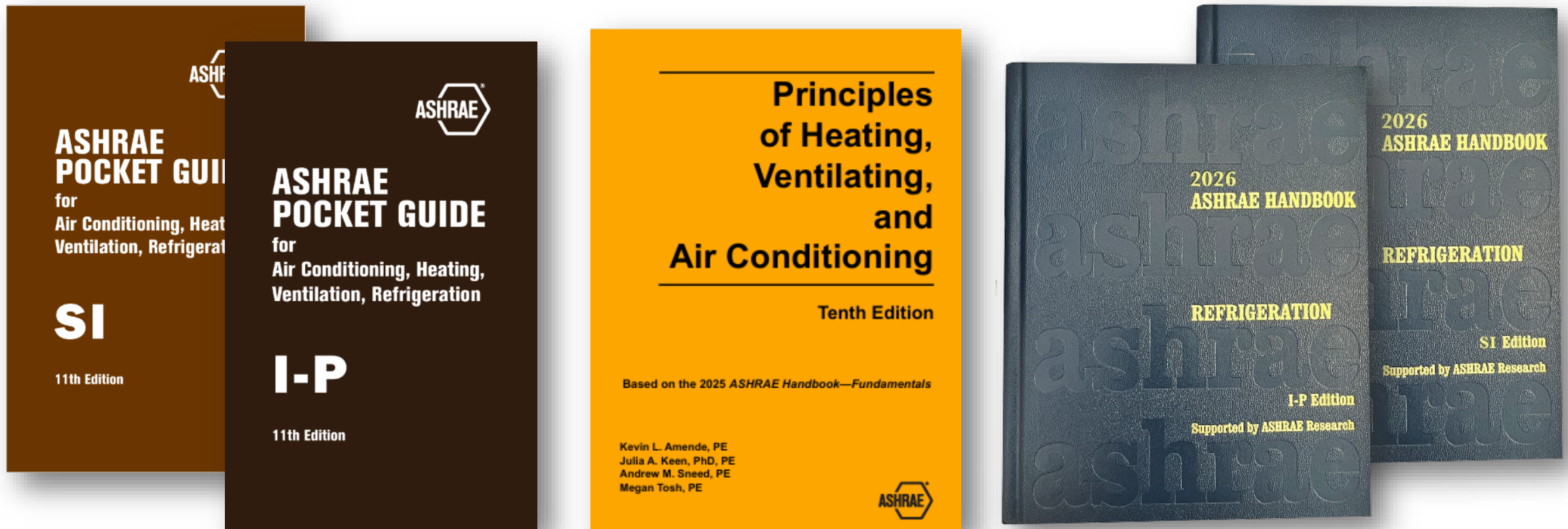
PDF or hard copy for your convenience. Click on a reference to a section, table, figure, or appendix to jump to its location. Results for all product pages are included in this.



Includes online access to climatic data, design conditions, figures, and tables (Requires Adobe Acrobat® and Microsoft Excel®).



Coming Soon!



Pre-order PHVAC and 2026 ASHRAE Handbook -- Refrigeration

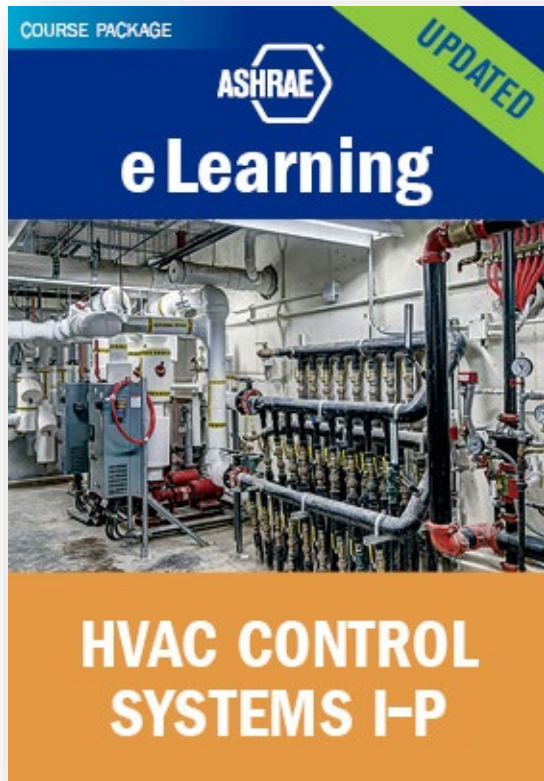
Professional Development



ABOUT | TECHNICAL RESOURCES | **PROFESSIONAL DEVELOPMENT** | CONFERENCES | COMMUNITIES | MEMBERSHIP

eLearning

Updated Course



ASHRAE Learning Institute Free Publication



Register for ALI's Live Virtual Training and receive a **FREE** ASHRAE Standard or Guideline!

Certification

Record Application Total
On Track for SY 2026



Thanks to the contributions from **Richard and Mary Farr, the Setty Family Foundation, and the Jim and Nancy Fields Professional Engineering and Technology Development Fund**, the Professional Development Scholarships will provide eligible ASHRAE Members with **35%-50% off the listed member registration fee.**

Criteria

- ✓ Within first five years of membership
- ✓ Apply 3 weeks before your course
- ✓ Must include a chapter officer's support letter

Where to apply? Check the page of the course you're interested in for an application.



2026 - 27 Topical Conferences



ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | COMMUNITIES | MEMBERSHIP



Seattle, WA, September 23-25, 2026

**2026 ASHRAE Building
Decarbonization Conference**



Beirut, Lebanon, October 8-9, 2026

**Seventh International Conference on
Efficient Building Design**



Kuwait University City, Kuwait, November 16-18, 2026

**Ninth International Conference on Energy
Research and Development (ICERD – 9)**



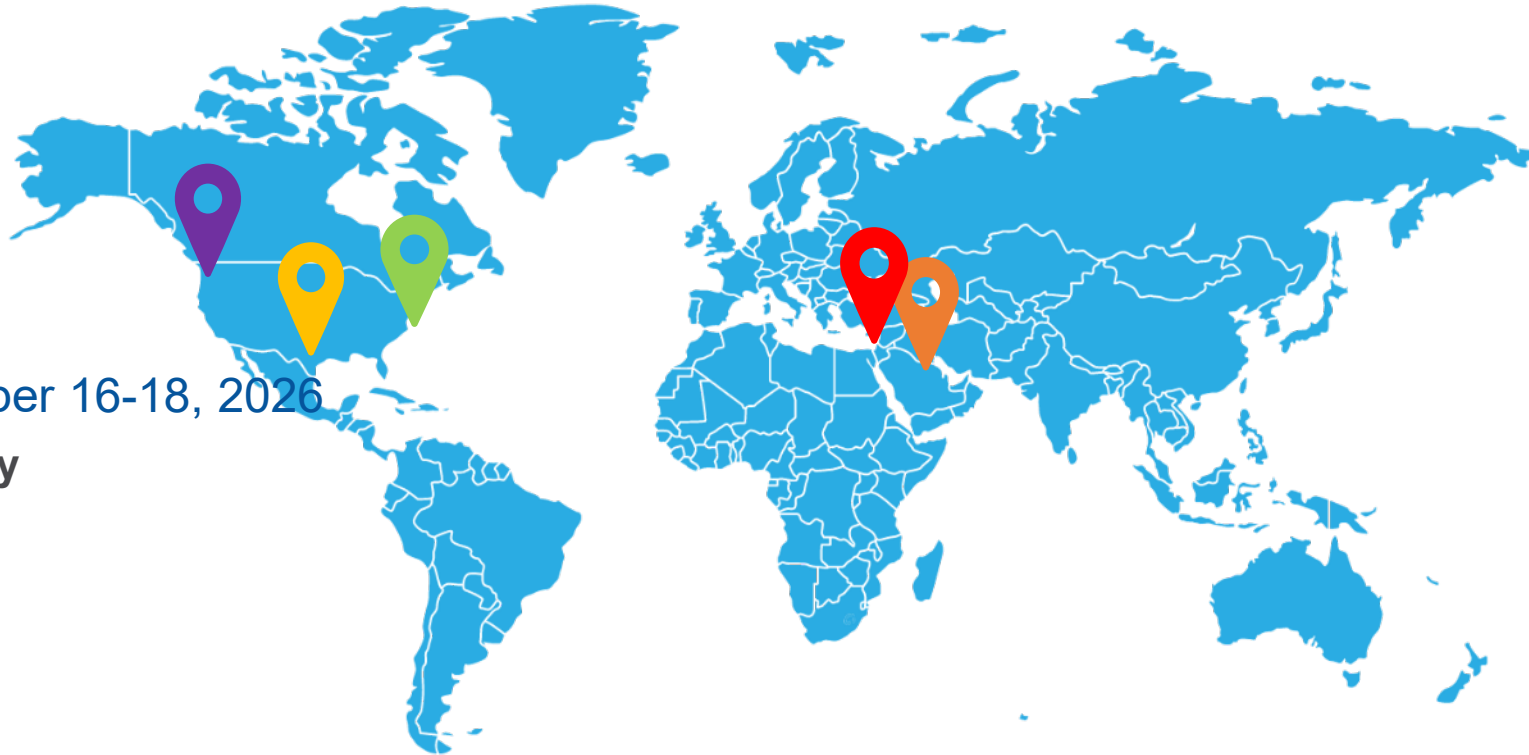
Dallas, TX, March 3-5, 2027

**2027 ASHRAE Data Center and AI
Integration Conference**



Baltimore, MD, April 12-13, 2027

Women in ASHRAE Leadership Symposium



Changes to Future ASHRAE Annual Conferences

The Future of ASHRAE Conferences Ad Hoc charge is to recommend a new overall Society conference strategy which specifically focuses on **changes to the typical Annual Conference**.

A recommendation will be made at the 2026 Annual Conference in Austin. Approved changes will be reflected in **the coming years**.

Any approved changes will **not** go into effect until 2030. Annual Conference will remain the same through 2029.



2027 ASHRAE WINTER CONFERENCE

Join us in Chicago
Jan 23 - 27

Registration Opens in
September

Nominate for Committees and Awards



ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | [COMMUNITIES](#) | [MEMBERSHIP](#)

Find Committees and Nominate Yourself or Others

SEP
2026

September 18: Nominations for elected positions are due. (Publications & Education Council, Tech Council, RAC, TAC, Standards, Handbook, Nominating)

FEB
2027

February: Nominations for appointed committees are due.

JUN
2026

June: Speak with your committee ExO/CO if your current appointment/elected position ends to be nominated for another.

HONORS & AWARDS

The following awards have a DEC 1 deadline:

Andrew T. Boggs Service Award

Distinguished 50-Year and 75-Year Member Award

Distinguished Service Award (DSA)

Louise & Bill Holladay Distinguished Fellow Award

Exceptional Service Award (ESA)

Eunice Foote Decarbonization Award



Proposed Bylaws amendment on Spring Ballot,
emailed to you in late April from noreply@directvote.net.

Member Grade					Student Member Grade		Other			
Member				Young Professional	Tenured Professional	Life Service Member	Presidential Member	Student Member	Student Branch Advisor	Honorary Member
WB Tier 1 Standard Dues	WB Tier 2 80% of dues	WB Tier 3 60% of dues	WB Tier 4 40% of dues	50% (+ tier discount)		FREE		90% (+ tier discount)	80% (+ tier discount)	FREE
Anyone involved in the building sciences industry				Anyone ≤ 35 yo who joins pays this fee first for 2 years	Anyone ≥ 65 yo with 25 years cumulative membership	30 yrs cumulative member + ≥ 65 + DSA or 15 qualifying service points	Served as Society President	Must be currently enrolled in university, college, junior college or technical institute	Faculty member who is ASHRAE member & must submit application and submit annual report	Any notable person of preeminent professional distinction & elected by the BOD
Handbook Online + *Journal , HPB, Insights + Tech Portal + Member Pricing + Voting Privileges and Serve as C,R,S level roles Choice of 1: eLearning Course, Certification Study Guide, Standard or Guideline				Handbook Online + *Journal, HPB, Insights + Tech Portal + Member Pricing		Same as Member + waived dues, extreme discounts to W&A Conferences. Invitations to VIP events (Presidential Only)		Same as Young and Tenured Professionals		Full Member Benefits if requested
Additional New Member Benefits: Receive a Comp Winter or Annual Conference to attend in first 3 years + Handbook Online access for 1 year										

Proposed Dues Rates

VOTE TODAY

Proposed Bylaws amendment on Spring Ballot,
emailed to you in late April from noreply@directvote.net.

Career and Economic discounts off main dues rate as set by the Board of Directors.

Economic discount based on country of residence as defined by the World Bank.

High Income = Tier 1, Upper Middle Income = Tier 2, Lower Middle Income = Tier 3, Low Income = Tier 4

ASHRAE Membership Dues Rate Table		Career Based Discount				
		All Others	Young Pro OR Tenured Pro	Student Branch Advisor	Student	Life Service & Honorary
Economic Discount		0%	50%	80%	90%	100%
World Bank Tier 1	0%	\$290	\$145	\$60	\$30	FREE
World Bank Tier 2	20%	\$230	\$115	\$45	\$25	FREE
World Bank Tier 3	40%	\$175	\$90	\$35	\$20	FREE
World Bank Tier 4	60%	\$115	\$60	\$25	\$10	FREE

The dues rates and percentages are for **illustrative purposes only**, based on 2026-2027 dues rates. The Finance Committee is responsible for reviewing, recommending changes and interpreting fees, dues, and privileges. (ROB 2.408.004)



Timeline

Learn More at ashrae.org/2026Bylaws



PLEASE VOTE! Election Closes
Saturday, 3:00 PM CT June 27!



Please vote on the Proposed Bylaws amendment on Spring Ballot. Questions? Email ballot@ashrae.org.

By June 30, 2027: If Bylaws amendment are approved, all changes made to membership database, website, promotional materials, ROB, Committee/Council MOPs and training materials.

July 1, 2027: New model implemented.

Media Inquiries



**Asked to make a statement
on behalf of ASHRAE?**

Please send all media
inquiries to
publicrelations@ashrae.org
before responding to
members of the press.

Thank you!

Questions or Comments?

[ashrae.org](https://www.ashrae.org)

REPORT TO THE BOARD OF DIRECTORS

From the Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee

June 28, 2026

Annual Conference Austin

Ad Hoc Committee Members:

Devin Abellon, <i>Chair</i>	Maggie Moninski	Sarah Maston, <i>CO</i>
Andres Sepulveda, <i>VC</i>	Adeeba Mehboob	Ragan McHan, <i>Staff</i>
Akshay Bhargava	Bill Murphy	Steve Hammerling, <i>Staff</i>
Kristen Cetin	Madison Schultz	Selina Parks, <i>Staff</i>
Walid Chakroun	Ginger Scoggins	Lizzy Seymour, <i>Staff</i>
Doug Cochrane	Larry Smith	Ryan Shanley, <i>Staff</i>
Wade Conlan	Megan Tosh	Thomas Loxley, <i>Staff</i>
Doug Fick	Buzz Wright	
Bruno Martinez	Davide Ziviani	

RECOMMENDATION FOR BOARD APPROVAL:

1. The Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee recommends that the Board of Directors approve the planned transition from the current Annual Conference model to the Connect Convene model as outlined in the committee's final report.

BACKGROUND: The Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee was established at the end of SY24-25 with the following charge: *to make a recommendation by June 2026 of a new overall Society conference strategy which specifically focuses on, but is not limited to, reformatting or eliminating the Annual Conference*. The committee worked throughout the year to develop a proposal to transition from the current Annual Conference Model to a "Connect Convene" model. With the Winter Conference remaining as the flagship in-person event of the year, the Annual Conference, marking the end and beginning of each society year, would become the ASHRAE Annual Connect Convene Conference, a single event consisting of two distinct phases: Connect and Convene.

- **Connect:** A four-day virtual summit for all Standing Committees, Project Committees and Functional Groups, focused on connecting industry professionals from around the world, providing an opportunity for improved accessibility and streamlined engagement while removing the time and financial barriers that keep many members from becoming more involved.
- **Convene:** A four-day in-person strategic leadership summit, primarily for Council and Board Members, focused on leadership transition and the Presidential Theme.

This summit would be open to anyone interested in ASHRAE's strategic direction and movement within the industry.

FISCAL IMPACT: To be determined, as noted in the final report

STAFF IMPACT: Navigating through the transition will require close coordination among staff to ensure that the needs of all committees and councils are met. Once the new model is in place, however, it is anticipated that staff workload should decrease compared to our current model.

INFORMATION ITEMS:

1. With the submission of the final report, The Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee considers their work complete.
2. The committee recognizes that work needs to be done to further develop the concept of Connect Convene and has recommended to President-Elect Maston that a new ad hoc committee be formed to continue the work of this committee.

Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee

DRAFT Final Report – June 2026

(See **Appendix A** for Summary Slide Deck)



EXECUTIVE SUMMARY

The Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee was formed at the end of the 2024-25 Society Year with the charge to make a recommendation for a new overall Society conference strategy focused on **reformatting or eliminating the Annual Conference**. The main committee met monthly throughout the year, with separate working groups tackling specific tasks between meetings. The committee reviewed prior conference streamlining efforts, identified stakeholder impacts, and evaluated several scenarios based on evolving member engagement, rising costs, and the need for greater global accessibility. After carefully weighing the benefits and challenges of each scenario, the committee recommends the following:

- The Winter Conference will retain its current structure with minimal changes, serving as ASHRAE's flagship annual event for member engagement through in-person and hybrid technical sessions, meetings, and networking opportunities, held in conjunction with the AHR Expo.
- The Annual Conference, marking the end and beginning of each society year, will become the ASHRAE Annual Connect Convene Conference, a single event consisting of two distinct phases: Connect and Convene.
 - **Connect:** A four-day virtual summit for all Standing Committees, Project Committees and Functional Groups, focused on connecting industry professionals from around the world, providing an opportunity for improved accessibility and streamlined engagement while removing the time and financial barriers that keep many members from becoming more involved.
 - **Convene:** A four-day in-person strategic leadership summit, primarily for Council and Board Members, focused on leadership transition and the Presidential Theme. This summit would be open to anyone interested in ASHRAE's strategic direction and movement within the industry.
- While significant analysis has been done on this proposed format and its potential opportunities and challenges, the committee acknowledges that work still needs to be done to develop a working schedule, resolve outstanding concerns, and better understand the plan's fiscal impact. The committee recommends that a new ad hoc committee be formed for the 2026-27 Society Year to further develop this plan for implementation in the

2029-30 Society Year. (Note: we are currently contracted through the 2028 Annual Conference in St. Louis.)

INTRODUCTION

The Charge of the Ad Hoc Committee (APPENDIX B)

The Future of ASHRAE Conferences (FOAC) Ad Hoc Committee was formed at the end of the 2024-25 Society Year with the following charge:

*The Future of ASHRAE Conferences Ad Hoc charge is to make a recommendation by June 2026 of a **new overall Society conference strategy** which specifically focuses on, but is not limited to, reformatting or eliminating the Annual Conference. The recommendation should further explore new opportunities such as refocusing priorities and purpose for Society conferences, streamlining for effective use of volunteer time, and engaging new audiences. The recommendation should also address challenges tied to Annual Conference such as volunteer overload, increased expenses, decreased attendance, and venue space requirements.*

The committee's objectives were as follows:

- 1. Clearly define and narrow the purpose and target audience of Society conferences, specifically Annual Conference.*
- 2. Evaluate preliminary staff suggested scenarios and expand upon or create new scenario(s) for recommendation.*
- 3. The recommendation should include a sustainable financial model for the Annual Conference while acknowledging the impact on other Society conferences.*
- 4. Examine established rules related to ASHRAE Meetings (ROB 2.104) and Conferences (ROB 3.100) and evaluate implications of rule changes.*
- 5. Conduct a careful assessment of the risks involved.*
- 6. Assess the impact of the recommendation on volunteers, members, conference attendees and the industry. Buy-in from various stakeholders is important.*
- 7. Others as identified by the ad hoc.*

Committee Composition

The committee was composed of members with extensive ASHRAE experience on all three councils, the Planning Committee, and the Board of Directors. Specifically, current or past members of the Conferences and Expositions Committee (CEC), Young Engineers in ASHRAE (YEA), Membership Promotion (MP), Standards, the Handbook Committee, and the Technical Activities Committee (TAC) were included in the process, along with staff representation for Conference Services, Membership, Standards, Research and Codes.



Devin Abellon
Chair



Andres Sepulveda
Vice Chair



Akshay Bhargava
Member



Kristen Cetin
Member



Walid Chakroun
Member



Doug Cochrane
Member



Wade Conlan
Member



Doug Fick
Member



Bruno Martinez
Member



Adeeba Mehboob
Member



Maggie Moninski
Member



Bill Murphy
Member



Madison Schultz
Member



Ginger Scoggins
Member



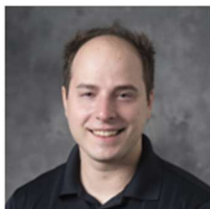
Larry Smith
Member



Megan Tosh
Member



Buzz Wright
Member



Davide Ziviani
Member



Sarah Maston
Coor. Officer



Ragan McHan
Staff Liaison



Steve Hammerling
Staff



Selina Parks
Staff



Lizzy Seymour
Staff



Ryan Shanley
Staff



Emily Toto
Staff



Thomas Loxley
Staff

Note: Thomas Loxley replaced Emily Toto mid-year.

Background

At the 2025 Winter Conference in Orlando, staff presented a comprehensive report entitled “The Future of ASHRAE Winter and Annual Conferences.” (**APPENDIX C**) This in-depth analysis was an update to a previous staff-led effort to analyze the performance of our two main conferences. While these may have been prompted by the news that the Las Vegas AHR Expos would be shifting to a February/March timeframe, potentially reducing the time between Winter and Annual Conferences in those years to 3-4 months, they were worthwhile exercises to evaluate the purpose and audiences for our conferences.

The data showed that while registrations for the Winter Conferences have experienced steady growth over the past 15 years, Annual Conference registrations have remained relatively stagnant. In fact, until a recent policy clarification that required registration for standing committee members for them to gain access to the host hotel block, Annual Conference registrations were below pre-COVID baselines.

While conference registrations remain stagnant, hotel costs (room rates, food and beverage, AV, etc.) and associated travel costs continue to rise, increasing the financial burden borne by the Society, its volunteer members, and conference attendees. It was estimated that the average out-of-pocket cost for a standing committee member to attend the Annual Conference (with flights covered by Society) is on the order of \$2,025-\$2,625.

As the only not-for-profit, professional, technical society that holds two in-person conferences a year, the question was posed: *Is it time to try something new?*

The report provided two high-level scenarios. Scenario 1 proposed a modified, reduced Annual Conference, while Scenario 2 called for the elimination of the Annual Conference. This became the starting point for the SY25-26 Future of ASHRAE Conferences Presidential Ad Hoc Committee.

THE PROCESS

FOAC met monthly, starting in July of 2025. Three working groups were formed, and tasks were assigned to each working group throughout the year. Working groups met on an as-needed basis.

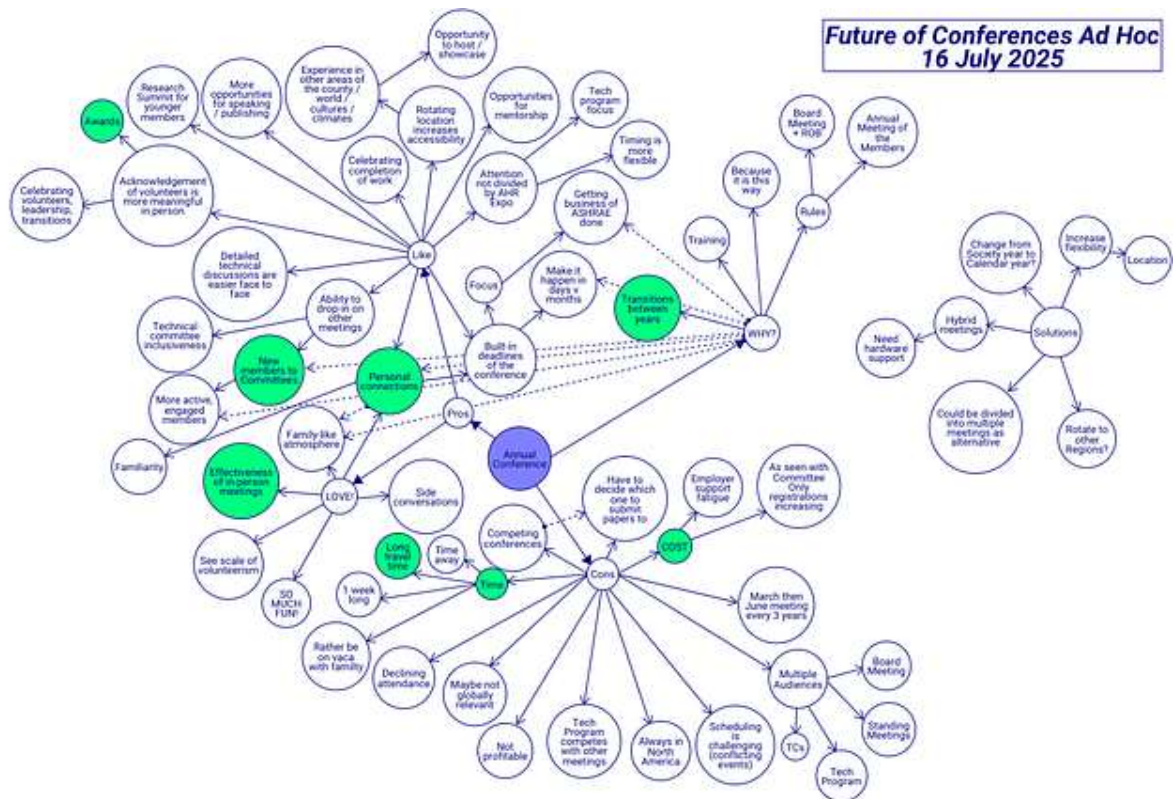
Working Group #1	Working Group #2	Working Group #3
Wade Conlan, Lead	Megan Tosh, Lead	Ginger Scoggins, Lead
Madison Schultz, Lead	Andres Sepulveda, Lead	Buzz Wright, Lead
Maggie Moninski	Doug Fick	Kristen Cetin
Davide Ziviani	Adeeba Mehboob	Walid Chakroun
Larry Smith	Bruno Martinez	Bill Murphy
Akshay Bhargava	Steve Hammerling	Doug Cochrane
Lizzy Seymour	Ragan McHan	Selina Parks
Emily Toto		Ryan Shanley

The committee also worked closely with staff, who were tasked with a parallel effort to develop a comprehensive **Conference Strategy**.

The work of the committee was divided into three phases: **Discovery** (July 2025- October 2025), **Development** (November 2025 – March 2026), and **Decision** (April 2026- June 2026) with the goal to deliver this report at the 2026 Annual Conference in Austin.

Discovery Phase (July 2025-October 2025)

As engineers, our problem-solving tendency is to immediately jump to proposed solutions when faced with a question. It was important for all members of the committee to set aside any preconceived notions they had on how to best address this issue so that each proposed scenario could be objectively evaluated. The committee started the Discovery Phase by exploring the benefits and challenges associated with the Annual Conference by going through a highly interactive mind-mapping exercise:



Also, in addition to reviewing the previously referenced staff report on “*The Future of ASHRAE Winter and Annual Conferences*,” the committee reviewed recommendations from similar earlier efforts, including the 2017 Consolidation of the Winter and Annual Conferences Ad Hoc Report and the 2011 Conference Business Models Ad Hoc recommendations.

The working groups provided feedback and discussion points on the staff-proposed scenarios, developed alternative scenarios, and completed a comprehensive analysis of the potential impacts on all stakeholder groups (**APPENDIX D**).

The prevailing themes identified during the Discovery Phase were as follows:

- a. Benefits of the Annual Conference:
 - i. Offers significant opportunities for **networking** with peers and industry professionals.
 - ii. Facilitates **knowledge sharing** on current topics and best practices.
 - iii. Provides exposure to innovative ideas, research, and new technologies relevant to the field.
 - iv. Hosts workshops and breakout sessions for professional development.
 - v. **Encourages collaboration** between organizations and individuals.
 - vi. Showcases leading speakers and thought leaders which can boost motivation and expertise.
- b. Challenges of the Annual Conference:

- i. High **logistical complexity** and planning demands for organizers.
- ii. Can be **expensive** for attendees due to registration, travel, and lodging costs – limiting the number of members who can attend.
- iii. **Time commitment** may detract from regular work duties and responsibilities.

The committee explored several options that ultimately were deemed unworkable. These included:

- Holding the Annual Conference with a partner organization.
- Combining the conference with CRCs
- Hosting committee meetings in conjunction with topical conferences
- Replacing the conference with an ASHRAE “Summer Camp”
- Holding the Annual Conference outside of North America every three years

Throughout the process, discussions were framed with the following questions in mind:

- Does this support ASHRAE’s mission and vision?
- Does this support ASHRAE’s Strategic Plan?
- What impact will this have on volunteerism?
- What are the potential risks?
- What is the fiscal impact?

Development Phase (November 2025- March 2026)

Using the insights gained during the Discovery Phase, the working groups developed several proposed options, working with staff as their Conference Strategy (**APPENDIX E**) was rolled out. As part of this process, the committee evaluated the strategy’s focus on strengthening the impact of ASHRAE conferences through alignment with member needs, improved financial sustainability, and expanded global reach by integrating several strategic directions into its development work, including the expansion and diversification of conference formats such as Topical Conferences, Global TechCon, Lead & Connect, Technical Forums, and On-Demand offerings.

The committee also explored shifting the ASHRAE Society Year to align with the calendar year. This would allow for the elimination of the Annual Conference as the Winter Conference could be used as the meeting of the members to start and end each year. This option was fraught with challenges and was ultimately deemed unworkable.

Decision Phase (April 2026 – June 2026)

After making several adjustments to the working option presented and discussed at the 2026 Winter Conference ad hoc meeting, the working groups reached consensus on a path forward. The remainder of the time was spent developing framework schedules and reviewing logistical issues. The proposed model was presented to the leadership of TAC and Standards for feedback. Feedback

highlighted the idea of taking a hybrid approach model by maintaining at least one strong in person meeting to preserve networking, collaboration, and productivity, while shifting routine work, updates, and subcommittee activities to virtual meetings throughout the year to reduce travel costs and scheduling conflicts. Participants highlighted the need for better hybrid technology, clearer scheduling, and stronger virtual collaboration tools, while noting that fully virtual formats often reduce engagement and effectiveness, and that in-person interactions remain critical for relationship-building, decision-making, and sustaining strong volunteer participation.

PROPOSED MODEL: THE ASHRAE ANNUAL CONNECT CONVENTION CONFERENCE

The Future of ASHRAE Conferences (FOAC) Presidential Ad Hoc Committee was formed to assess the sustainability and effectiveness of the current conference model with a focus on the Annual Conference amid shifting member engagement, rising costs, and the need for greater global accessibility.



Based on analysis of attendance, engagement, finances, and member preferences, the Committee recommends transitioning away from the current Annual Conference model to a new “One Conference – Two Phases (Connect Convene)” approach. This model is designed to be more flexible, cost-effective, and globally accessible while maintaining essential in-person engagement.

ASHRAE CONNECT (Virtual Engagement Phase)

ASHRAE Connect would be a four-day summit allowing industry professionals from around the world to connect and engage with each other in a virtual environment. As a virtual meeting, many of the traditional barriers that potential attendees face would be removed. The focus would be on committee work and business for Standing Committees, Technical Committees, and Project Committees.

Enhanced Member Engagement and Accessibility: All meetings, except for those held in Executive Session, would be scheduled, promoted, and accessible for any member or non-member to attend through ASHRAE’s new meetings platform.

Technical Component: Technical presentations, possibly in the form of live or pre-recorded Tech Hours, could be offered for a fee, or free of charge to members. ASHRAE already offers up to four public Tech Hours annually so integrating them into ASHRAE Connect would require low effort and

would revive the pre-COVID “tune in now” webcast feel. PDHs would be available.

Virtual Plenary Session: A shorter, perhaps pre-recorded welcome from the President, Executive Vice President, and Council Chairs would open the conference. Key activities and updates would be highlighted, and certain members could be acknowledged for outstanding achievements.

Committee Transitions: Committee transitions will occur virtually during ASHRAE Connect, with Standing Committee transitions highlighted in ASHRAE Convene. TAC and Standards could host a TC and PC Chair Forum featuring training and live Q&A/breakouts. Additionally, all committee members (new and outgoing) will be acknowledged throughout the event on ASHRAE’s website and conference portal.

Industry Engagement / Sponsorship Opportunities: ASHRAE Connect would be open to members and non-members, creating an opportunity to invite prospective participants to join virtually for meetings of interest. Sponsorships could be sold for Tech Hours, ASHRAE 365, and Website/Conference Portal.

Virtual Networking Events: Virtual networking events, similar to the ones used during our COVID-era virtual conferences, could be scheduled to increase participant engagement. Additionally, informal, by-request sessions for specific interested groups (e.g. YEA, Professionals with Young Families MRG and New Member MRG, etc.) could be included.

Sample Schedule - ASHRAE Connect: A sample schedule was developed as a starting point:

Phase One: Connect (Virtual)								
Time	Wednesday		Thursday		Friday		Saturday	
7:00 AM ET	Welcome to Work Week (Plenary)		2 hour	4 hour	TC Chair Forum	PC Chair Forum		
7:30 AM ET	2 hour	4 hour	committee block	committee block	(Live Q&A)	(Live Q&A)		
8:00 AM ET	committee block	committee block			2 hour	4 hour		
8:30 AM ET					committee block	committee block		
9:00 AM ET			2 hour				2 hour	4 hour
9:30 AM ET	2 hour		committee block				committee block	committee block
10:00 AM ET	committee block				2 hour			
10:30 AM ET					committee block			
11:00 AM ET			Tech Hour 2				2 hour	
11:30 AM ET	Tech Hour 1						committee block	
12:00 PM ET			2 hour	4 hour	Informal Networking Slot 1			
12:30 PM ET	2 hour	4 hour	committee block	committee block	Informal Networking Slot 2			
1:00 PM ET	committee block	committee block			2 hour	4 hour		
1:30 PM ET					committee block	committee block		
2:00 PM ET			2 hour					
2:30 PM ET	2 hour		committee block					
3:00 PM ET	committee block				2 hour			
3:30 PM ET					committee block			
4:00 PM ET								
4:30 PM ET	Tech Hour 1 Replay		Tech Hour 2 Replay					
5:00 PM ET								

BRIDGE (Transition Period)

A short transition window between phases would allow for completion and distribution of reports for Board and Council review, while providing the necessary travel time for ASHRAE Convene participants

ASHRAE CONVENE (In-Person Leadership Summit)

ASHRAE Convene would be a four-day, in-person (hybrid-enabled) strategic summit for the Board of Directors and Council leadership. Leadership for committees reporting to the BOD may also be included. It would also be open for Council members and any other ASHRAE member or non-member interested in ASHRAE's strategic direction and industry updates. This phase preserves the value of face-to-face collaboration where it is most impactful.

Location: The committee discussed several options for the location of ASHRAE Convene. Maintaining the current model, which has the conference move to different cities each year, may be attractive, considering that the flexibility of a smaller conference would improve options. Hosting the conference outside of North America was also considered, aligning with the Board's commitment to having a non-NA board meeting every three years. While hotel costs outside of North America could potentially be lower, the associated travel expenses would make this option difficult. Ultimately, the committee decided that the best option would be to take advantage of the meeting space at our Global Headquarters Building in Peachtree Corners. With an anticipated attendance of at least 200-300 people, it would not be possible to use ASHRAE Headquarters alone to host the event. Therefore, nearby conference space would be needed.

Technical Component: ASHRAE Convene would incorporate a technical program (strategic workshops and seminars) that is catered to our board and council volunteers, speakers, and industry guests. The program would align industry trends, leadership development, and standards progress with organizational strategy. The goal for the technical content is to highlight the need to assess emerging issues, collaboration with external bodies, and gaps in current efforts, while providing updates from key groups on standards, government activity, and strategic priorities. The sessions will be designed reflective of current industry dynamics with a strong focus on leadership development. Potential technical session topics are as follows:

1. Emerging Trends & Industry Alignment

- o What issues/trends are emerging from industry?
- o How are we aligned with other societies (e.g. ISO)?
- o Where are there gaps?
- o This session could overlap/partner with one of the Strategic Workshops on Saturday

2. Leadership Training

3. Standards Briefing 1

4. Standards Briefing 2

- o For these two briefings: where are the key standards in their process/planning?
- o What headwinds/tailwinds are they facing?
- o Standards included could change year-to-year depending on where they are within the publication cycle
- o Sessions expected to include multiple standards that are related to one another

5. GAC Briefing on activity by government bodies

6. CEBD Briefing on strategic priorities

7. CEIEQ Briefing on strategic priorities

8. Update on global strategy from a cognizant body

9. TAC & RAC: presentation of RAC strategic plan & discussion of issues facing each committee.

Sample Schedule: The draft schedule below includes 16 technical sessions (four rooms available for each of four time slots). Nine of these session topics were defined by the working group so as to ensure leadership is well informed of the strategic thinking and future planning already happening within ASHRAE. The remaining sessions are to be determined by CEC and should align with the Society theme and other strategic priorities. Some of the session topics defined may not fill a session alone and could be supplemented by a relevant technical speaker.

Thursday (Day 1)

- Outgoing Board Meeting: This could be virtual, if desired, but it would be preferred to have all of these volunteers attend the conference in person.

Friday (Day 2)

- Block 1: Keynote from outgoing Society President
- Block 2: four concurrent Technical Programs
- Coffee Break
- Block 3: four concurrent Technical Programs
- Lunch Presentation
 - Sponsorship opportunity
 - Ideally focused around industry, not Society
- Block 4: four concurrent Technical Programs
- Cookie Break
- Block 5: four concurrent Technical Programs
- Welcome Reception (sponsorship opportunity)

Saturday (Day 3)

- Strategic Workshops
 - Four workshops/topics related to the current strategic plan
 - Ask Planning to come up with the 4 most applicable topics for discussion, aligning with the strategic plan & working with councils
 - Members are preassigned to workshops and are briefed on objectives in advance
- Lunch
 - Present the outcomes from the workshops
- Council Meetings
- Presidential Dinner
 - Sponsorship Opportunity
 - Officer Installation and Incoming President's Address

Sunday (Day 4)

- Incoming Board Meeting
- Lunch
- Travel home

WINTER CONFERENCE OPTIMIZATION

The Committee recommends maintaining the Winter Conference as the primary in-person member event, with minor adjustments:

- Improve meeting structure and scheduling for efficiency
- Streamline awards and recognition programming, potentially splitting into multiple ceremonies
- Maintain strong networking opportunities while integrating select Annual Conference activities (ex. Cultural event)

RULES OF THE BOARD IMPLICATIONS

One of the stated objectives for the ad hoc committee was to examine established rules related to ASHRAE Meetings (ROB 2.104) and Conferences (ROB 3.100) and evaluate implications of rule changes. The following areas may require adjustment based on the which changes are approved by the BOD:

ROB 2.104

- **2.104.002.1:** Unless otherwise stipulated, standing bodies are expected to meet at the Winter and Annual Meetings. Meetings beyond those authorized may be called by the chair with the approval of the Society President or Coordinating Officer. Standing committees and special committees normally have their final meeting for the administrative year at the Annual Meeting.
- **2.104.015:** Meeting Registration Fees
- **2.104.017.1:** At each Winter and Annual Meeting of the Society, the following functions shall be included in the program: 1. Plenary Session, 2. President's Luncheon, 3. Members Night Out.
- **2.104.017.2:** Honors and awards may be presented at the Plenary Session, President's Luncheon, or Banquet, as appropriate and as determined by headquarters staff.
- **2.104.017.3:** Officers and Directors shall be installed at the President's Luncheon. This Luncheon shall follow the official membership vote at the Annual Meeting.

ROB 3.100

- **3.100.002.6:** Costs - The conference shall be expected to be financially self-sufficient. The Conferences and Expositions Committee is authorized to develop and manage these conferences, including the fiduciary details.

ITEMS FOR FURTHER CONSIDERATION

While the committee has developed the framework for the proposed ASHRAE Annual Connect Convene Conference, there are several important issues that will need to be addressed as the new ad hoc committee and/or implementation team works on the transition plan. These include, but are not limited to:

- **Duration:** The proposed format calls for both phases to be four days long. Like the current schedule we have for the Annual/Winter Conference, this can mean long days with many concurrent meetings. As we work to improve overall accessibility, would it make sense to extend the phases to spread out the meetings over additional days? We would need to balance the desire for accessibility with the risks of meeting fatigue when determining the optimum duration for each phase. It is also acknowledged that subcommittee meetings would also take place virtually, in advance of Connect.
- **Time Zone Considerations:** With the proposed Connect summit to take place using the EDT (Eastern Daylight Time, UTC -4) as the basis, prospective attendees will have to adjust their day in order to attend live sessions, with some attendees online during the middle of the night. Shortening the days and extending the duration may help with this.
- **Honor and Awards / Leadership Recognition:** The proposed schedules for both Connect and Convene provide limited time to acknowledge the accomplishments of our award winners and volunteers. The new ad hoc will need to explore different ways to celebrate the meaningful contributions of members.
- **Standards Development:** Ensuring that standards development is not slowed by the shift to virtual engagement during Connect is critical to the mission of ASHRAE. The new ad hoc will need to work closely with the Standards Committee and staff to explore alternative options for engagement. This may include additional in-person meetings at ASHRAE Headquarters or during a topical conference.
- **Technical Presentations:** The Connect Convene model reduces the opportunities for Technical Committees and members to submit for technical presentations. This places greater emphasis on the Winter Conference, but also highlights opportunities to reach a different audience through topical conferences, Global TechCon, Technical Forums, and On-Demand offerings.
- **Fiscal Impact:** The fiscal impact has not yet been evaluated, as several questions still need to be addressed. There have been discussions as to whether virtual participation for either phase (Connect or Convene) should be offered free of charge, or if there should be a nominal charge for non-members, especially for access to any technical presentations. It is expected that an upgraded platform for virtual access will require additional capital. However, given the reduction in travel, hotel, and food & beverage costs, this change should net a significant reduction in costs. It is important to note that while reducing the impact on ASHRAE's operational budget is a benefit, it is not the impetus behind this proposed

change. This represents an evolution in how we engage in this ever-changing global environment and should not be viewed simply as a cost-saving measure.

- **Social Events:** The proposed model reduces opportunities for networking and relationship-building, something that was identified early on as one of the drivers that makes ASHRAE such as strong and unique organization. We have passionate volunteers who are energized and inspired by the relationships that start and are nurtured through these social events. The new ad hoc will need to explore options for virtual social events and focus on alternative meeting opportunities such as topical conferences. This also increases the importance of the Winter Conference as our flagship in-person conference of the year.
- **Staff Impact:** Navigating through the transition will require close coordination among staff to ensure that the needs of all committees and councils are met. Once the new model is in place, however, it is anticipated that staff workload should decrease compared to our current model.
- **Annual Conference Events:** There are several events that are traditionally scheduled during the Annual Conference. The new ad hoc will need to determine how to best fulfill the goals of each of these events either as part of Connect Convene or in an alternate virtual/in-person format. These include, but are not limited to:
 - **Membership Promotion Centralized Training**
 - **Women in ASHRAE Happy Hour**
 - **DEI Cultural Appreciation Event**
 - **Region Planning Meetings** (for some regions)

PROPOSED TRANSITION PLAN

Phase 1: Pilot and Refinement (2027–2028)

Continue the Annual Conference while piloting:

- Virtual “Connect” elements
- Expanded virtual technical programming
- Begin reducing overlap between Annual and Winter Conferences

Phase 2: Hybrid Transition (2028–2029)

Introduce the full Connect Convene structure alongside a scaled-down Annual Conference

Transition:

- Committee work to Connect
- Leadership programming to Convene

Phase 3: Full Implementation (2029–2030)

Transition away from the current Annual Conference model

Fully implement:

- Connect (virtual work week and technical access)
- Convene (leadership summit)
- Winter Conference as the primary in-person event

CONCLUSION

The FOAC Committee formally recommends that the Board of Directors approve the planned transition of the Annual Conference by 2029 and endorse the phased implementation of the Connect Convene model. This transition will:

- Align conference delivery with evolving member expectations
- Enhance engagement through more accessible and flexible formats
- Reduce financial and operational pressures
- Preserve high-value in-person experiences through the Winter Conference and leadership-focused Convene
- Position ASHRAE for long-term growth, scalability, and global impact

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Devin A. Abellon', with a stylized, flowing script.

Devin A. Abellon, PE

2025-26 Future of ASHRAE Conferences Presidential Ad Hoc Committee Chair



Shaping Tomorrow's
Built Environment Today

2025-26 Future of ASHRAE Conferences (FOAC) Ad Hoc Committee



ASHRAE Annual Connect Convene Conference

One Conference – Two Phases



ASHRAE Connect

CONNECT: Connect and engage with industry professionals from around the world in an enhanced virtual environment. Participate in committee meetings and technical sessions without having to leave your home or office.

- 4-day **Virtual Conference** for Standing Committees / Project Committees / Functional Groups and their associated subcommittees.
- All meetings would be scheduled, promoted, and livestreamed for any member/non-member to attend.
- Virtual Technical Program, with all sessions livestreamed **free of charge for all members**.
- Virtual Plenary Session with Keynote Address
- Acknowledgement of committee transitions during meeting and celebrated on ASHRAE website/conference portal
- Industry engagement with sponsorship opportunities.
- Virtual networking events scheduled throughout the conference with focused audiences (i.e. all members, new members, WIA, YEA, etc.)



ASHRAE CONNECT – Virtual Work Week

Focus

Focus of the **Virtual Work Week** would be on committee work and business (Standing, TC, PC, Sub-Committees). Produce the information, motions and reports needed for the Councils

Days and Times

Days: Wednesday – Saturday
Time Zone: Eastern with Tech Hours early and late to accommodate around the world

Open Door Policy

All meetings would be scheduled, promoted, and accessible for any member/non-member to attend.
Exception: Executive Session

ASHRAE CONNECT

Technical Component



Schedule two free Tech Hours during Work Week (live or pre-recorded). ASHRAE already offers up to four public Tech Hours annually—integrating them into the virtual Work Week is low effort and revives the pre-COVID “tune in now” webcast feel. PDHs available.

Virtual Plenary



Short, pre-recorded welcome from the President, EVP, and Council Chairs to open the Conference, thank members for their dedication, and highlight key activities and updates.

Committee Transitions



Committee transitions will occur virtually during Work Week, with Standing Committee transitions highlighted in Phase Two. TAC and Standards could host a TC and PC Chair Forum featuring training and live Q&A/breakouts.

ASHRAE CONNECT

Industry
Engagement



Work Week is open to members and non-members, creating an opportunity to invite prospective participants to join virtually for meetings of interest.

Sponsorship
Opportunities



Tech Hour sponsorships
ASHRAE 365 sponsorships
Website/Communication sponsorships

Networking
Events



Informal, by-request sessions for interested groups (e.g., Professionals with Young Families MRG and New Member MRG). Open, drop-in meetings—unscripted and unproduced.

Connect Sample Schedule

Phase One: ASHRAE CONNECT

Time	Wednesday		Thursday		Friday		Saturday	
7:00 AM ET	Welcome to Work Week (Plenary)		2 hour	4 hour	TC Chair Forum (Live Q&A)	PC Chair Forum (Live Q&A)		
7:30 AM ET	2 hour	4 hour	committee block	committee block				
8:00 AM ET	committee block	committee block			2 hour	4 hour		
8:30 AM ET					committee block	committee block		
9:00 AM ET			2 hour				2 hour	4 hour
9:30 AM ET	2 hour		committee block				committee block	committee block
10:00 AM ET	committee block				2 hour			
10:30 AM ET					committee block			
11:00 AM ET			Tech Hour 2				2 hour	
11:30 AM ET	Tech Hour 1						committee block	
12:00 PM ET			2 hour	4 hour	Informal Networking Slot 1			
12:30 PM ET	2 hour	4 hour	committee block	committee block	Informal Networking Slot 2			
1:00 PM ET	committee block	committee block			2 hour	4 hour		
1:30 PM ET					committee block	committee block		
2:00 PM ET			2 hour					
2:30 PM ET	2 hour		committee block					
3:00 PM ET	committee block				2 hour			
3:30 PM ET					committee block			
4:00 PM ET								
4:30 PM ET	Tech Hour 1 Replay		Tech Hour 2 Replay					
5:00 PM ET								

www.ashrae.org



ASHRAE Annual Connect Convene Conference

BRIDGE: The time between the conclusion of Connect and the start of Convene

- Sunday – Wednesday
- Allows time for reports from reporting bodies to be completed, distributed and reviewed by the councils and board.
- Travel time for Convene attendees
- Opportunity for limited additional online virtual networking events – Awards Presentation?



ASHRAE Annual Connect Convene Conference

CONVENE: Councils and the Board of Directors convene for an in-person leadership summit with hybrid participation

- 4-day conference (Thursday - Sunday) for the Board of Directors, Councils and Reporting Committee Vice Chairs (Projected Attendance: 200 -300)
- Location: Atlanta area (HQ is not adequate)
- Installation of new Board of Directors
- Presidential Address
- Awards Gala?
- Technical Program focused on supporting presidential theme
- Encourage industry engagement with sponsorship opportunities.
- The entire conference (except executive sessions) shall be livestreamed, free of charge, to the public



Convene Sample Schedule

Thursday

- **Outgoing Board Meeting**
 - Could be virtual, but in-person is preferred
 - Afternoon scheduling may still require Wednesday travel
 - Shifting to Friday would reduce technical program or strategic workshops

Convene Sample Schedule

Friday

- **Block 1:** Keynote from outgoing Society President
- **Block 2:** four concurrent Technical Programs
- **Coffee Break**
- **Block 3:** four concurrent Technical Programs
- **Lunch Sponsorship opportunity**
 - Ideally focused around industry, not Society
- **Block 4:** four concurrent Technical Programs
- **Cookie Break**
- **Block 5:** four concurrent Technical Programs
- **Welcome Reception** (sponsorship opportunity)

Convene Sample Schedule

Saturday

- **Strategic Workshops**

- Four workshops/topics related to the current strategic plan
 - Ask Planning to come up with the 4 most applicable topics for discussion, aligning with the strategic plan & working with councils
 - Members are preassigned to workshops and are briefed on objectives in advance
- Planning successfully led a workshop with breakouts with Members Council at the last conference
- Need to be cautious that ideas still come up from the grassroots and that work does not become top-down from leadership

- **Lunch**

- Present the outcomes from the workshops

- **Council Meetings**

- **Presidential Dinner**

- Sponsorship opportunity
- Awards should not be included in this event (unless a relevant exception is identified); the audience of this conference does not align with the audience for our awards

- **Officer installation & incoming Presidential address**

Convene Sample Schedule

Sunday

- Incoming Board Meeting
- Adjournment and travel home

Convene Technical Program

Proposed Topics

1. Emerging Trends & Industry Alignment

- What issues/trends are emerging from industry?
- How are we aligned with other societies (e.g. ISO)?
- Where are there gaps?
- TCs look at this already, as does a subcommittee of Planning (the likely hosts of this session)
- This session could overlap/partner with one of the Strategic Workshops on Saturday

2. Leadership Training

3. Standards Briefing 1 / Standards Briefing 2

- For these two briefings: where are the key standards in their process/planning?
- What headwinds/tailwinds are they facing?
- Standards included could change year-to-year depending on where they are within the publication cycle
- Sessions expected to include multiple standards that are related to one another

Convene Technical Program

Proposed Topics

4. GAC Briefing on activity by government bodies
5. CEBD Briefing on strategic priorities
6. CEIEQ Briefing on strategic priorities
7. Update on global strategy from a cognizant body
8. TAC & RAC: presentation of RAC strategic plan & discussion of issues facing each

Winter Conference Modifications

- **Conference Size and Structure**
 - No strong need to expand the Winter Conference
 - There is support for reshaping/restructuring the meeting schedule to improve effectiveness.
- **Awards & Recognition**
 - Awards need to be streamlined
 - Proposed splitting awards into multiple ceremonies
 - Present higher-prestige awards at a gala for greater impact
- **Networking Opportunities**
 - Current offerings are sufficient
 - Consider shifting Annual Conference activities (ex. Cultural Events, WIA Mixer, etc.)



QUESTIONS



2025-26 Future of ASHRAE Conferences Ad Hoc

Charge:

The Future of ASHRAE Conferences Ad Hoc charge is to make a recommendation by June 2026 of a new overall Society conference strategy which specifically focuses on, but is not limited to, reformatting or eliminating the Annual Conference.

The recommendation should further explore new opportunities such as refocusing priorities and purpose for Society conferences, streamlining for effective use of volunteer time, and engaging new audiences. The recommendation should also address challenges tied to Annual Conference such as volunteer overload, increased expenses, decreased attendance, and venue space requirements.

Objectives:

1. Clearly define and narrow the purpose and target audience of Society conferences, specifically Annual Conference.
2. Evaluate preliminary staff suggested scenarios and expand upon or create new scenario(s) for recommendation.
3. The recommendation should include a sustainable financial model for the Annual Conference while acknowledging the impact on other Society conferences.
4. Examine established rules related to ASHRAE Meetings (ROB 2.104) and Conferences (ROB 3.100) and evaluate implications of rule changes.
5. Conduct a careful assessment of the risks involved.
6. Assess the impact of the recommendation on volunteers, members, conference attendees and the industry. Buy-in from various stakeholders is important.
7. Others as identified by the ad hoc.

Timeline:

- By Fall 2025, a preliminary report to the BOD is due.
- By the 2026 Winter Conference, an interim report to the BOD is due.
- By the 2026 Annual Conference, a final report with a recommendation to the BOD is due.
- Extensions may be requested for the above deadlines if additional time is needed.

The Annual Conference is contracted through 2028; therefore, recommendations of major changes could not go into effect until 2029. Smaller recommendations could be piloted in the years prior as appropriate.

We are confident that this Ad hoc has the skills and expertise necessary to recommend a strategic approach to Society conferences that meets the needs of our organization, its volunteers and members,

and the industry. We are also confident that you will approach this task with fairness, equity, and the mission and vision of ASHRAE in mind.

Sincerely,

Dennis Knight

Dennis Knight, P.E., FASHRAE
ASHRAE President 2024-2025

Bill McQuade

Bill McQuade, P.E., LEED AP, FASHRAE
ASHRAE President-Elect 2024-2025



Shaping Tomorrow's Global
Built Environment Today

Future of ASHRAE Winter & Annual Conferences

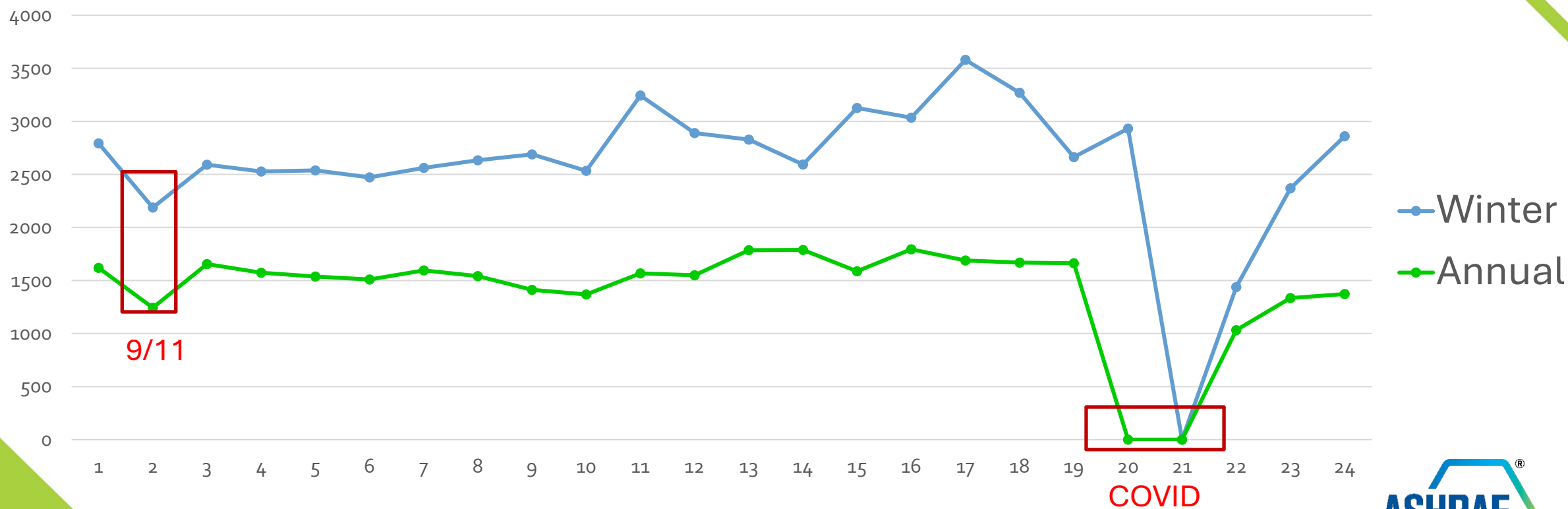
Last Update: February 5, 2025

Data & Analysis



W&A Conference Registration Trends

In-Person Registrants Only



This chart does not include virtual registrants from 2022-2024



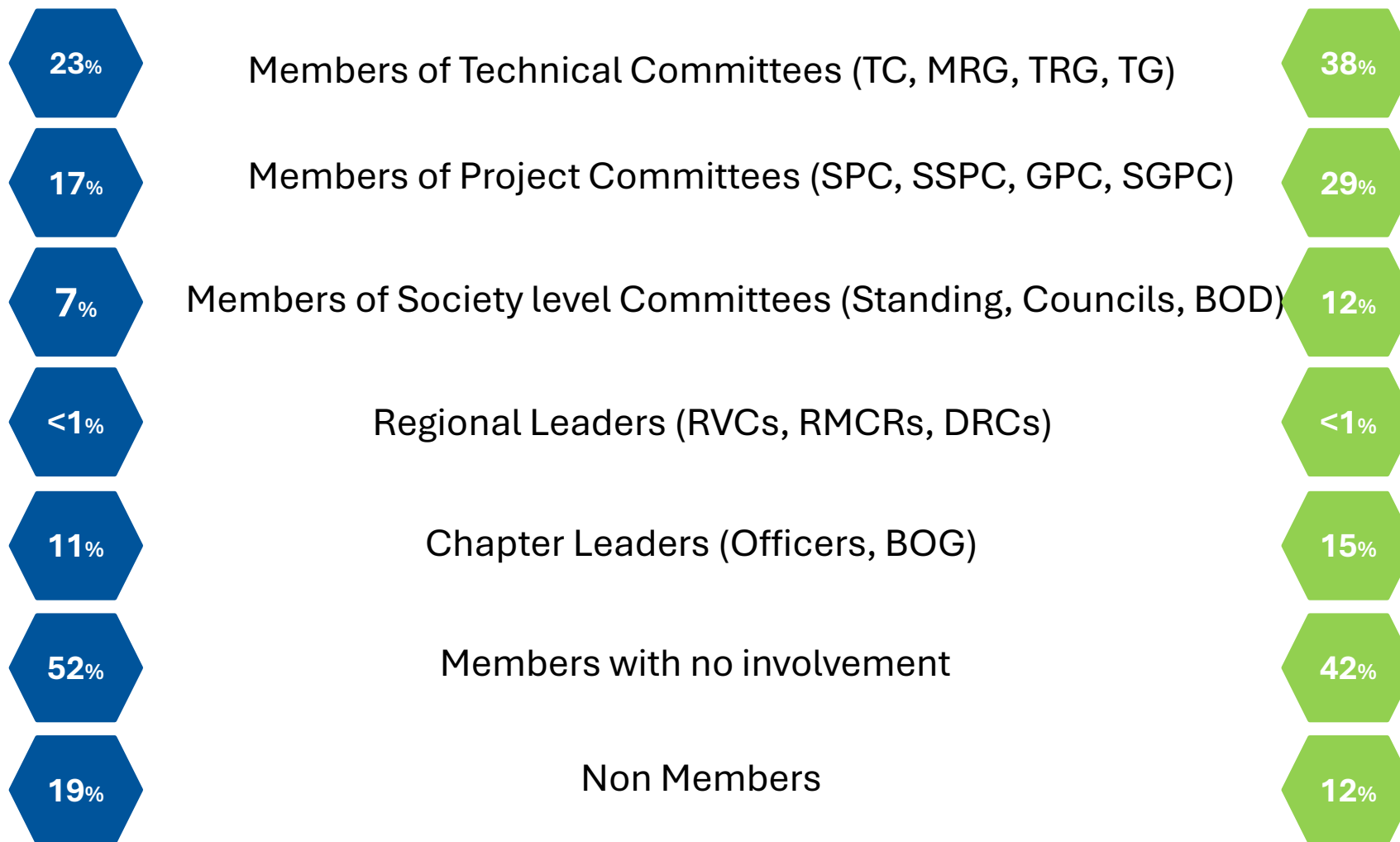
10-year Registration Analysis (In-Person + Virtual*)

Annual Conference Year	Final Attendee Count
2024*	1441
2023*	1453
2022*	1110
~~2021~~	~~Virtual Only~~
~~2020~~	~~Virtual Only~~
2019	1565
2018	1606
2017	1691
2016	1799
2015	1619
2014	1786



Who is PAYING to come to our Conferences?

Winter



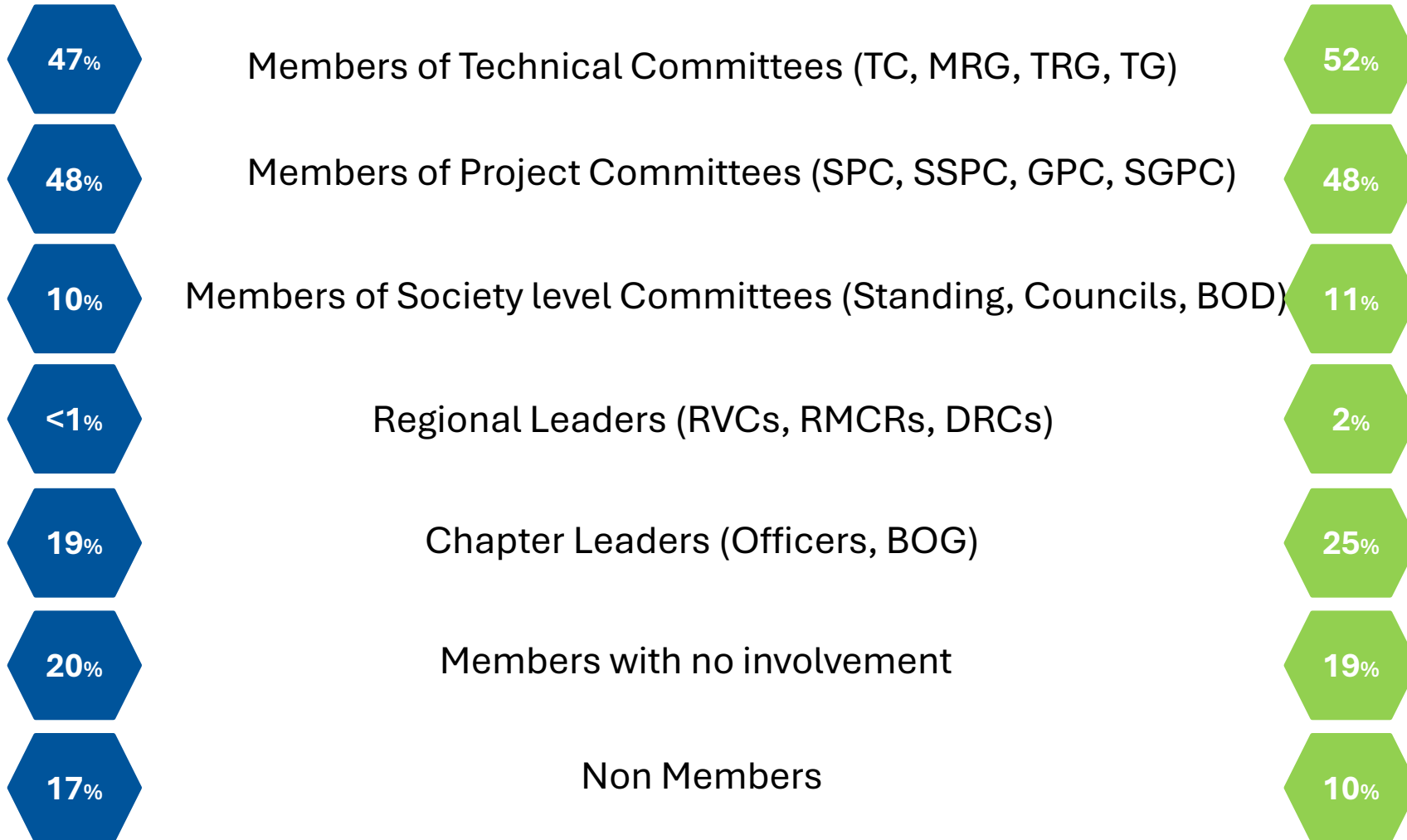
Annual



Includes all registrants who pay full or reduced registration rates

Who is attending as Committee Meeting Only?

Winter



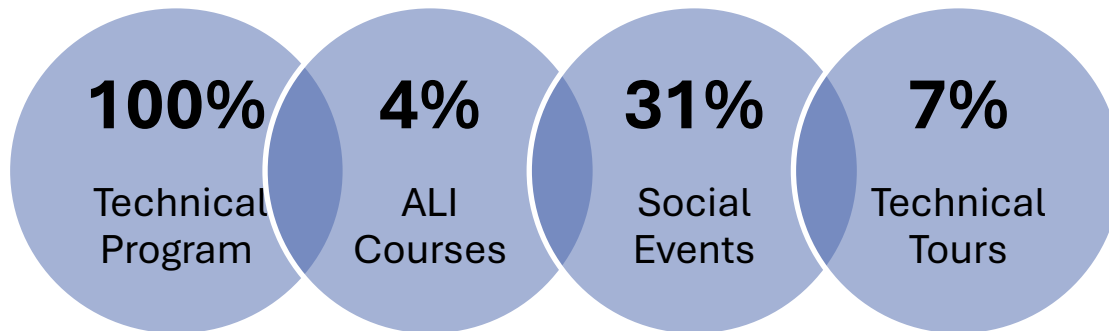
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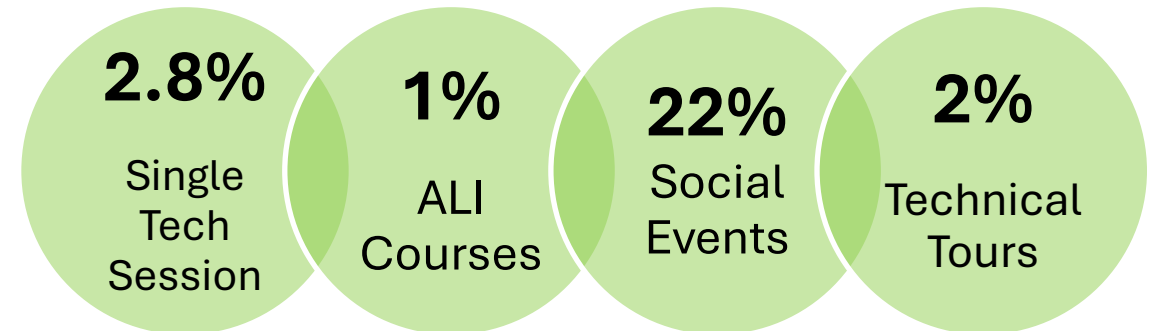
Includes all registrants who pay full or reduced registration rates

What are Annual Conference registrants attending?

Registrants



Committee Meeting Only (Not Paid)



Technical Program Attendance at Annual Conference

111

Technical Sessions

44

Avg attendance per session

125

Highest attendance in a session

Only 3 sessions had over 100 attendees

8

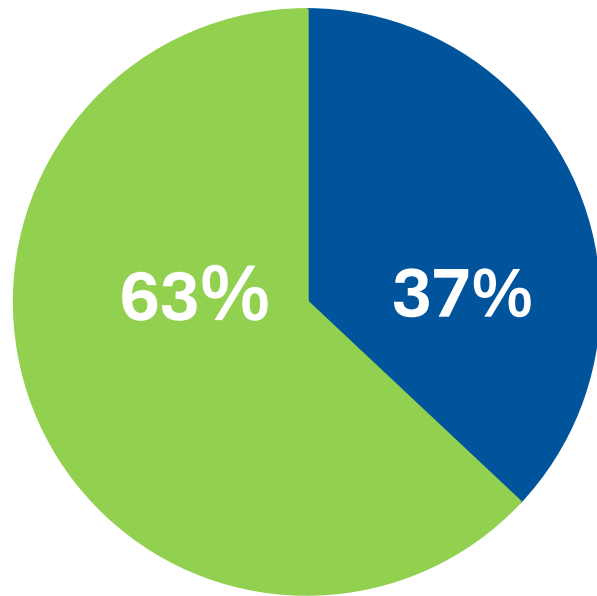
Lowest attendance in a session

41%

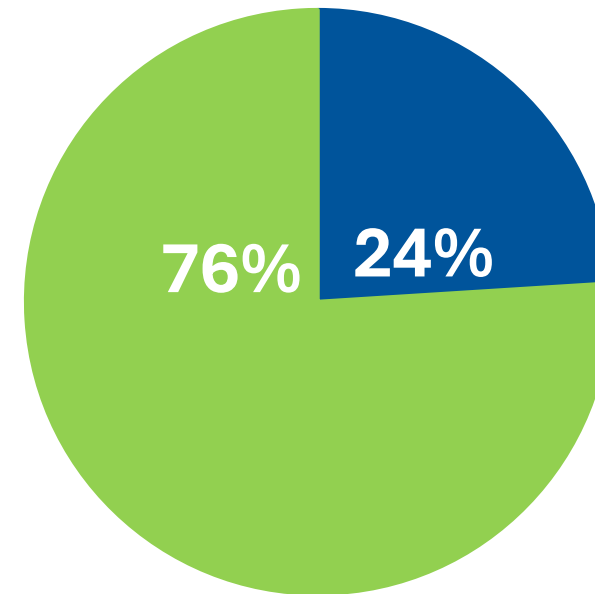
Registrants who requested
PDHs for Technical Sessions



41% of Registrants requested PDHs for the Technical Sessions attended



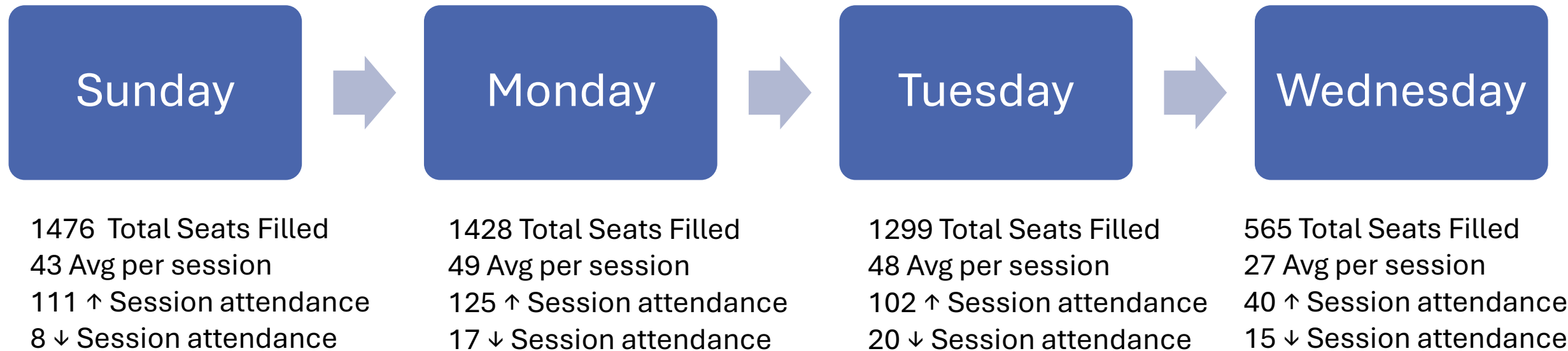
- Attended 1-2 Sessions
- Attended 3 or more sessions



- Attended at least 1 session per day
- Did not attend a session every day

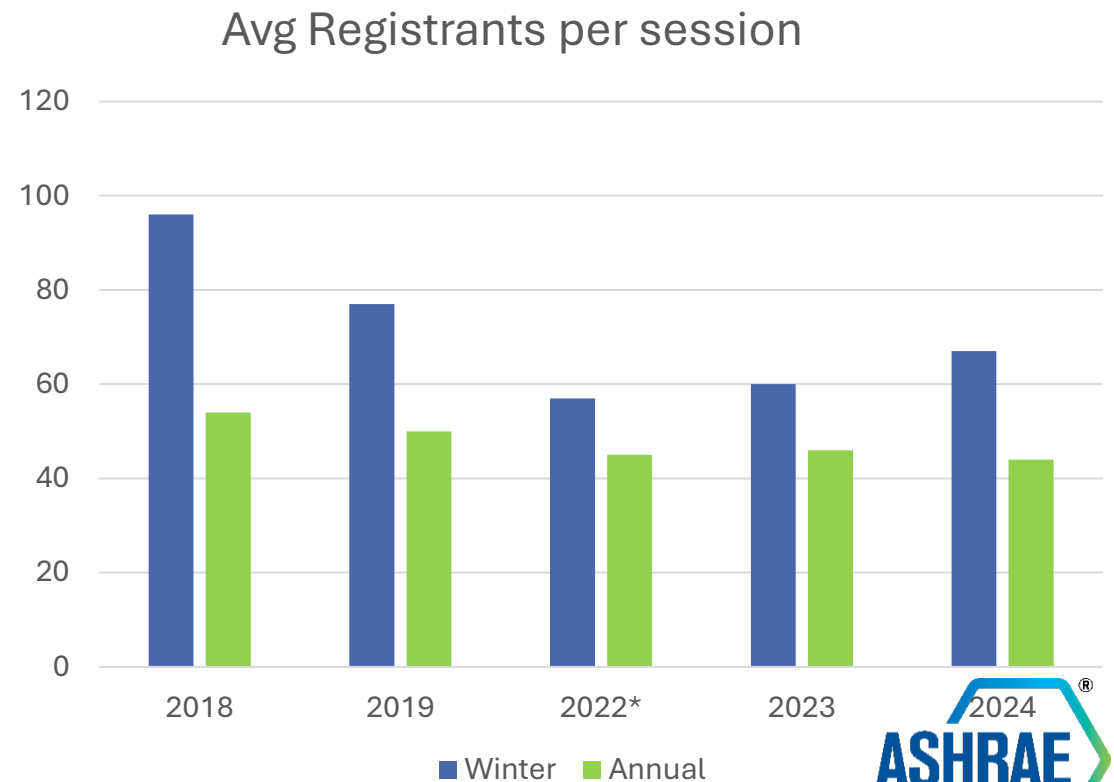
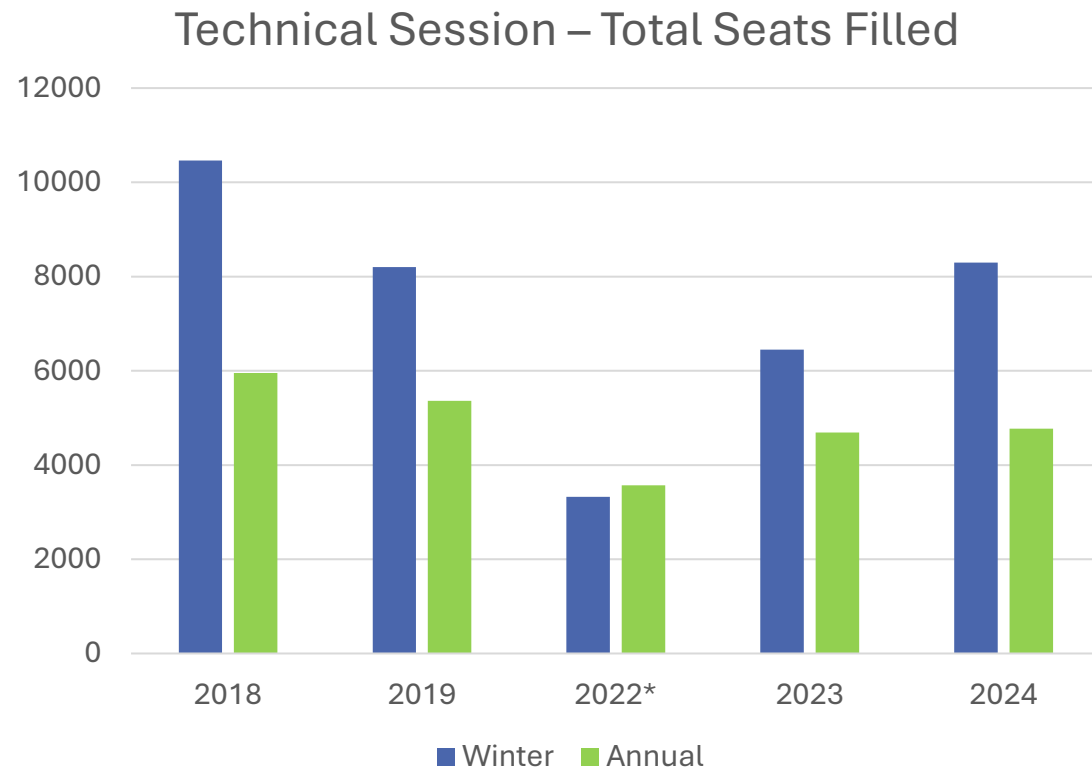


Technical Program Attendance at Annual Conference



Technical Program Attendance

Winter vs Annual Technical Session In-Person Attendance



Challenges and Opportunities



Current Annual Conference Challenges

- Declining/Stagnant Registration (10-year registration analysis excluding COVID outlined on the next slide)
- Expense and Time Commitments for Volunteers
 - Hotel room rates continue to skyrocket
 - Average cost for Volunteer
 - Average **time away from family/work** for volunteers attending **both** Conferences + CRCs
 - Average **cost for volunteer** attending **both** Winter and Annual Conferences
- Biggest Expenses
 - Audio Visual
 - Volunteer Travel
 - Staff Travel
 - Plenary
 - Welcome Party
- Hotel Spacing Challenges
 - Space needed is almost exactly equal to the needs of Winter Conference, yet we have less than half the attendees.

Average Cost for VOLUNTEER to attend

Winter

Expense	Cost
Hotel – 5 nights @ \$350/night	\$1,750
Flight	Paid for by Society
Registration	\$200 - \$800
Social Events	\$275
Meals & Onsite Expenses	\$300
Time away from Work/Home	6 days
Total	\$2,525 - \$3,125

Annual

Expense	Cost
Hotel – 5 nights @ \$250/night	\$1,250
Flight	Paid for by Society
Registration	\$200 - \$800
Social Events	\$275
Meals & Onsite Expenses	\$300
Time away from Work/Home	6 days
Total	\$2,025-\$2,625

Combined: \$4,550 - \$5,750 + 12 days away from work and home



Average Travel Cost for SOCIETY

Winter

Expense	Cost
Hotel for Staff (80)	80,000
Flights for Staff (80)	28,000
Onsite Expenses & Meals (80)	28,000
Flights for Volunteers (400)	160,000
Travel Expenses for BOD (33)	92,000
Total	388,000

Annual

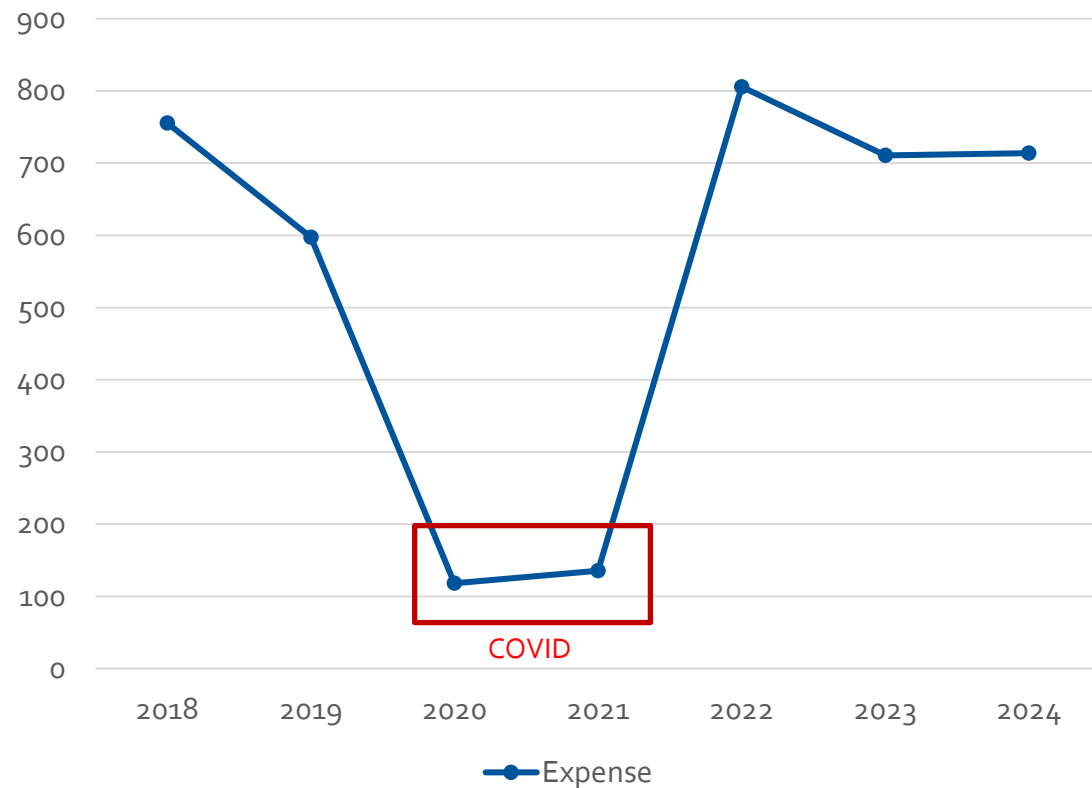
Expense	Cost
Hotel for Staff (70)	55,000
Flights for Staff (70)	24,500
Onsite Expenses & Meals Staff (70)	24,500
Flights for Volunteers (400)	160,000
Travel Expense for BOD (38)	110,000
Total	374,000

Combined: \$762,000

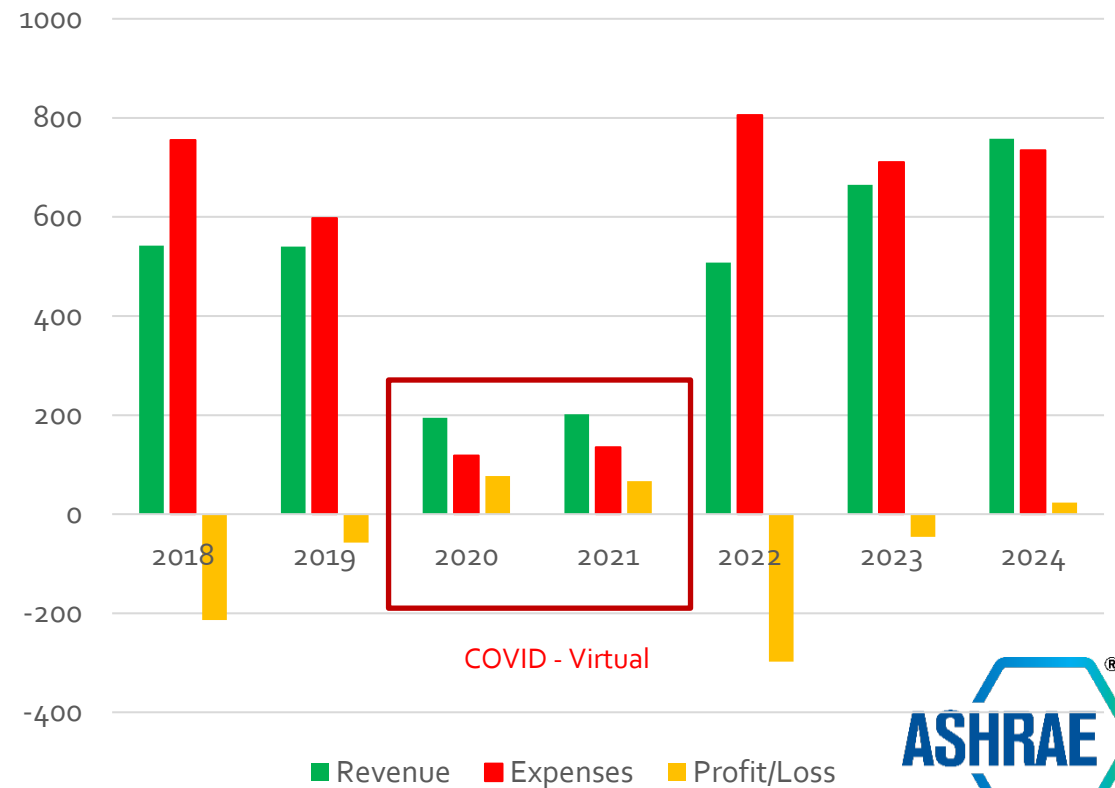


Annual Conference Revenue & Expenses Trends

Expenses

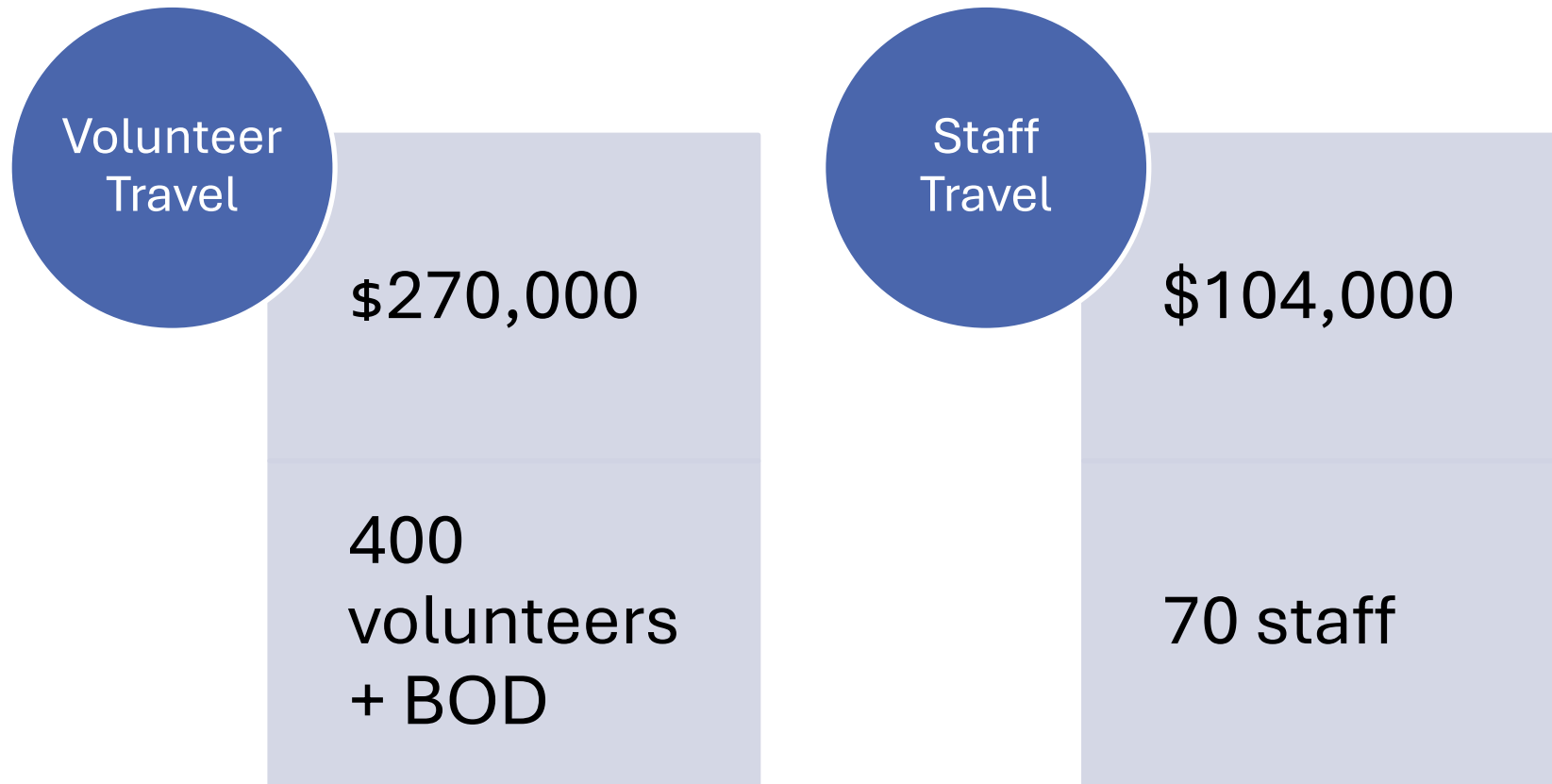


Profit/Loss



Annual Conference Additional Expenses

Not included in Conference Budgets



**Is it time to try
something new?**



High-Level Scenarios

Scenario 1

1. Winter Conference

2. Modified Annual
Conference

Scenario 2

1. Winter Conference

Constant between scenarios

Scenario 1: Winter ASHRAE Conference

Plenary

- No changes from current structure

Technical Program

- Possibly add more session to accommodate large attendance / more papers to be presented

Presidents Lunch

- No changes from current structure

Comms & Councils

- No changes to current structure

Gala

- Prestigious Society Awards
- Prestigious RP Awards/Donor Recognition

TCs & PCs

- Main Meetings
- No Subcommittees



Scenario 1: Reduced Annual Conference

Technical Program

- No formal technical program with a keynote each day: outgoing President, 1 Technical Presenter, 1 Soft Skills
- OR Co-locate with a Topical Conference

Comms, Councils & BOD

- Main meetings only
- No subcommittees
- 1 BOD Meeting

TCs & PCs

- Only large PCs to meet if requested
- No subcommittees
- No TCs – meets virtually or requests meeting at Society HQ

Social Events

- Include Meals in pricing
- Welcome Reception
- Presidential Dinner (Incoming Presidential Address) & Comm, Council, BOD Recognition

Smaller Audience

- 500-600 people
- Focused on committee work

Length

- 3 days
- Thurs - Sat



Scenario 1: What about the TCs & PCs?

- TCs and PCs could request space at HQ as needed
 - Based on committee consensus
 - Flexibility on dates
 - Member use of HQ Building
 - Low cost to Society (catering, bus)
 - Low staff impact (no travel required)
 - Low cost to the Volunteer (flight to ATL + 1 night hotel at discounted ASHRAE rate)
 - Less time away from work/home (1 night trip)
- Subcommittee work should be done virtually as needed

Additional Ideas from Staff for Scenario 1

- Create a Virtual Tech Week
- Keep a schedule, similar to what we do now, of virtual TC/PC meetings not meeting at the "Modified" Annual Meeting
- Suggest using ASHRAE HQ as an alternative meeting location for TC/PCs if must meet in-person.
- Encourage relevant TCs to meet at Topical Conferences in the future (i.e. TC 2.3 and 2.4 potentially meeting at the IEQ Conference in 2025)



Scenario 1: Financial Analysis

Current Expense Overview

Expense	Cost
AV (Audio Visual)	310,000
Meals + Coffee (Committees, Lounges & Networking)	158,000
Plated Social Functions	90,000
Volunteer + Staff Travel	374,000
Keynote + Production Expenses	62,000
Welcome Party	70,000
Vendor Fees (Confex, Decorator, Freight, Supplies, CVB, Security, etc.)	120,000
Total Expense	1,184,000

Projected Expense for a Reduced Event

Expense	Cost
AV (Audio Visual)	135,000
Coffee (600 Attendees x 3 days)	42,000
Buffet Lunches (600 Attendees x 3 days)	185,000
Volunteer + Staff Travel	324,500
Production Expenses	20,000
Welcome Party	60,000
Total Expense	766,500



Scenario 2: Winter ASHRAE Conference

Plenary

- Keynote: Outgoing President
- Society Awards

Presidents Lunch

- Incoming Presidential Address

Gala

- Prestigious Society Awards
- Prestigious RP Awards/Donor Recognition

Technical Program

- 8 tracks*
- 3.5 days

Comms & Councils

- Meet as Normal

TCs & PCs

- Main Meetings
- No Subcommittees



Scenario 2: NO ANNUAL CONFERENCE

What happens to each component?

Presidential Address

- Sneak-Peak takes place at Winter Conference and Presidential Address at CRCs
- Record as Tech Hour that could be used for Chapter Programs

Society Awards

- Split Awards into two events at the Winter: Plenary and Prestigious Awards Gala (replaces MNO)

BOD & Councils

- BOD and Councils to Meet at HQ or rotates CRCs

Technical Program

- Focus on Winter & Topical Technical Programs
- Promote Topicals to TC Programs Subcommittees
- Virtual programs submitted for subscription package
- Provide TCs the opportunities to propose their own Topical.

Standing Committees

- Could choose to:
- Meet at HQ at any time
- Meet Virtually in the summer

TCs & PCs

- Could choose to:
- Meet at HQ at any time
- Meet Virtually in the summer
- Meet at Topical Conferences



Scenario 2: Financial Analysis

Current Expense Overview

Expense	Cost
AV (Audio Visual)	310,000
Meals + Coffee (Committees, Lounges & Networking)	158,000
Plated Social Functions	90,000
Volunteer + Staff Travel	374,000
Keynote + Production Expenses	62,000
Welcome Party	70,000
Vendor Fees (Confex, Decorator, Freight, Supplies, CVB, Security, etc.)	120,000
Total	1,184,000

Projected Expense for Scenario 2

Expense	Cost
AV (Audio Visual)	-
F&B	-
Volunteer + Staff Travel	-
Production Expenses	-
Welcome Party	-
Total Expense	\$0



Why?

Benefits

- Less time away from work/home for volunteers
- Reduced volunteer transportation expenses to Society
- Reduced travel expenses for volunteer
- Reduced staff travel expenses
- Focus on growing Winter Conference
- Allow member use of HQ Building

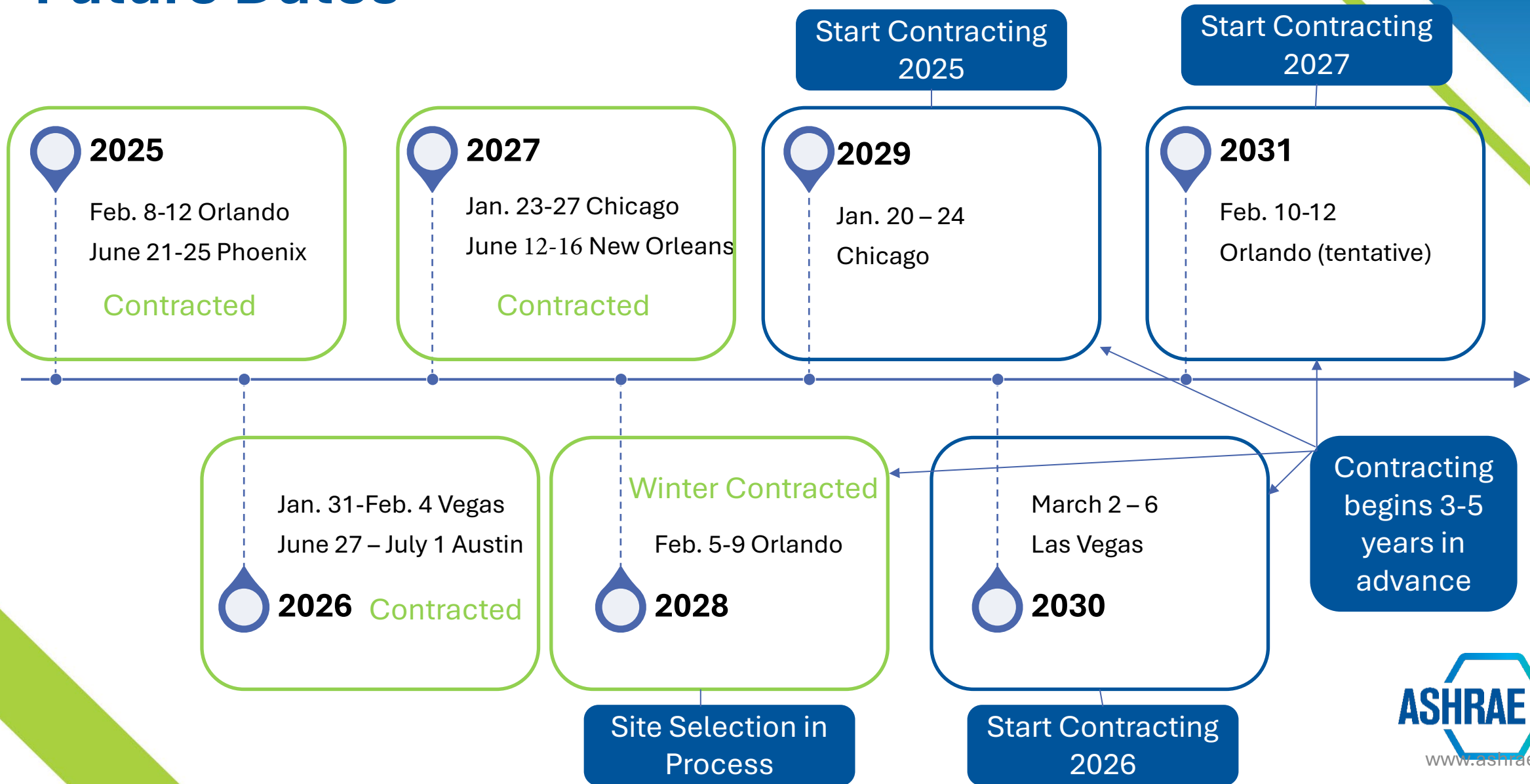
Downfalls

- Removing an opportunity to connect face-to-face for a large group of members
- Less recognition for BOD and President during transition of Society Year
- Potential lower engagement with more virtual meetings



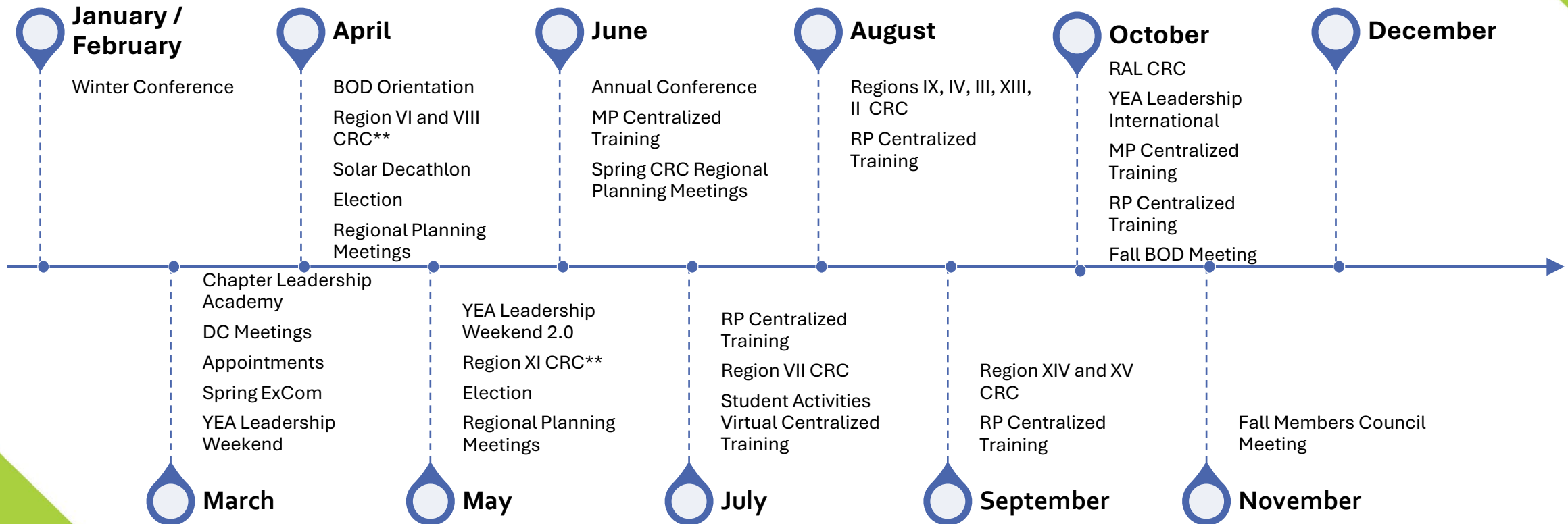


Future Dates





Current Society Calendar



APPENDIX D

Stakeholder	Main Purpose	Benefits	Challenges
Standing Committees	Work of the Committee, meeting face to face	In person collaboration with committee members Building personal relationship with committee members Cross-Committee Collaboration Opportunity for committee members to interact with society leadership and get updates. Grassroots committees (YEA, MP,...) have support events or mentorship opportunities for members	Time Commitment Travel cost to the society/region/member.
Centralized Training	In-person Training of incoming chapter chairs. Hosted at the same time as the Annual Conference.	Provides comprehensive training and resources to chapter chairs, helping them to be prepared for performing their duties. Interactive in-person connection between chapter chairs. 75+ chairs have been in attendance for in person MP training for last 3 years.	Time Commitment Travel cost to the society/chapter/member. Would need to be some rework to decouple from the Annual Conference
Host Chapter	Hosting the conference.	Increased visibility and recognition for host chapter. Encourage chapter member engagement. Attract potential new members Local members who have typically never attended a conference, get opportunity to attend and get involved.	Hosting a conference require significant amount of time, effort and coordination. Some chapter may struggle with getting enough volunteers, resulting in member/chapter burnout.
Attendees	Attend technical sessions (paper sessions/seminars/debates) Attend committee meetings Visit AHR Expo (Winter Conference only)	Learn about recent advancements in technologies, standards, method of tests, rating of equipment Engage in committee work Personal connections	International attendees may face challenges Costs associated with attending 2 ASHRAE Conferences a year Quality of content (this relates to CEC work)
Speakers	Present technical work, seek feedback on research directions, share content via seminars or other programs For students, gain experience in presenting in front of expert audience and compete for awards	Share research/technical findings Get questions/feedback on the work and spark discussions Engage in discussions with peers	Number of papers may reduce the attendance of specific sessions. Often rooms are empty especially on Wed morning. No shows can happen
Research Presenters	Report findings on research (novel approaches, results, disruptive ideas, results from ASHRAE RPs, etc.) Seek possible collaborations for funding opportunities or industry engagement	Shape research programs within TCs Elevate the value of ASHRAE Annual/Winter Conferences especially for faculty. Now we have DOIs for papers Grow scientific community of ASHRAE	ASHRAE Annual Conference value on the research side may compete with other summer conferences more specialized. Faculty may choose other conferences Slotting of presentations is also a challenge Quality of papers vs. allowing broader participation.

SSPC	Deep work session, collaboration. Vast majority of addenda that become published are processed at conferences.	Ability to coordinate with Standards Committee and their subcommittees; Ability to interface with TCs and other PCs; FTF creates a rapport between members that is beneficial to the consensus building process; Many SSPCs host a series of meetings, so it becomes a multi-day endeavor. If someone is a chair, ability to attend chair's breakfast. Ability for guests or those not on the SSPC to attend subcom or main meetings (WHC)	Productivity at conferences is built into the assumptions that we make for publication timeline; ASHRAE staff would need to redefine our schedule if summer was lost Ensure SSPC members who are not necessarily plugged into "ASHRAE" are aware of any changes
SPC/GPC	Development of a proposed standard; Reviewing an existing standard for reaffirmation; Revising a periodic maintenance standard that is due for an update	Last summer, 40% of the SPC meetings were for proposed standards not yet published, i.e., currently in-development which is aided by in-person meetings. If chair, ability to attend chair's breakfast.	Last summer, 75% of SPC meetings happened Monday or later during the conference; not as spread as SSPCs. The SPCs and GPCs don't normally host a meeting series and only require one session. (LS) the speed to marketplace will be extended
TC Chairs	Conduct/lead the business of the FG's	building personal relationships within the committee ability for locals to attend the meeting (and potentially find new members to help the TC)	difficult to build relationships in a virtual environment, or limited to a once per year meeting
Position Documents Groups	Create BOD's approved position documents. It is hard for such disparate groups to get all of their work accomplished within the 3-year required timeframe. Need face-to-face conversations/debate time	The Tech Council subcommittee (DRSC) can work remotely/virtually. face-to-face is important (LS) I thought there were comments from Wade, unless they are included in "Main Purpose".	same as others
TC Committees/MTGs	Supervise and assist in the formation and operation of the Functional Groups (FG's). I have a pptx for a brief overview of the 110 FG's.	Sunday breakfast and training for FG's allowing the section chair to interact with the FG chairs in their section	either a remote/virtual/none summer conference may impede the working of the FG's
Foundation	Meeting to review funding approval requests.	Meeting in-person is nice but not necessary. Good time for face-to-face asks of donors (2 touch points v 1)	Is an in-person meeting worth the time and travel. Foundation Trustees don't really have to interact with anyone else at the conference in regards to their purpose so could easily pivot to virtual.

Nominating	Orientation for new members Ongoing reminder of roles and responsibilities Wrap up business for the Society year	Some members view the Annual Conference as the unofficial start of their Nominating Committee work because it traditionally includes a face-to-face meeting. For a few, this is their only committee role, making the meeting their main reason to attend. These members are often regional or alternate representatives who may not have attended before. Their benefit from attending depends more on their overall participation in the conference than on the presence of a Nominating Committee meeting.	A face-to-face Nominating Committee meeting at the Annual Conference isn't necessary, as the agenda can be handled virtually beforehand. While some members may attend to better understand ASHRAE and its leadership, this learning typically happens outside of Nominating Committee meetings, making the meeting itself unnecessary for that purpose.
Sponsors	Collaborating with the industry, connecting with peers, and promoting our products/services	Exposure to potential customers and involvement in the ASHRAE community	None
Staff	Meet members in person; committee work can be done virtually. Focus on Board Transition. Facilitate Standing Committee meetings and onboarding. Conduct committee business and recognize members at the Plenary. Complete work of Technical and Standing Committees; report progress and set future direction. Support various committee meetings, council meetings, and member interactions. Support student and YEA activities, including judging competitions and committee meetings. Provide onsite support for registration and bookstore operations. Network with members, run meetings and trainings, and explore collaboration opportunities. Disseminate technical program content to attendees.	Opportunity to highlight incoming president and Society Theme. Strengthen ties with committee members through informal gatherings. Face-to-face interaction improves discussion and task completion. Provides a recognized deadline for committee work and accountability. Enables in-person meetings with members and prospective collaborators. Recognition and installation of Officers/Directors; final and initial BOD meetings. Direct contact with members typically reached via email. Productive in-person meetings and networking; collaboration opportunities. Yay, travel!	Long meeting durations and extended travel time. Overtime, weekend work, lots of travel. Soft boundaries on conference start/stop (meetings before conference starts) Constant promotion of two conferences leads to email fatigue. Education component may not be effective or necessary. Timing conflicts with summer vacations and quick turnaround from Winter Conference. High workload before, during, and after the conference; backlog of tasks and emails. Conference interrupts regular work and project progress. Lighter agendas reduce effectiveness; some meetings end early or are skipped. Time wasted on unnecessary subcommittee meetings. Limited time, double-booked meetings. High volunteer workload; low engagement in technical sessions.
Non-traditional ASHRAE Members (Non Members, Technology Award			
Councils	Reports from Committees, Connection to ExCom	get to know fellow members, opportunity for larger audience with drop-in guests	cost, long meeting with conflicting meetings

Board/ExCom	Acts as a transition meeting for new Board members. - Both new and exiting Board members must attend. Two board meetings. Two excom meetings. Attend other committee meetings to which the Board member may be a corresponding member - i.e. all standing committees, Finance Committee, Planning Committee, CEBD. Face to face interaction with the members of the Board. Meetings with outside groups who attend - i.e. REVA and USGBC.	Strengthen the relationship with other Board members through informal gatherings. Better discussions with in-person collaboration Enables in-person meetings with members and prospective collaborators. Direct contact with people typically reached via email. Productive in-person meetings and networking; collaboration opportunities. Chance to get continuing education if time allows. Allows for Presidential platform and Society Theme to be introduced for that SY (WHC)	Long meeting durations and extended travel time. Timing conflicts with summer vacations and quick turnaround from Winter Conference. Quick turnaround for those who have spring CRCs High workload before, during, and after the conference; backlog of tasks and emails. Conference interrupts regular work and project progress. Limited time, double-booked meetings Unable to attend many tech sessions due to workload at the conference.
Regional Planning	Planning meeting for the upcoming year with all regional board members. Separate event like centralized training (LS)	Most regions have an in person one each Society year. The majority of Regional board members are already at the annual conference, so the cost to bring in the others is minimal in comparison to holding a separate RPM.	Extra regional members may need to attend. These members may not have planned to attend and need to find the time away from work or family. Possibility of additional cost to the Region or the Regional Board members.
ALI Attendees	Learn from a guided course in person Typically 12 to 15 options of course - part day, full day - on a variety of topics Provides FGs the ability to provide higher level of training on their documents or materials	In person training is usually more effective than online Ability for ASHRAE members to be paid to teach materials	Trainers fitting the course into a usually packed conference schedule Host committee - sometimes tough to get people to monitor the course Course are also offered On Line
AASA	broaden ASHRAEs scope of activities in the world and thereby make possible a more effective and fruitful exchange of knowledge and ideas among engineers engaged in the arts and sciences of HVAC&R within the other member organizations There are 52 countries represented in this group with closer to 60 organizations	F2F meeting is good At Winter Conference they attend the Leadership Lunch (Sunday with the BOD) but not at Annual Annual could be done Virtually without an issue	Not as many show for Annual Conference

Award Winners (Fellow, Technology Awards, etc)	Recognition	increased donations? honor volunteers and donors first time attendees (non-members like building owners)	cost travel
Meeting of the Members	Required by charter by-laws (and thus the law). Question on when the meeting has to take place, can it move to the Winter Conference? Talk to Jeff		Any changes could take time (vote of members, refiling with State of New York)
Summary	How can we still meet the needs of the many many different stakeholders?	1. Relationship Building & Collaboration In-person collaboration with committee members, Building personal relationships / rapport, Cross-committee collaboration, Strengthening ties with Board members or Society leadership, Informal gatherings leading to stronger working relationships 2. Networking & Visibility Exposure to potential customers / collaborators, Increased visibility and recognition for chapters or individuals, Opportunity to meet new members and first-time attendees, Local participation and engagement from people who may not usually attend 3. Training & Professional Development Comprehensive training for chapter chairs and leaders, In-person training being more effective than online, Continuing education opportunities, Learning about new technologies, standards, research, etc. 4. Knowledge Sharing & Technical Advancement Sharing research and technical findings, Getting feedback and sparking discussions, Shaping research programs and technical directions, Coordinating with Standards Committees and subcommittees 5. Accountability & Productivity Face-to-face meetings improve discussion quality and task completion, In-person deadlines and events create accountability, Productive in-person meetings for decision-making 6. Engagement & Motivation Grassroots committee events and mentorship opportunities, Recognition of volunteers, officers, donors, and leaders, Celebration of Society Theme or incoming president, Increased donations and engagement through personal touch	1. Time Commitment & Workload Long meetings, extended travel time, overtime, weekend work, High workload before, during, and after the conference (plus backlog of tasks), Double-booked meetings, limited time, wasted or unnecessary meetings, Quick turnaround between Winter and Annual Conferences, and conflicts with summer vacations or spring CRCs, Host chapters/volunteers face burnout from planning/coordination 2. Cost & Travel Travel cost to members/chapters/regions/society, International travel challenges, Additional cost when extra members must attend, General expense of hosting conferences 3. Participation & Engagement Issues No-shows and empty rooms (especially later in the week), Lower attendance when competing with other specialized conferences, Lighter agendas or skipped meetings reduce effectiveness, Low engagement in technical sessions due to workload, Trainers/courses competing with already packed schedules 4. Content & Quality Concerns Quality of papers vs. desire for broader participation, Reduced number of papers impacting session attendance, Education component sometimes seen as unnecessary or ineffective 5. Scheduling & Productivity Challenges Difficulty building relationships in virtual/hybrid settings, Meeting timing conflicts (summer vacations, quick turnaround, etc.), Productivity tied to publication timelines and staff schedules, Some committees/meetings may not need to be held in-person (can be virtual instead) 6. Organizational/Structural Hurdles Rework needed to decouple certain meetings from the Annual Conference, Constant promotion of two conferences > email fatigue



Shaping Tomorrow's Global
Built Environment Today

ASHRAE Conference Strategy

Report to Executive Committee



January 2026

Action Item

“Staff to develop a three-year business plan for hiring more staff, expanding CEC and running more topical conferences.”

- SY 25-26 Executive Committee



How did we get here?



Got to work



Listened to Member Feedback



Analyzed Data



Created a Strategy to Amplify Impact of Conferences



What did we learn?





Members want...

- Networking
- Soft Skills
- More Opportunities to Submit Papers and Programs
- Quality Technical Programs
- A Larger Global Presence
- To Reach More Members
- Grow Membership
- Collaborate with Partner Organizations

Impact of Society Conferences: Key Findings



8% of ASHRAE Members attend Society Conferences



\$250K is the average **surplus** per year when looking at **direct** revenue and expenses



144% **increase** in conference sponsorships since FY23

Winter
Conference

Annual
Conference

(9) Rotating
Topics:

IEQ

CIDCO

Women in ASHRAE

Building Decarb

Buildings

Hot Climates

Efficient Energy Design

Developing Economies

Energy Research and
Development



See slides 24-26 for detailed graphs and data

Impact of Winter & Annual Conferences: Key Findings

See slides 27-30 for detailed graphs and data



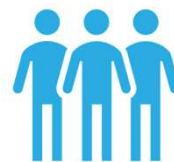
85%/15%

Member vs
Non-Member audience



29%

Winter attendees
also attend Annual



58%

Annual attendees
also attend Winter



-60%

decline in combined
Sponsorship since
FY23

Based on direct revenue & expenses



+\$332K

avg surplus/year
for Winter



-\$75K

avg deficit/year
for Annual

Added Volunteer Travel and Staff Travel



-\$294K

avg deficit/year
for Winter



-\$703K

avg deficit/year
for Annual

What is a Topical Conference?

Topicals

Aim to advance the HVAC&R industry by providing focused conferences for sharing cutting-edge research, innovative solutions, and best practices on specific, timely subjects. Topicals tackle urgent challenges, educate professionals, and drive innovation for the HVAC&R industry at a lower registration rate.

*Consulting Engineers | Contractors | Manufacturers/Manufacturing Reps
Government | Health & Education | Design Build | Architects*



200-300

Stable attendance per
Topical with spikes for
Decarb and IEQ



9

Rotating Topicals

IEQ

CIDCO

Women in ASHRAE

Building Decarb

Buildings

Hot Climates

Efficient Energy
Design

Developing
Economies

Energy Research and
Development



Topical Conferences

Model 1: Society-Led

- Appointed Volunteer Steering Committee creates conference program and solicits sponsorships.
- ASHRAE Staff manages budget, venue contracts, registration, marketing, speaker management, conference program coordination, app development, sponsorship fulfillment and onsite operations.
- CEC provides conference approval, guidance, and presentation review if needed.
- Society assumes financial responsibility and conference is budgeted for small surplus.

Model 2: Chapter-Led

- Chapter volunteers create steering committee and conference program, assumes financial responsibility, venue contracts, sponsorship solicitation and fulfillment, onsite registration, local marketing, and onsite operations.
- ASHRAE staff supports conference program coordination, online registration, speaker management, society marketing, website and app.
- CEC provides conference approval and guidance if needed.



Model 1 Series

IEQ

CIDCO

Women in ASHRAE

Building Decarb

Buildings

Model 2 Series

Hot Climates

Efficient Energy
Design

Developing
Economies

Energy Research and
Development

Impact of **Topical** Conferences: Key Findings



48%/51% **Member** vs **Non-Member** audience, expanding reach beyond ASHRAE



4% attend multiple **Topicals**, high specialized, non-overlapping audiences



+\$13K avg **surplus**/year for **Topicals** based on direct rev/exp



+523% increase in **Sponsorship** since FY23 and exceeding registration revenue in FY25

See slides 31-33 for detailed graphs and data

**Strategy to
Amplify the Impact
of Society Conferences**

Growth Opportunities

Topical Series

- CEC to actively seek out Model 1 Topicals based on hot topics utilizing TCs and/or PCs
- CEC to actively seek out Model 2 Topicals based on chapter strength and interest
- Staff to work interdepartmentally to make connections between CEC, TAC and Standards Committee on potential Topicals.
- Establish consistent rotation strategy for each Conference to support execution and prevent topic oversaturation

New Conference Series



ASHRAE Global TechCon series



Lead and Connect series



Technical Forum series



On-Demand series

ASHRAE Global TechCon series



The **ASHRAE Global Technical Conference series** is a Society conference designed to share technical knowledge on topics critical to the local HVAC&R industry, while emphasizing ASHRAE's value and impact within those regions. The series will rotate annually to different parts of the world, fostering global engagement, knowledge exchange, and networking.

- ASHRAE TechCon Asia
- ASHRAE TechCon Europe
- ASHRAE TechCon MEA
- ASHRAE TechCon LATAM
- ASHRAE TechCon NA



Series Strategy

Structured like other Topical Conferences. Programming options could include a call for presentations, invited-speakers, call for papers or a combination of all the above.

- **Audience:** local ASHRAE members and non-members within the industry
- **Format:** Two and a half days, 2-4 technical tracks, social events, and keynotes. Tracks to be determined by local Steering Committee and CEC.
- **Financial Structure:** Budgeted for small surplus. Registration fees should reflect local market and strong local sponsorship strategy created.
- **Rotation:** A new continent each year
- **Volunteer Support:** Local steering committee to create program, solicit sponsors and market locally.
- **CEC Role:** Support track creation and provide guidance.
- **Staff Support:** Same as W&A/Model 1 Topical
- **Partnerships:** Local AASA, local chapter(s), region



ASHRAE Lead & Connect series

The **ASHRAE Lead & Connect series** is designed to empower members by combining leadership development with technical education. This initiative provides targeted opportunities for specific member groups to strengthen soft skills, enhance technical expertise, and build meaningful connections within the ASHRAE community.

- Women in ASHRAE Leadership Symposium
- ASHRAE Young Professionals Conference
- ASHRAE Student Summit
- ASHRAE Leadership Conference

Series Strategy

Audience: Targeted member groups of ASHRAE | **Format:** 2.5 days, soft skills presentation + some broad technical sessions, social events, keynotes | **Financial Structure:** Registration fees + Sponsor supported | **Volunteers:** WIA/DEI Committee, YEA, SAC | **CEC:** Approval and Guidance | **Staff:** Model 1 Topical Staff Support



ASHRAE Technical Forum series



The **ASHRAE Technical Forum series** is designed to provide an in-depth exploration of specialized technical topics beyond the scope of traditional Topical Conferences. By offering shorter, highly focused sessions and encouraging greater participation from TCs, this series fosters small-group collaboration and meaningful discussions, creating a dynamic learning environment for both ASHRAE members and non-members.

- ASHRAE Technical Forum on Heat Pump System Designs
- ASHRAE Technical Forum on Ventilation
- ASHRAE Technical Forum on Tall Buildings
- ASHRAE Technical Forum on Thermal Storage



Series Strategy

- **Audience:** Approximately 100 NA ASHRAE members and non-members seeking an in-depth technical focus on a specific topic.
- **Format:** 1-1.5 days at ASHRAE HQ. Programs not accepted into other Society Conferences may be grouped and presented in a deep-dive Forum.
- **Financial Structure:** Low-cost structure with minimal HQ expenses and affordable attendance expenses. Primarily supported by registration fees; sponsorship opportunities available.
- **Frequency:** Flexible – monthly, quarterly, or as staffing and program availability allow.
- **Volunteer Support:** Small steering committee formed by TC and TC Section to develop the program.
- **CEC Role:** Recommend topics based on programs not accepted at other conferences.
- **Staff Support:** Primarily staff-managed with steering committee guidance on program placement.
- **Partnerships:** Opportunities to collaborate with MOU organizations on relevant topics.



ASHRAE On-Demand series



The **ASHRAE On-Demand series** aims to deliver a subscription-based library of recorded conference presentations and paper presentations, enabling individuals and organizations to access technical content anytime, anywhere. This platform provides flexibility for professional development opportunities, including the ability to earn PDHs. By integrating with the ASHRAE Learning Management System (LMS) and providing access to recordings from Society Conferences as well as expanding the opportunity for previously unaccepted highly-rated programs, the series broadens learning options and highlights the diverse expertise within the ASHRAE community.

- ASHRAE On-Demand: Fundamentals and Applications
- ASHRAE On-Demand: HVAC&R Systems and Equipment
- ASHRAE On-Demand: Building Decarbonization
- ASHRAE On-Demand: Indoor Environmental Quality for Healthy Buildings

Series Strategy

- **Audience:** Anyone.
- **Format:** Subscription-based product. ASHRAE On-Demand.
- **Financial Structure:** Product available for purchase.
- **Frequency:** Use recordings from presentations at Winter Conference as well as offer presenters and authors whose highly-rated programs were not accepted, the option to record their program to be added to ASHRAE On-Demand if deemed appropriate.
- **Volunteer Support:** A steering committee formed to review submissions that were not accepted to Society Conference program to deem appropriate for ASHRAE On-Demand and communicate with submitters with staff support.
- **CEC Role:** Review and suggest when selecting Society Conference Programs.
- **Staff Support:** Program coordination.



Amplifying the Impact



Increased
Membership
Engagement



Expanding
Networking
Opportunities



Enhanced
Brand Visibility



Potential
Revenue
Growth



Professional
Development



Market
Expansion

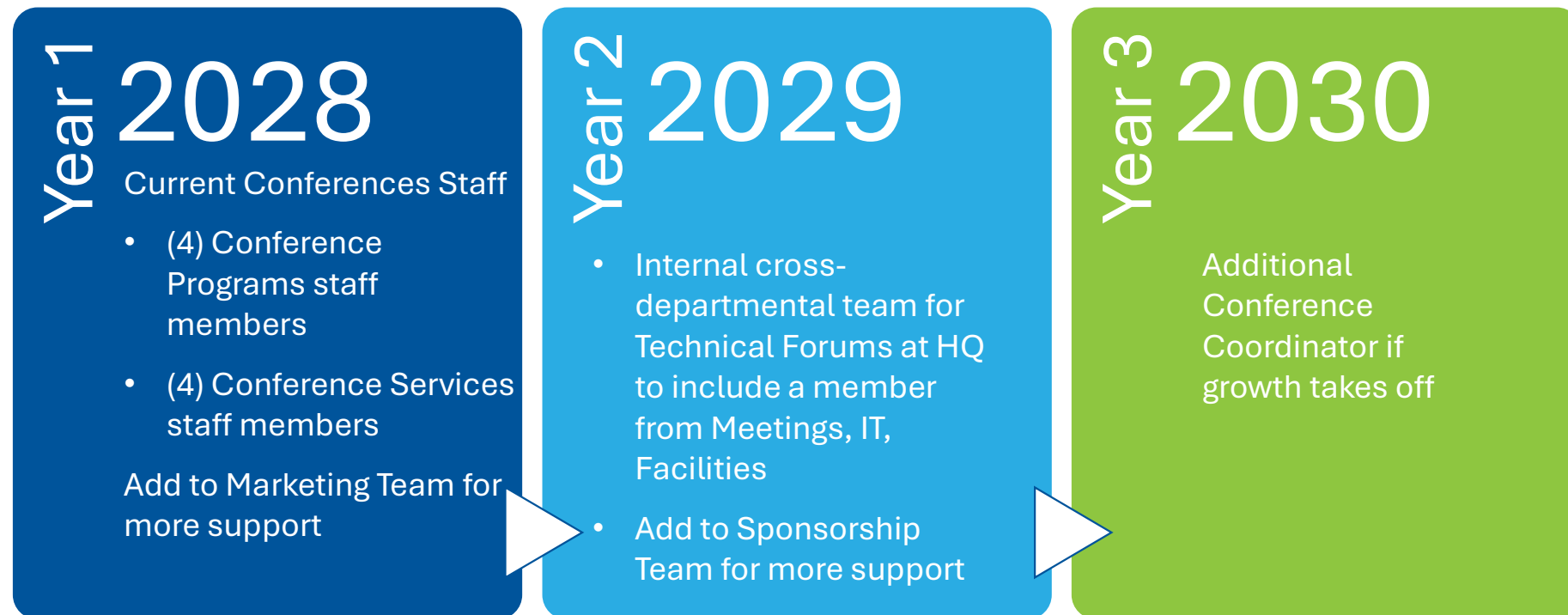


Advancing the
Arts and Sciences
of HVAC&R

ASHRAE Conferences Growth Outlook

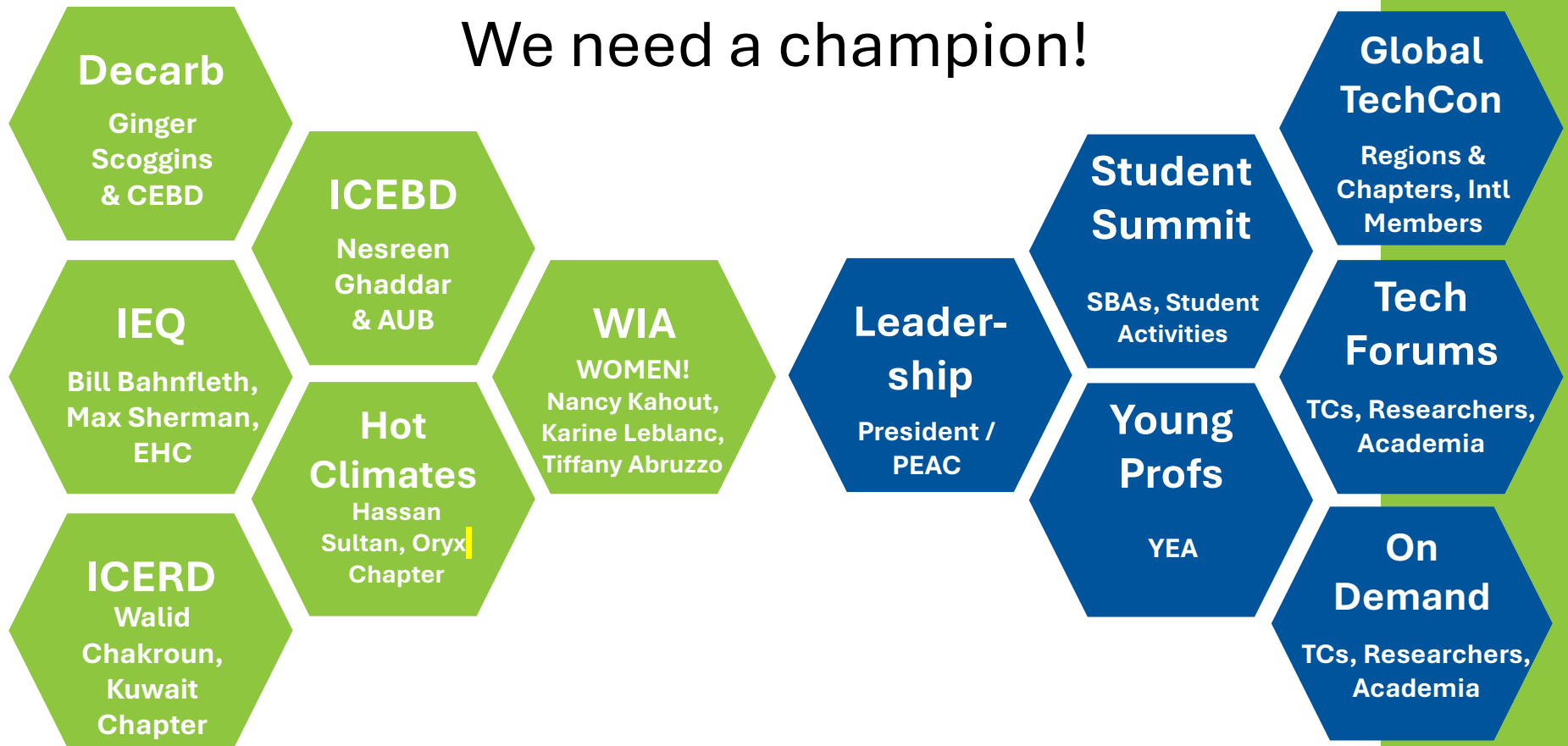


Staffing Growth Outlook

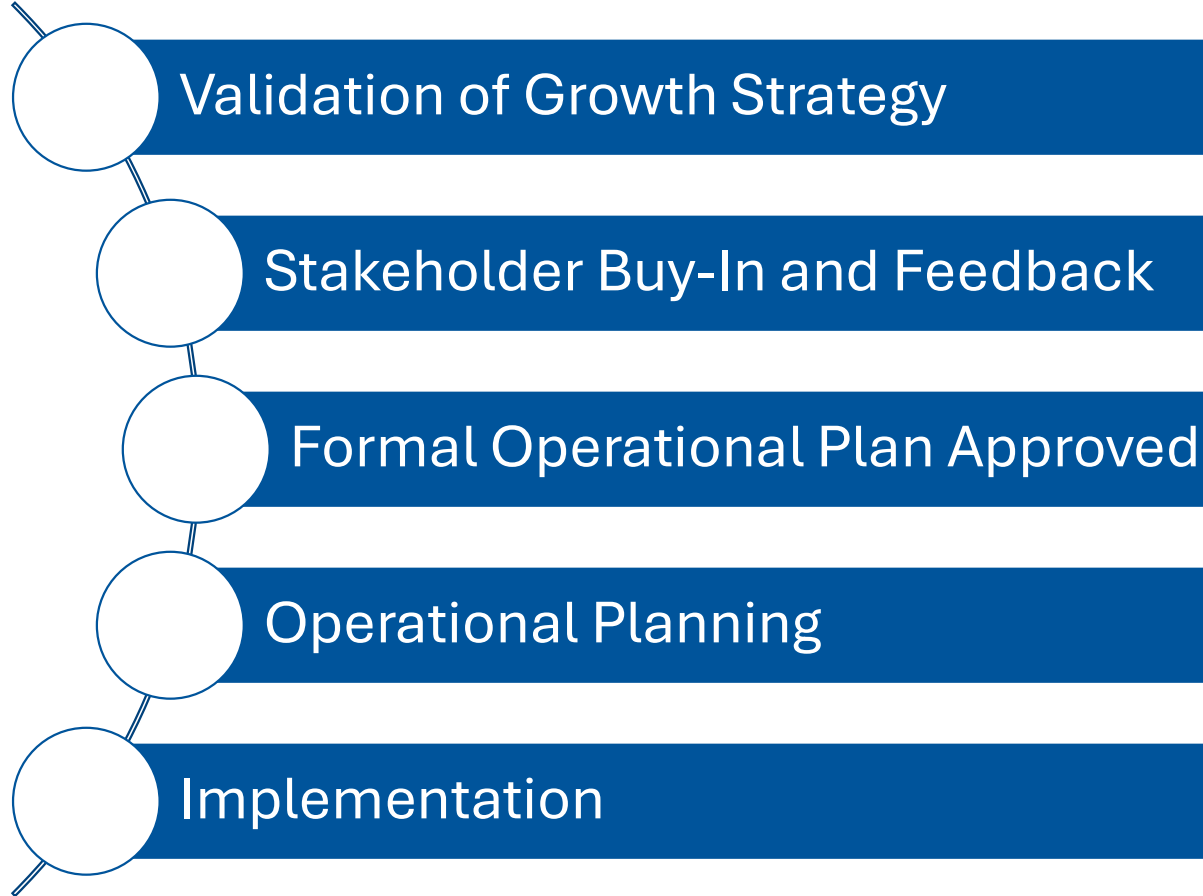


How?

We need a champion!



What's Next?



Thank you!

Conference Programs

- Ragan McHan
- Chris Preyor
- Haley Booker-Lauridson
- Jennifer Mesta

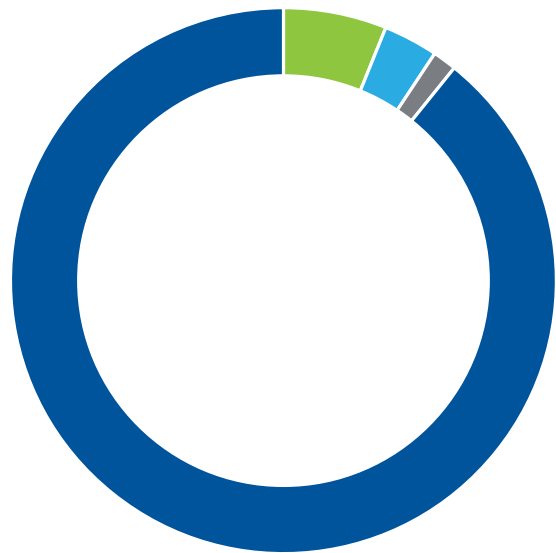
Conference Services

- Selina Parks
- Tracy Keller
- Staci Loeffler
- Porshia Williams

Society Conference Data

Impact of Society Conferences:

Members who attend Society Conferences



■ Winter ■ Annual ■ Topicals ■ Did Not Attend



8%

of ASHRAE Members
attend Society
Conferences

Winter
Conference

Annual
Conference

(9) Rotating
Topicals:

IEQ

CIDCO

Women in ASHRAE

Building Decarb

Buildings

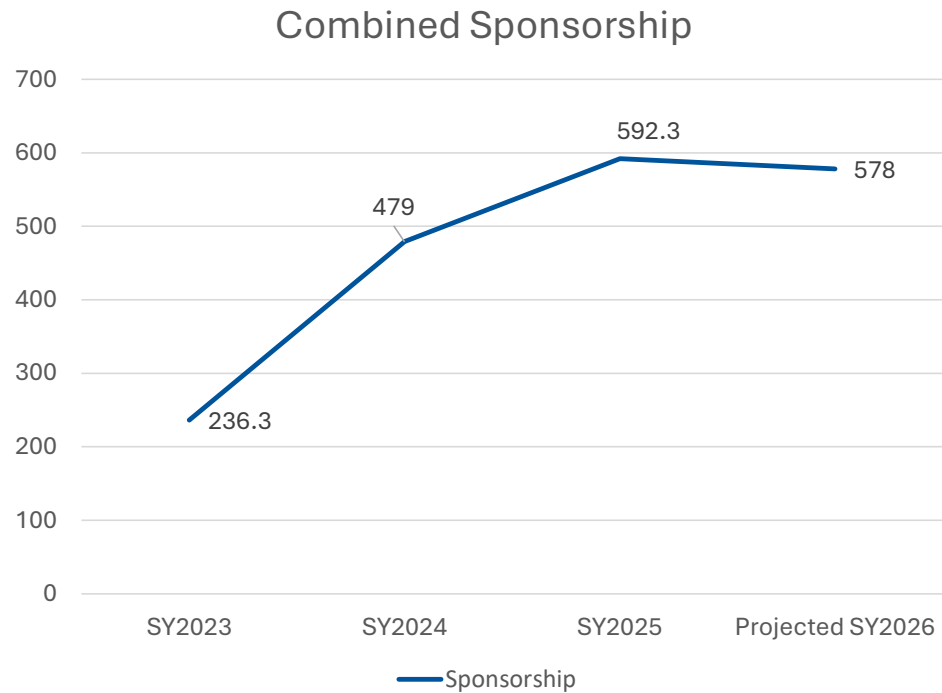
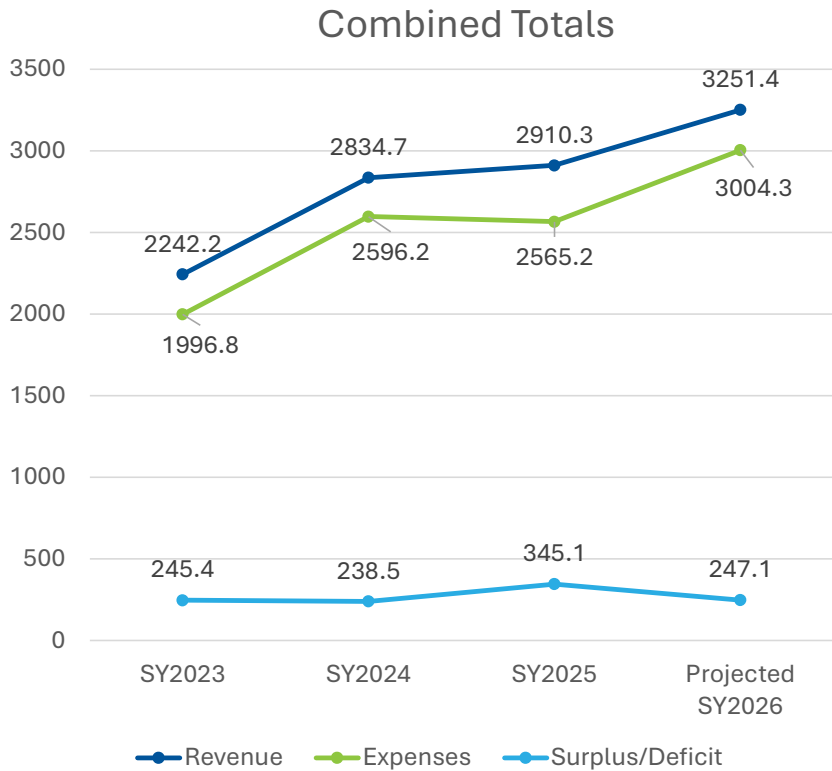
Hot Climates

Efficient Energy Design

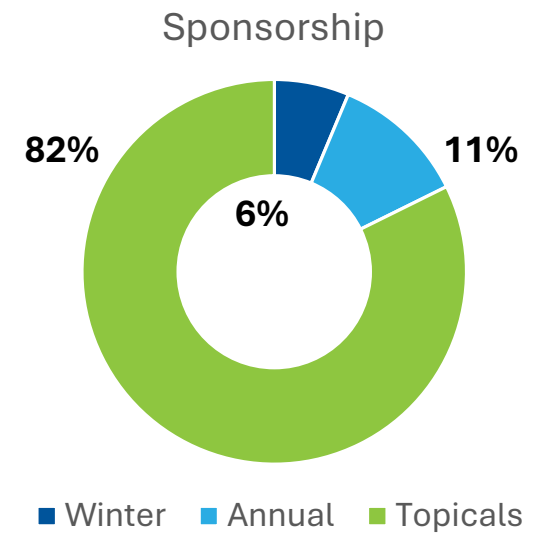
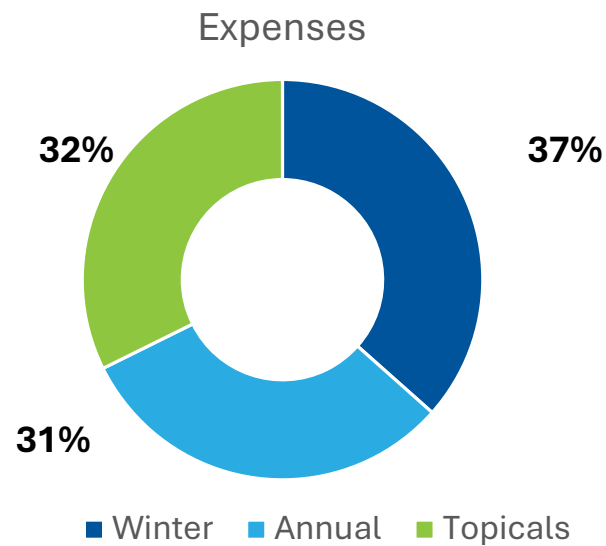
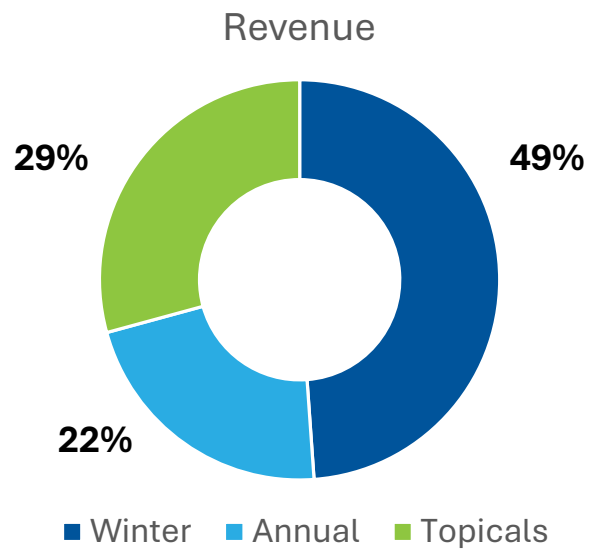
Developing Economies

Energy Research and
Development

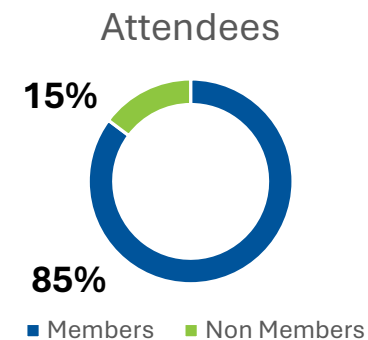
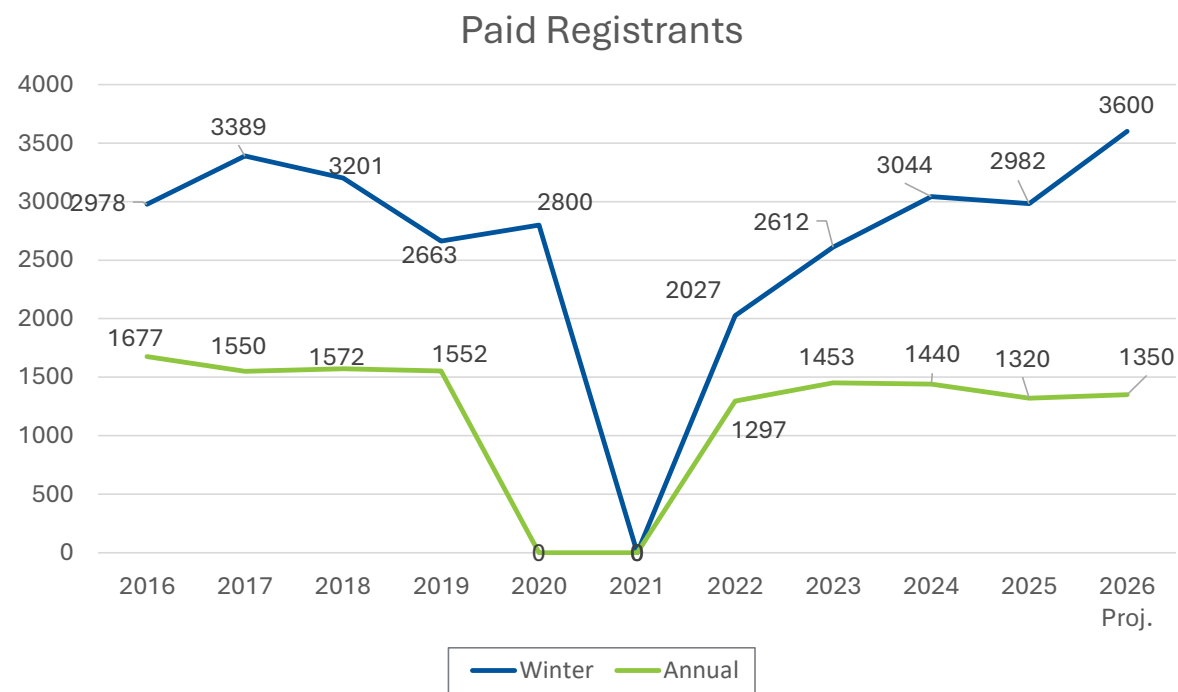
Society Conferences Financials



Society Conferences Financials

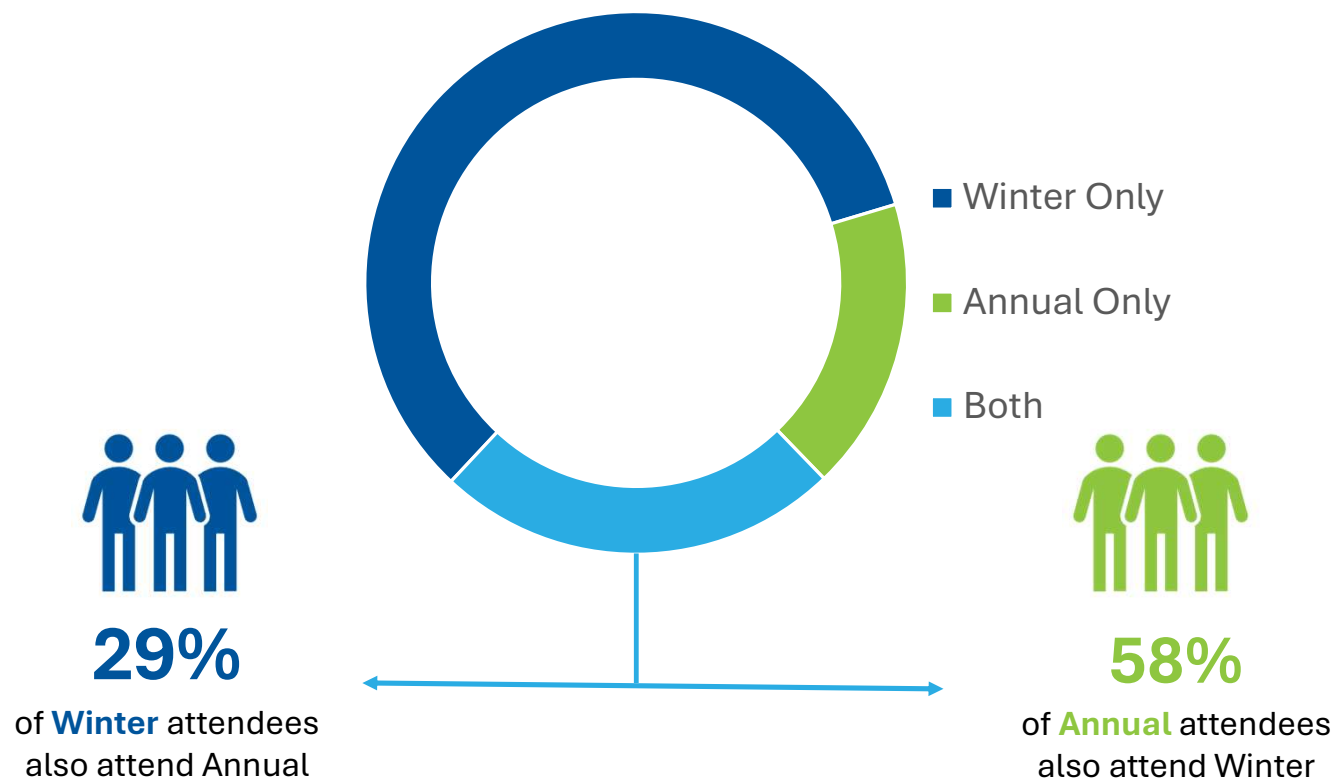


Winter & Annual Conferences



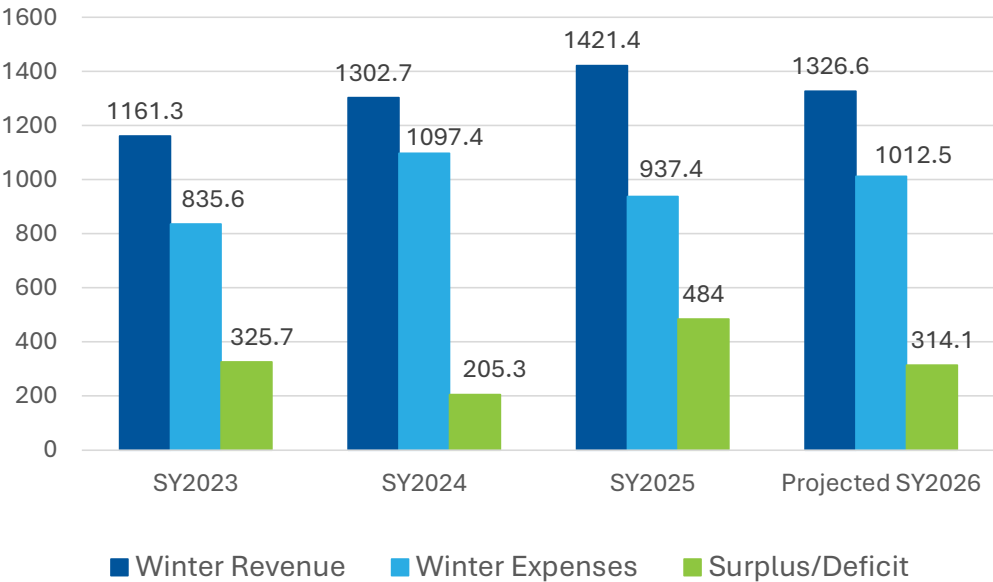
Winter & Annual Conferences

W&A Impact

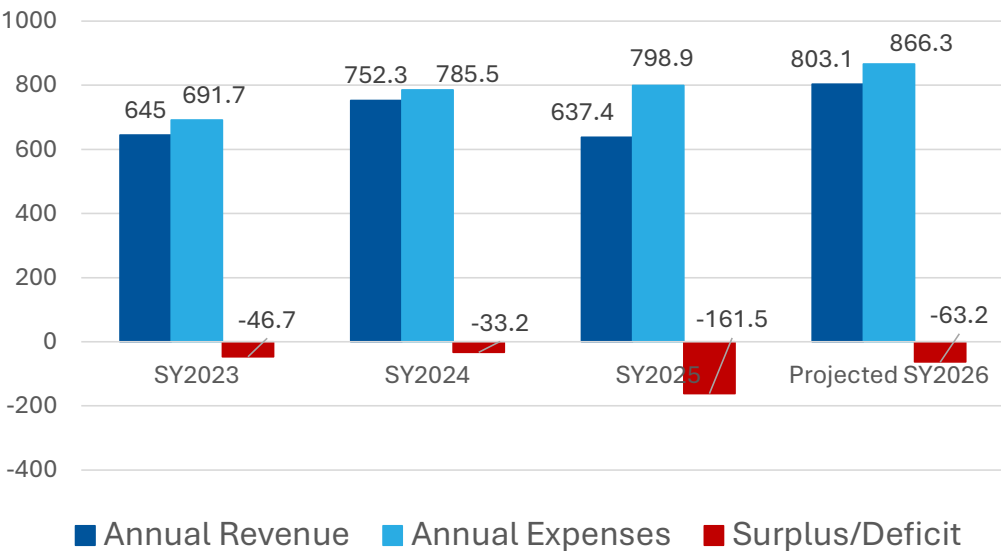


Winter & Annual Financials

Winter Conference Revenue vs Expenses

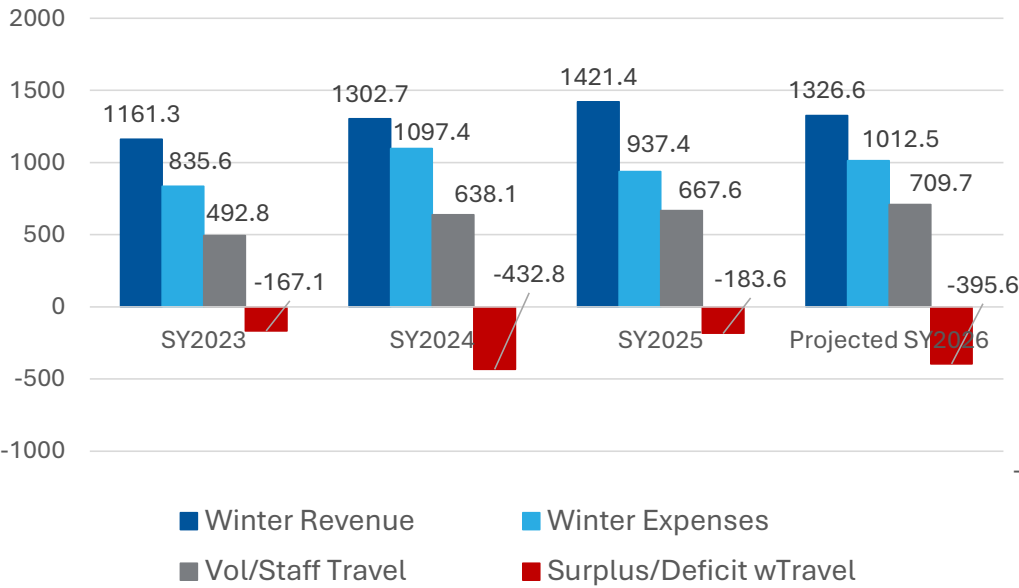


Annual Conference Revenue vs Expenses

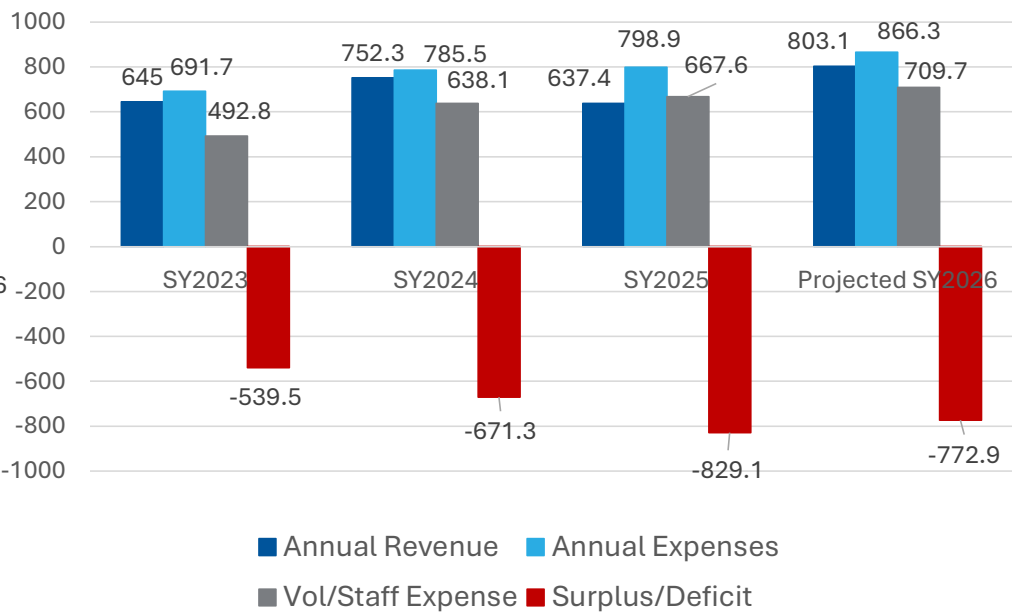


Winter & Annual Financials with Volunteer & Staff Travel

Winter Conference Revenue vs Expenses

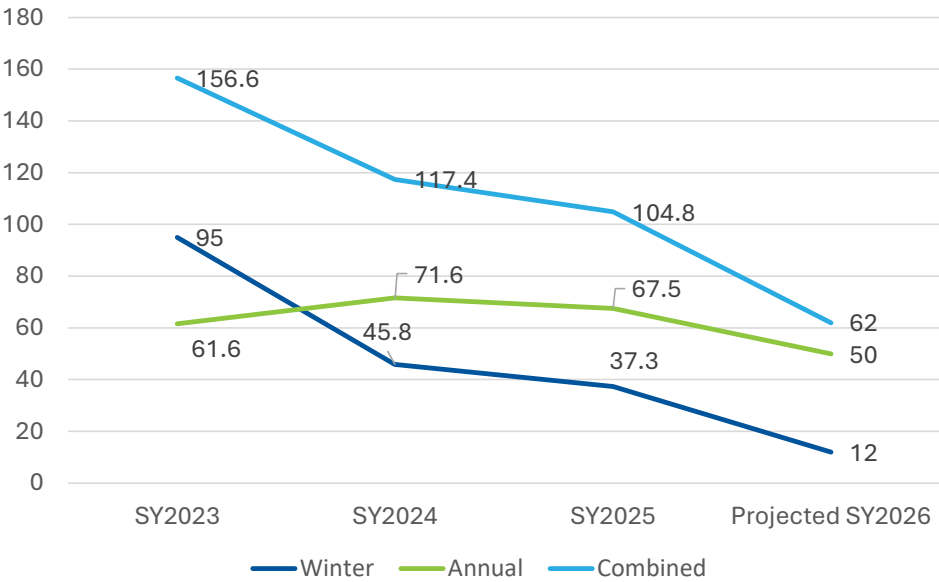


Annual Conference Revenue vs Expenses

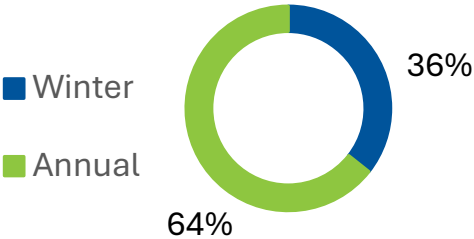


Winter & Annual Financials

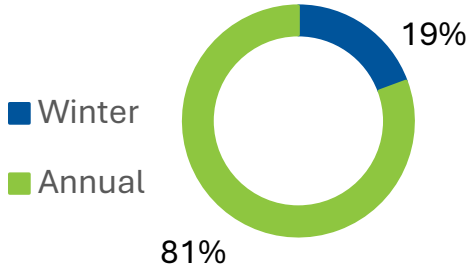
Sponsorship



2025 Sponsorship

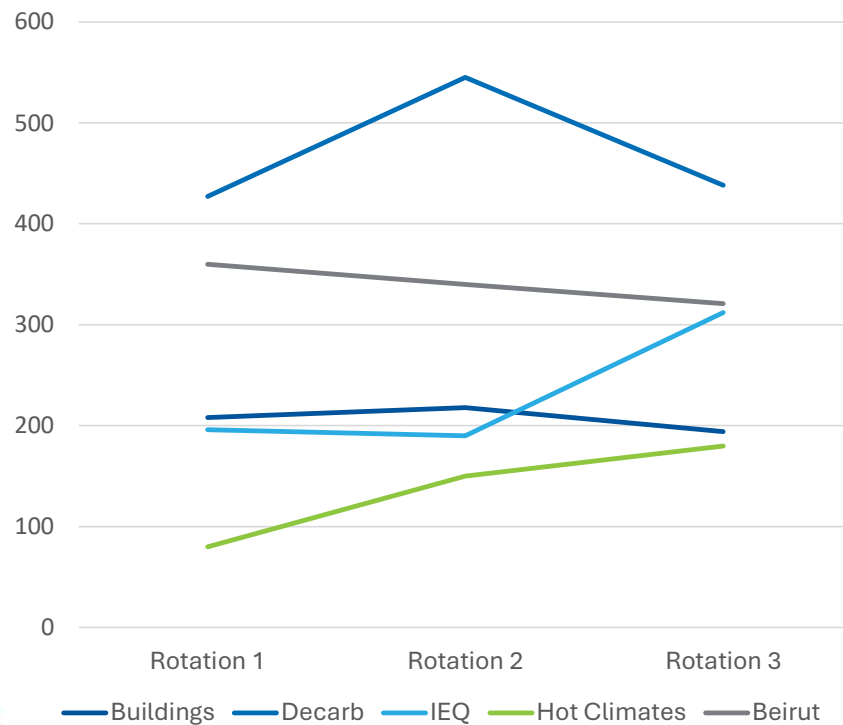


2026 Sponsorship Projections

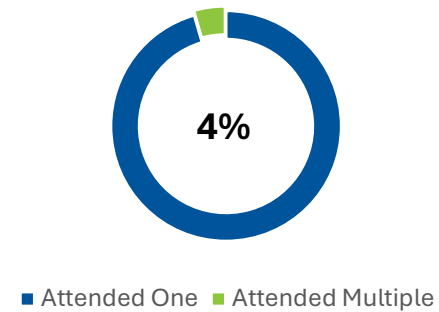


Topical Conferences

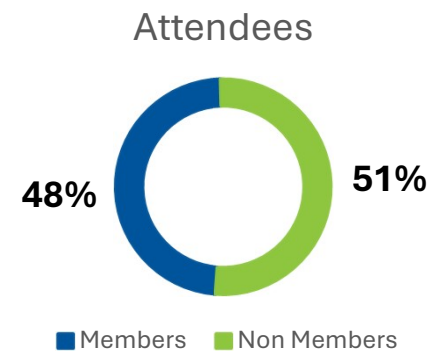
Attendance over 3 Rotations



Combined Impact

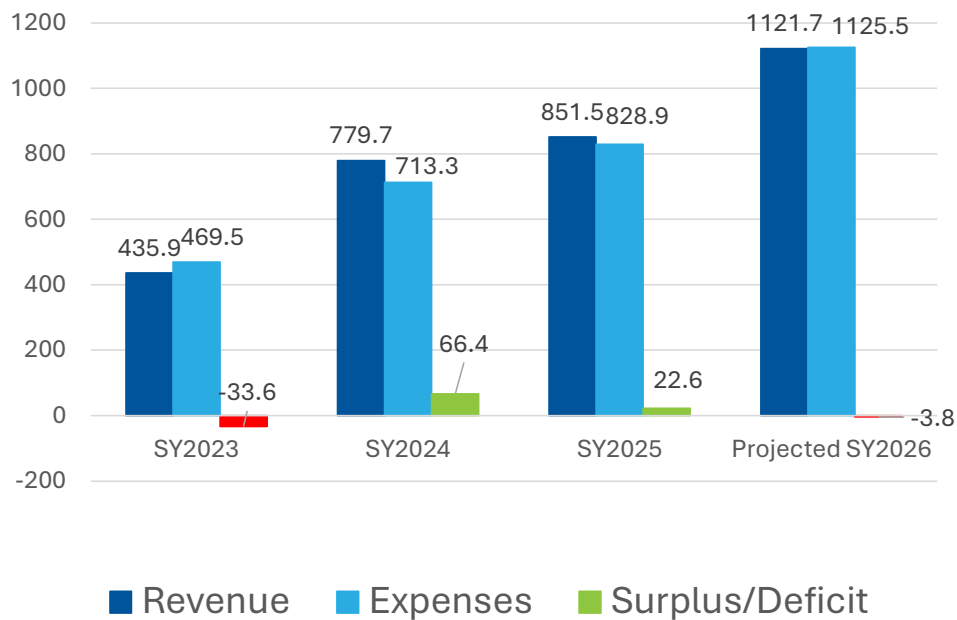


45 Countries Represented

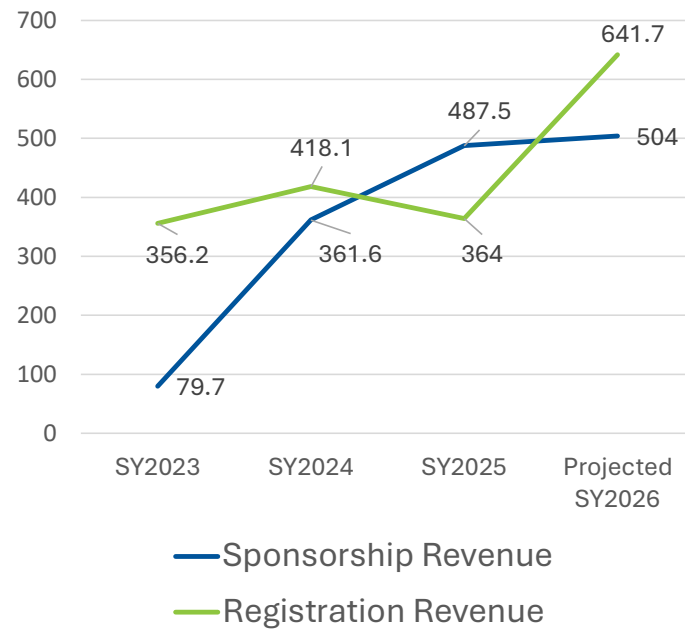


Topical Financials

Combined Topical Rev/Expenses



Sponsorship vs Registration Revenue



2025

January						
Su	M	Tu	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February						
Su	M	Tu	W	Th	F	Sa
						1
2	3	4	5			
				13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

March						
Su	M	Tu	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April						
Su	M	Tu	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22				
27	28	29	30			

May						
Su	M	Tu	W	Th	F	Sa
4	5	6	7			
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18			
				26	27	28
29	30					

July						
Su	M	Tu	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23			
	28	29	30	31		

August						
Su	M	Tu	W	Th	F	Sa
					1	2
3	4	5				
10	11	12				
17	18	19	20			
		26	27	28		

September						
Su	M	Tu	W	Th	F	Sa
		2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23				
28	29	30				

October						
Su	M	Tu	W	Th	F	Sa
			1	2		
	7	8	9	10	11	
12	13	14	15	16	17	18
19	20	21				25
26	27	28	29	30	31	

November						
Su	M	Tu	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

December						
Su	M	Tu	W	Th	F	Sa
	1	2	3	4	5	6
7						12
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Winter/Annual

Topical

CRCs

recommendations for reaffirmation (with or without editorial changes), revision, or withdrawal to Technology Council as necessary.

4. DRSC will be responsible for maintaining the Position Document Template (Appendix D).
5. DRSC will be responsible for reviewing Public Policy Issue Brief drafts as they are developed by the GAC upon request, and keeping ~~the~~ Technology Council informed of the progress and refer comments back to the Government Affairs Committee.
6. This subcommittee shall review the WISE (Washington Internship for Students of Engineering) Paper for technical and policy compliance and if necessary, consult with other committees within Technology Council in areas of specific expertise. Upon review the subcommittee shall communicate the results of the Review to Technology Council and the Director of Government Affairs.

ASHRAE Position Documents – General Information

1. A Position Document (PD) is a BOD-approved document expressing the views of the Society on a current issue of importance to ASHRAE and its members. It includes a concise summary statement as well as supporting documentation, analysis and/or rationale, and recommendations
2. Position Documents are intended to communicate explicit ASHRAE positions on subjects, including reference to other relevant ASHRAE documents and Standards. They are intended for use by ASHRAE Washington Staff and Government Affairs Committee to provide information and to give background to public policy decisions and may also be used by ASHRAE membership to provide input as appropriate on local issues.
3. Position Documents are statements of established ASHRAE positions on matters of interest. They should be narrow enough in scope so that a new document can be completed for publication within 18 months unless the Position Document Committee Chair has received approval from ~~The~~ Technology Council for an extension. Requests for extension are to be supported by justification and submitted by the Position Document Committee Chair to ~~The~~ Technology Council Chair preceding the 18-month completion deadline. A revision of the existing Position Document should be completed within 12 months.
4. It is ASHRAE's goal to have a Position Document available before significant legislation is passed or regulations promulgated regarding issues that will affect ASHRAE, its members and constituents.
5. Position Documents are reviewed every 30 months and are automatically withdrawn ~~in-if~~ not reaffirmed or revised within 36 months of issue. Each version of a Position Document will contain the expiration date on the cover.

Commented [A10]: I would say “introduced” or “proposed” if PDs are to have maximum impact on legislative language.

Commented [A11]: It is more often than not the case that the expiration date of a PD is reached before an approved revision is completed. This requires a pro forma motion to reaffirm the current PD that just wastes committee time so that there will not be a period of time during which there is no approved version. It would make more sense in the case of a revision that the existing version remain in effect until the revision is completed. Motions would only be required to withdraw PDs deemed defective for some reason.

Position Document Initiation and Revision Approval Process

The Position Document (PD) initiation/revision process is below:

1. Initiator completes Position Document Request Form (**Appendix C**). ~~The An incomplete~~ form can be submitted ~~incomplete~~ if items are unknown. This form shall be used to request a new PD ~~or a revision to an existing PD~~.
2. Form received by the DRSC. DRSC completes form and identifies related committees and interested potential Committee members.
3. Form is submitted to interested ASHRAE committees/members identified in form for comment.
4. The DRSC, with Initiator, compiles comments and determines the Cognizant Committee and the possible Position Document Committee membership, including a Chair. (Note: Comments should be summarized and compiled, but no specific form is required).
5. The DRSC votes on the Position Document Request. If approved the DRSC submits Position Document Request Form, Comments, and recommendation for the Cognizant Committee to Technology Council, along with a formal motion to initiate a Position Document Committee.
6. Technology Council considers the DRSC recommendation. Requests for new PDs and revisions to existing PDs require Technology Council and BOD approval. Requests for PD committee membership require Technology Council approval.
7. When the Position Document Request Form is approved by the appropriate body, the PD Committee can be appointed according to procedures specified here within.

Commented [A12]: Current process, as far as I know, does not require submission of a form for revision. It's suggested that the cognizant committee make a request/recommendation for revision. Suggest deleting "or a revision to an existing PD".

Position Document Expiration, Reaffirmation, and Withdrawal Process

1. Position Documents expire 36 months after the approval date. This expiration date will be listed on the cover of the published PD. Expired PDs will be archived and removed from the ASHRAE website by ASHRAE Staff.
2. Position Documents can be reaffirmed as-is or reaffirmed with minor editorial changes with a recommendation by the Cognizant Committee to DRSC for a period of up to 36 months. DRSC should send a recommendation for action to Technology Council. PD reaffirmations require Technology Council approval and shall be reported to the BOD as an information item.
3. Position Documents can be withdrawn at the recommendation of the Cognizant Committee to DRSC. DRSC should send a recommendation for action to Technology Council. PD withdrawals require Technology Council approval and shall be reported to the BOD as an information item.

Commented [A13]: This is where I would put language about extending an existing PD automatically if it is under revision and no motion to withdraw has been made.

Membership of Position Document Committee

Based on a recommendation from the Initiator, DRSC and the Cognizant Committee as described previously, Technology Council should appoint a qualified Position Document Chair, and PD Committee. The Chair shall be a member of ASHRAE and willing to remain in the position until the project has been completed and the Position Document Committee is discharged.

Membership should satisfy the following criteria:

1. The Committee should be knowledgeable in the discipline of the subject of the Position Document and the public-policy dimensions of the issue.
2. The size of the Position Document Committee should be no less than five (5) and no more than eight (8) voting members and provide a good cross-section of the technical aspects of the issue and perspectives of parties at interest.
3. For a Position Document Committee of greater than 8 members to be approved, the sponsoring committee must provide a technical justification that identifies critical topics to be included and demonstrate how important topics cannot be addressed with an 8-member committee.
4. No more than one employee of any organization should be a member.
5. Members should be willing to serve until the project has been completed and the Position Document Committee discharged.
6. Members may be requested to serve as resource persons to assist Society leadership or staff in responding on the issue.

Commented [A14]: These could be stated as firm requirements "shall" instead of "should."

Commented [A15]: Not a separate criterion. Perhaps should be part of 2 or number 2.a.

Commented [A16]: This is not a criterion unless stated differently, e.g., "Members should be willing to serve as resource persons to assist Society leadership or staff on the issue."

The Position Document Committee membership should be "balanced" so that no classification constitutes a majority of the Position Document Committee membership. For example, the following classifications of members could be considered.

1. **Producer** - Those affiliated with manufacturers of the product(s), if products are involved.
2. **User** - Those who use the product(s), if products are involved.
3. **Public** - Those familiar with public-policy dimensions of the issue which may include government agencies, code-writing organizations, associations, coalitions, and public-interest groups
4. **General** - Those who have backgrounds other than those described above such as consulting engineers, researchers, academicians, and design professionals.

Care should be taken to ensure balance so that the interests of all materially affected constituencies are fairly represented if the subject of the Position Document may result in other identified or perceived interest groups.

Commented [A17]: This may be hard to do effectively in a committee of 5-8 members. These categories are in line with what is used in standards and may not be appropriate, but I don't have any suggestions.

Active Position Documents (new PDs under development and existing PDs under revision) will have an additional non-voting liaison assigned to them (preferably a DRSC liaison who is a Technology Council member). The intent is for this liaison to be with follow the development or revision from start to finish. Non-voting liaisons are only needed while a project is active (a new Position Document is being developed or when a decision is made to revise an existing Position Document). It is recommended that these ExO's be elected members with

a term of service sufficient to cover the expected length of the project.

A staff liaison should be assigned by Manager of Research and Technical Services to assist the Position Document Committee.

Notification of Position Document Committee appointments will be made by the Director of Technology, acknowledging the agreement of Technology Council Chair. Copies will be sent to the Chair of the Cognizant Committee, Chair and Vice Chair of Technology Council.

The Position Document Committee should be discharged by the Chair of Technology Council when the PD is approved by the BOD and published.

Position Document Committee Travel

Electronic meeting methods are encouraged if the Position Document Committee needs to meet at times other than the Winter and Annual ASHRAE Conferences. In the event the Position Document Committee Chair determines that a face-to-face meeting of the Committee is required to expeditiously complete the work of the Committee, the Chair should submit a request to Technology Council for approval of meeting and travel expenses. The request should be submitted when a PD committee is requested and should be at least 60 days in advance and contain the following information:

1. Meeting location and dates
2. Number of attendees from the Position Document Committee
3. Estimated budget
4. Justification

Expenses for transportation, lodging and meals as defined by the ASHRAE Travel Policy when requested and reasonable, will be considered for reimbursement as approved by Technology Council.

Commented [A18]: I support, although this is a big jump from the current zero-support status.

Position Document Development

The Position Document Committee, upon appointment, will ~~proceed to~~ develop the draft Position Document.

The Position Document Committee should submit progress reports and drafts (if available) quarterly to the DRSC during development.

The Position Document text will be developed based on the approved TPS and comply with the Position Document Template (Appendix D). If the Position Document Committee wishes to recommend changes in the approved TPS, they should send recommendations to Cognizant Committee and DRSC. The DRSC should send the changes along with a recommendation for action to ~~The~~ Technology Council. TPS changes require Technology Council and BOD approval.

Commented [A19]: Currently, PD TPS is not publicly available (to my knowledge) and easily accessible. They should be.

Prior to submission for approval by Technology Council, the Position Document Committee should ensure that the draft Position Document undergoes peer review within or from outside the Society. Such peer review could be performed by, but would not be limited to, the cognizant committee, prior PDCs, or project committees. It is particularly critical in those limited cases where the Scope given to the PD Committee may specifically call for the development of policy not drawn from existing ASHRAE sources.

Commented [A20]: This is pretty loosely written. Who is responsible for oversight of this process?

The draft Position Document shall be approved by the Position Document Committee. Votes shall be recorded and included with the recommendation to DRSC

The final draft Position Document will be submitted to the DRSC with background information on the review process, any relevant correspondence with the Cognizant Committee, peer review or other interested committees within the Society and a short justification of any negative or abstentions votes by the Position Document Committee members, if applicable.

The DRSC shares the Position Document concurrently with the approving bodies (DRSC/ Technology Council/BOD) for a ~~14-day~~14-day review at least 30 days prior to the meeting at which it would be considered for approval. Comments from DRSC/ Technology Council/BOD will be collected by Staff and sent to the Position Document Committee for consideration. Any changes made by the Position Document Committee to the Position Document should be approved by the Position Document Committee.

The DRSC shall submit a recommendation regarding approval of the draft Position Document to Technology Council with information copies sent to the Chair of the Cognizant Committee, and the Director of Technology. DRSC should highlight and provide reasoning for any substantive changes it makes in the draft PD.

~~The~~ Technology Council will recommend whether the Position Document draft, including changes, should be approved by BOD. Technology Council should highlight and provide reasoning for any substantive changes it makes in the draft document. Copies of transmittal to BOD will be sent to the Chair of the Cognizant Committee. Upon approval from the BOD, ASHRAE Staff will send the approved PD to ASHRAE Editorial Staff for editorial review before publication.

Position Document Distribution

A copy of the Board-approved document should be posted on the ASHRAE website. Information concerning the history of development and approval of Position Documents should be maintained by ~~The~~ Technology Council staff .

The Government Activities Committee (GAC) will keep chapter leaders informed of information of importance to the Regions and Chapters by use of methods such as interactive electronic media.

APPENDIX C Request Form for a new or revised ASHRAE Position Document

To: TECHNOLOGY COUNCIL Document Review Subcommittee

Initiator:

Date:

Title:

Purpose for the Position Document:

Scope proposed for the Position Document:

Suggested ASHRAE Members, Committees with topic interest (if known):

Desired Time Frame:

Notes:

1. The Initiator can be an individual or a Cognizant Committee.
2. The Title conveys a description of the proposed Position Document, differentiating it from any other Position Documents. If this is a revision to a current ASHRAE PD please list current Title or show suggested changes.
3. The Purpose includes notation of any anticipated or current government action, covered by the Position Document. If this is a revision to a current ASHRAE PD please list the approved Purpose or show suggested changes.
4. The Scope includes as much specificity as possible, also broadly describing the Position Document coverage expected and differentiating it from other Position Documents. If this is a revision to a current ASHRAE PD please list the approved Scope or show suggested changes.
5. ASHRAE Members and Committees should include those 1) technically knowledgeable, 2) who may have interest and 3) who may have direct knowledge of government actions, either current or anticipated.
6. Staff can provide samples of old Position Document requests or current PD TPS's upon request.

APPENDIX D Position Document TEMPLATE



ASHRAE Position Document on

Title of (Topic)

Approved by the ASHRAE Board of Directors [DATE] Expires [DATE]

ASHRAE is a global professional society of over 55,000 members, committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration and their allied fields (HVAC&R). ASHRAE position documents are approved by the Board of Directors and express the views of the Society on specific issues. These documents provide objective, authoritative background information to persons interested in issues within ASHRAE's expertise, particularly in areas where such information will be helpful in drafting sound public policy. The documents also clarify ASHRAE's position for its members and building professionals.

(Topic) is a Public Interest Issue

Paragraph on why the (Topic) is of the public's interest.

Why ASHRAE Takes Positions on (Topic)

ASHRAE consensus standards and design guides provide the technical foundation for international building practices and energy codes that balance the need for energy efficiency with the need to keep the indoor environment healthy and comfortable for occupants. The design, construction and operation of buildings' mechanical systems can improve—or can impede—the buildings' ability (Topic)

Consequently, ASHRAE's positions, standards and design guidance can help avoid health risks associated with (Topic).

ASHRAE Takes The Positions That:

1. (example) Public health authorities have documented consistent associations ...
2. (example) Health risks are increased when...

ASHRAE Recommends That:

Present major recommendations. When appropriate use bullet styles.

1. (example) Policymakers, government agencies and regulators encourage adoption of ASHRAE documents (list and reference documents). What ASHRAE documents support our position?
2. (example) When planning and designing new buildings and HVAC systems, building owners and HVAC design professionals provide adequate budget, equipment and controls to ...
3. (example) In existing buildings, owners, occupants and building operation and maintenance professionals review the early warning signs and detailed risk reduction measures
4. (example) ASHRAE committees continue to update standards and guidance to remain consistent with developing knowledge about (Topic). What additional work should ASHRAE undertake in this area?
5. (example) ASHRAE holds a strong position that (clear statement with implications of that position).
6. (example) ASHRAE recommends that further research (if appropriate, describe and justify further research or study to be conducted).
7. (example) ASHRAE is committed to (enumerate, if appropriate, ASHRAE's commitment to develop specific standards, address specific research, etc.).

Figures and Tables

When presenting data, charts, tables, figures would be of assistance. These could be added at the end of the text, or inserted in the text upon their being cited.

Appendix A— Background

Relevant technical information, history, information supporting or justification of ASHRAE positions and recommendations can be listed here. This Appendix can be considered informative to the PD.

REFERENCES

All references should be cited in the text, properly elaborated so that they clearly support any relevant statements. ASHRAE's preferred method of citation, widely used in scientific texts, is the author-date method. Follow ASHRAE Authors' Manual. The following is an example of references.

Arun, M., and E.G. Tulapurkara. 2005. Computation of turbulent flow inside an enclosure with central partition. *Progress in Computational Fluid Dynamics* 5:455–65.
ASHRAE. 2001. *ANSI/ASHRAE Standard 52.2-2001, Method of Testing General Ventilation Air-Cleaning*

Devices for Removal Efficiency by Particle Size. Atlanta: American Society of Heating, Air-Conditioning and Refrigeration Engineers, Inc.

ASHRAE. 2005. *2005 ASHRAE Handbook—Fundamentals*. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

Axley, J. 2006. *Ventilation Systems: Design and Performance*, 2nd Ed. Chapter 4.3, Macroscopic methods. H.B. Awbi, ed. London: Taylor & Francis Books, Ltd.

Dhinsa, K., C. Bailey, and K. Pericleous. 2005. Turbulence modelling for electronic cooling: A review. *Proceedings of the 7th International Conference on Electronics Materials and Packaging, Tokyo, Japan*, 5:275–81.

Emmerich, S. 1997. Use of computational fluid dynamics to analyze indoor air quality issues. Report NISTIR 5997, National Institute of Standards and Technology, USA.

Rice, K. 2006. DOE/ORNL heat pump design model, Mark VI Version.
www.ornl.gov/~wlj/hpdm/MarkVI.shtml.

ADDITIONAL ASHRAE RESOURCES

All resources should be cited in the text, properly elaborated so that they clearly support any relevant statements. ASHRAE’s preferred method of citation, widely used in scientific texts, is the author-date method. Follow ASHRAE Authors’ Manual.

OTHER RESOURCES

All resources should be cited in the text, properly elaborated so that they clearly support any relevant statements. ASHRAE’s preferred method of citation, widely used in scientific texts, is the author-date method. Follow ASHRAE Authors’ Manual.

DOCUMENT REVISION COMMITTEE ROSTER

The ASHRAE Position Document on (Topic) was developed by the Society’s Position Document Revision Committee formed on Date (Month, day, year), with (name of Chair) as its chair.

First name and Last name

Affiliation

City, State, Country

First name and Last name

Affiliation

City, State, Country

First name and Last name

Affiliation

City, State, Country

First name and Last name

Affiliation

City, State, Country

First name and Last name

Affiliation

City, State, Country

First name and Last name

Affiliation

City, State, Country

First name and Last name

Affiliation

City, State, Country

Cognizant Committees

The chair of Technical Committee X.XX and the chair of the (ASHRAE Standing) Committee also served as ex-officio members.

First name and Last name	First name and Last name
Committee Chair	Committee Chair
Affiliation	Affiliation
City, State, Country	City, State, Country

DOCUMENT HISTORY

Background

(example) Since 2001, ASHRAE technical committees have ...

Publication and Revision History

(example) ASHRAE’s Technology Council and the cognizant committee recommend revision, reaffirmation, or withdrawal every 30 months. The history of this position document is described below: The following summarizes the revision, reaffirmation or withdrawal dates (to be completed by ASHRAE staff, if necessary)

ASHRAE Emerging Issues Brief

The Built Environment and Contamination by PFAS

June 2026

What is the Issue?

Per- and Polyfluoroalkyl Substances (PFAS). Over the past several years attention and research on PFAS as an environmental contaminant has grown, in part because of a better understanding of their very slow environmental breakdown (earning them the moniker “forever chemicals”) combined with worldwide measurements of high levels of PFAS in soil, drinking water, and human and animal blood. PFAS are entirely synthetic chemicals, meaning that any occurrence in the environment is of anthropogenic (or human made) origin. Negative health outcomes from exposure to PFAS have been observed in both animal and human epidemiological studies and include impacts on fetal development, thyroid disease, immune system suppression, and increased risk of cancer.¹ Recent research has focused on quantifying risks associated with PFAS exposure as thousands of unique PFAS compounds can be found in concentrations that range over orders of magnitude throughout indoor and outdoor environments. Increased awareness of the sources of PFAS can help improve design and engineering of the built environment to decrease indoor and outdoor contamination and consequent exposure to humans.

Definition of PFAS. To understand where PFAS originate it is important to define what PFAS are. Buck et al. (2011)² were the first to define PFAS as saturated carbon molecules where all hydrogen atoms have been replaced with fluorine to categorize classes of per- and polyfluoroalkyl substances manufactured for use in polymer and surfactant synthesis.² Since then, broader PFAS definitions have been developed for chemical, regulatory, and public health purposes. Recently, some scientists have advocated for a consensus on the chemical definition of PFAS provided by the Organization for Economic Co-operation and Development (OECD): “...fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom...”.³ Scientists argue that the OECD definition should be widely accepted because it is unambiguous and includes chemicals, such as trifluoroacetic acid (TFA), perfluoroalkyl dicarboxylic acids, and perfluorinated molecules containing aromatic rings, which had not been identified as PFAS following older definitions. Because PFAS are so diverse and chemically complex it is challenging to address all of their specific sources and effects on indoor and outdoor environments.

The Role of Ventilation as a Source and Sink for PFAS Indoors. Emerging research points to important ways by which exposure to volatile PFAS can be mitigated in the built environment using ventilation and source control measures. Increasing outdoor air concentrations may lead to an increase in indoor air concentrations via outdoor air ventilation. Emission source control indoors is not only important for controlling indoor concentrations, but outdoor concentrations are also likely affected by indoor emissions.

What does this mean for ASHRAE?

A holistic strategy is needed to determine the impact of PFAS in indoor air and on PFAS in the atmosphere and vice versa, as well as to reduce PFAS emissions and exposure. Increased awareness of PFAS and specific actions by ASHRAE could help contribute to lowering the global burden of risk to human and environmental health posed by the ongoing production and use of PFAS.

- The sources of PFAS to and from the built environment deserve increased awareness by ASHRAE for two main reasons: (1) low global warming potential (GWP) refrigerants may be a source of environmentally persistent PFAS and (2) PFAS may be an indoor contaminant of concern to the public.
- Sources of PFAS are diverse and can include consumer products⁴ and building materials and can accumulate in reservoirs such as dust. When developing standards/guidance for reducing or mitigating exposure to PFAS these diverse sources should be considered.
- Because PFAS are diverse in their chemical composition, sources, and physiochemical properties, ASHRAE must be consistent in the definition of PFAS when discussed as a general class of chemicals/contaminants. There needs to be increased awareness of specific PFAS (e.g., TFA, perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS)) and PFAS subsets (e.g., fluorotelomer alcohols (FTOHs)), etc.) that may have specific implications for contaminant transport, exposure, and transformations in the indoor environment.

What actions should ASHRAE consider?

- Follow the definition of PFAS adopted by the OECD to emphasize ASHRAE's interest in taking preventative action and acknowledging the current limitations in our understanding of the risk associated with many fluorinated chemicals.
- Seek to, when possible, harmonize its position on PFAS with international regulatory efforts.
- Consider taking positions on the use of "PFAS-free equivalent", including promotion of research on safe alternatives to PFAS-containing HVACR equipment and refrigerants, aimed at avoiding "regrettable substitutions".
- Advocate for technologies that use PFAS-free components and consumables.
- Emphasize the need for refrigerants that do not degrade to ultra-short chain PFAS like TFA.
- Further assist in the definition and identification of non-essential uses of PFAS and PFAS precursors for HVAC systems, including those in use in vehicles and commercial buildings.

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Authors



Environmental Health Committee (EHC) Emerging Issue Brief

Date of Approval

Lithium-Ion Battery (LIB) Fires

What is the issue?

The Emerging Environmental Hazards of Lithium-Ion Battery (LIB) Fires

Devices powered by lithium-ion batteries (LIBs) play an increasing role in every aspect of our lives - phones, laptops, toothbrushes, handheld radios, power tools, uninterrupted power supply for servers, mobility devices (wheelchairs), electric vehicles (EVs), scooters and bikes. They are even being deployed at a massive scale to improve the resilience of United States' national electrical grid. Other nations are also building new electric grids with massive storage of lithium-ion batteries. However, a critical and growing environmental health and safety concern is the potential for high-temperature fires, explosions, and toxic chemical emissions arising from the storage of large quantities of lithium-ion batteries in enclosed buildings without adequate ventilation and/or fire suppression systems. These conditions can lead to catastrophic thermal runaway that, according to firefighters, often "cannot be stopped once they start."

What makes lithium-ion battery (LIB) fires especially treacherous is their distinctive and extreme behavior:

- They present all the common hazards associated with vehicle and structure fires, plus a host litany of unique risks that must be considered during and after the fire.
- They can reach temperatures nearly three times hotter than conventional gasoline fires.
- They release highly toxic gases, such as hydrogen fluoride, hydrogen cyanide, and carbon monoxide, which can be lethal in enclosed spaces.
- They release flammable gases, such as hydrogen and carbon monoxide, which can create flash fires and explosions in contained environments.
- LIBs are energy dense storage devices that can present a threat of electrocution to emergency responders and remediators even after the fire is extinguished.

- They can reignite hours or even days after appearing to be extinguished.
- The persistent residual battery contents released during the fire is a hazardous dust (Black Mass) that is easily aerosolized when dry and is difficult to clean. This black mass contains metals not typical of common structure or vehicle fires including, but not limited to nickel, manganese, cobalt, lithium, etc. Firefighter turnouts are not protective against skin contact with these compounds during firefighting. The black mass often spreads great distances in a slurry as it is carried by fire suppression water from sprinklers or firefighter applications of water. The black mass is carried by air in the smoke emissions creating an inhalation hazard on and off site. This dust spreads throughout the origin structure, can infiltrate adjacent structures, and settles on surfaces creating persistent a re-entrainment inhalation hazard, a skin contact, and an ingestion hazard.

This combination of heat, electrocution hazards, toxicity during the fire, persistence of toxins after the fire is suppressed, and reignition potential presents unprecedented challenges for both prevention strategies and emergency response protocols.

A Rapidly Escalating Crisis

The data paints a stark picture of the growing threat:

- Between 2017 and 2022, the United States reported over 25,000 fire or overheating incidents involving lithium-ion batteries.
- In the United Kingdom, battery fires rose by 46% between 2022 and 2023.
- In New York City, over 100 lithium-ion battery fires occurred in the first five months of 2024, resulting in 13 fatalities.

These incidents underscore a rapid escalation in frequency and severity—closely linked to the widespread adoption of lithium-ion battery technology.

Large-Scale Storage Fires: A Global Hazard

The global shift toward electrification as a power source has led to the construction of massive lithium-ion battery storage facilities. However, it is noted that these facilities carry significant environmental and public safety risks as described in this document.

Due to the intense heat and toxic emissions firefighters often opt to let lithium-ion battery fires burn out on their own rather than attempting direct suppression.

• **What does this mean for ASHRAE?**

As use of lithium-ion batteries continues to surge, so too must the implementation of comprehensive fire safety standards, ventilation protocols, and emergency response strategies tailored to the unique dangers of lithium-ion technology. More and specific

consideration is needed to improve the prevention of, response to, and recovery from lithium-ion battery fires. The indoor storage of massive number of lithium-ion batteries in what are essentially warehouses is a concern due to the potential for the airborne release of contaminants. If overheated, damaged, or improperly charged, a lithium-ion cell can result in thermal runaway, a chain reaction that generates extreme heat and can cause fire or explosion and can have significant impact on the environment. ASHRAE's members can work with other professionals to design and implement ventilation systems (as well as other control measures) to help mitigate smoke and toxins from moving into other areas that are not in flames. Engineering systems design and implementation can reduce the potential impacts of thermal runaway within buildings, such as installation of high-performance filtration; increased airflow rates in storage areas; and safety and health training of on-site staff to help prevent the spread of the fire throughout the building.

The impact of LIB-fire emissions in air as smoke and on surfaces as a slurry on neighboring properties and local inhabitants can be quite severe. In the long term, ASHRAE may need to change its existing standards or adopt new standards to provide industry guidance on addressing the storage of large quantities of lithium-ion batteries within a facility, both indoors and outdoors.

What Actions Should ASHRAE Consider?

- ASHRAE's Technical Committees (TC's) as well as ASHRAE's Environmental Health Committee (EHC) should engage with lithium-ion battery manufacturers to better understand the sources and controls for the batteries, and the precautions to implement for storage.
- ASHRAE's Technical Committees (TC's) as well as ASHRAE's Environmental Health Committee (EHC) should engage with lithium-ion battery first responders and experienced environmental consultants to better understand strategies for prevention, response, and recovery from lithium-ion battery fires.
- ASHRAE's Technical Committees (TC's) as well as ASHRAE's Environmental Health Committee (EHC) should engage with the government and industry entities and get a seat at the table to influence the in the development of laws, codes, standards and guidelines.
- ASHRAE's Technical Committees (TC's) as well as ASHRAE's Environmental Health Committee (EHC) should engage with end users to help frame the questions of how these batteries are used, handled, maintained, charges, stored, packaged, shipped, recycled, and discarded.
- ASHRAE should promote the education of its members and the public on LIB fire hazard prevention, response and recovery.
- ASHRAE should encourage the development of a Lithium-Ion Battery Management Program that can be provided to the public for use by building owners, property managers, and firefighters.

- ASHRAE may need to change its existing standards or adopt new standards to provide industry guidance on addressing the storage of large quantities of lithium-ion batteries within a facility, both indoors and outdoors.
-

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Environmental Health Committee (EHC) Emerging Issue Brief:

Approval Date to be Added

Toxic Hazards of Community Drinking Water Entering a Building During Distribution System Free Chlorine Burns

What is the issue?

Nitrification and biofilm growth within engineered water systems (EWSs) drinking water distribution systems (DWDSs) are major issues for drinking water treatment plants utilizing chloramine disinfection. Engineered water systems (EWSs) include DWDSs and building premise plumbing [1]. Many chloraminated plants periodically use “chlorine burns” - switching to chlorine disinfection for several weeks to mitigate these issues. Water quality deterioration due to nitrification is common in chloraminated community drinking water systems [2]. In the United States, nitrification occurs in one-third to two-thirds of chloraminated EWSs [3]. Free ammonia appears in chloraminated EWSs due to excessive free ammonia dosing, chloramine decay, and the reactions between chloramines and reducing agents [4]. Eliminating free ammonia from chloraminated EWSs is the key to nitrification control [5]. A chlorine burn (i.e., free chlorine conversion, breakpoint chlorination, or free chlorine maintenance) is the most popular nitrification control assay [6]. Drinking water utilities conduct chlorine burns once or twice per year during the warm season for one to several weeks [7]. During a chlorine burn, water utilities substitute free chlorine for monochloramine as the secondary disinfectant to kill nitrifiers and other microbes, disturb biofilms, and oxidize free ammonia and chloramines to nitrogen gas in water pipes.

Free chlorine burns cause increased corrosion in building premise plumbing, resulting in increased lead and copper leaching, increased toxic disinfection byproducts, sloughing of opportunistic pathogens residing in layers of biofilm, and increased indoor air contamination from resulting aerosolization in plumbing fixtures and water use appliances. Recently, during a city-mandated month-long free chlorine conversion, residents experienced severe water discoloration and a pungent chemical odor. The family of a teen in Trinidad, Texas say she suffered a chemical burn after taking several showers using the city's water, which officials have long admitted having problems with [8].

What does it mean to ASHRAE?

ASHRAE has developed standards to ensure safe and healthy indoor environments, including ASHRAE Standards 188 [9] and 514 [10]. These two standards focus on different aspects of building design, maintenance, and operation related to health and safety. The ASHRAE standards have information on Legionella risk assessments, testing, and water management programs (WMP). WMPs, as currently recommended, do not consider significant changes in source water quality, specifically during periods of free chlorine burns.

What action should be considered?

ASHRAE should address free chlorine burns—often called chlorine conversions or burnouts by municipal utilities—by updating its water management guidelines to include specific risk-communication, chemical monitoring, and temporary filtration protocols during transient utility spikes. ASHRAE guidelines (such as ANSI/ASHRAE Standard 514 and Guideline 12) dictate robust Water Management Programs (WMPs) to control pathogens like *Legionella*. To mitigate the impacts of city-wide free chlorine conversions, ASHRAE should expand these resources by focusing on the following actionable steps:

1. **Implement Formal Notification Protocols:** Require Water Management Teams to establish direct communication with local water authorities so facilities are alerted 2 to 4 weeks prior to a municipal chlorine conversion.
2. **Mandate Temporary Control Measures:** Outline procedures for building managers to adjust water heater temperatures, install supplemental Granular Activated Carbon (GAC) filters, or utilize Point-Of-Entry (POE) filtration to neutralize excess free chlorine and associated disinfection byproducts (DBPs).
3. **Update Testing Guidelines:** Recommend increased testing of both free and total chlorine residuals at end-use fixtures during the burnout period.
4. **Expand Clinical Warnings:** Strengthen warning procedures for vulnerable populations, specifically dialysis patients and aquatic facility operators, to avoid adverse health effects from unintended chemical spikes.

ASHRAE should actively seek solutions by supporting building owners with better tools for use when implementing WMPs. Further, ASHRAE should work with agencies with jurisdiction to compel DWDSs to provide notification to building owners of pending free chlorine burns and support them with remediation techniques as necessary. ASHRAE, in recognizing the consequences of DWDSs free chlorine burns, should be proactive in developing engineering guidelines within the WMPs for minimizing the exposure of these opportunistic pathogens and physical toxic exposures in building systems.

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Authors

Bob Bowcock

ASHRAE EHC Education Subcommittee – Residential IAQ Guide Task



1. Objective:

The EHC Education Subcommittee Task was to make a recommendation on whether the Residential IAQ guide should be updated?

If the answer was Yes, then the ask was to provide a gap analysis on what is missing, with a recommendation to EHC on what the approach to any revision should be.

The Task is to provide this recommendation to the EHC at the summer meeting in Austin, TX, on the 29th June 2026.

2. Methodology adopted:

2.1 Review of existing Residential IAQ Guide, 2018.

2.2 Engage with key stakeholders involved in revisions and updates to relevant to IAQ standards and guidelines, including 241, RBC and 62.2 (updated 2025).

Current stakeholders identified are Chandra Sekhar (241) and Yash Stukla (RBC). Other suggested stakeholders include Steve Emmerich, Iain Walker and Rick Karg.

2.3 Capture their latest thinking and guidance in compiling recommendations for revision of the existing Residential IAQ Guide.

3. Recommendation

After a number of discussions and in consultation with interested stakeholders the unanimous view is that we believe the Residential IAQ Guide should be revised and updated.

At a high level there are gaps and missing guidance in terms of how IAQ fits into the wider IEQ subject around healthy buildings for resilient communities, to align with our current presidential theme.

Any revision of the residential IAQ guide should consider the following:

- Latest guidance from 241, RBC and 62.2,
- Empowerment of residents maintain a healthy environment in normal situations; we need to give them a Voice, and speak to their interests, as this is their home environment.
- Role of residential buildings acting as Home Offices, post COVID pandemic,
- FAQs plus Graphics for simple and effective guidance in different situations and challenges,
- Addressing of differences in buildings types and mixed mode configurations,
- Transition to IEQ, so noise and lighting among others,
- Different global weather conditions, Tropical vs Temperate vs Cold climates,
- Resilient vs Normal operation, where there is an adverse event such as a pandemic infection, wildfire or flooding.

General reviews have already been carried out by various groups and members in 241, RBC and 62.2, in particular post the COVID 19 pandemic, recent wildfires and flooding around the globe.

The appendix gives additional information from separate discussions, in stakeholder groups.

We believe this should be the EHC recommendation to 62.2, as the authoring group.



Conor Murray
On Behalf of the EHC Education Subcommittee
4th June 2026

Appendix

Excerpt from ASHRAE Standard S550-2017 Control of Infectious Aerosols
Residential Working Group Meeting, **NOM** 1 April 2026, with permission from Chair

5.3 Residential Occupants DIY Guidance (RODG) – See Attachment A for discussion– Chandra, Don, Steve, Iain, Ben, Rick

5.3.1. EHC Education Sub-committee - Residential IAQ Guide

1. Max provided an overview of the need and the effort within EHC to review the Residential IAQ Guide (RIG). This is being done by the Education sub-committee of EHC, led by Linda. RIG is broader in scope when compared to the RODG (within the 241 Residential purview). Chandra elaborated further by giving an overview of the discussions that he had had with Connor in Vegas and a subsequent virtual meeting with Connor, Yash and Linda. Our RODG work (focusing on infectious aerosol transmission/IRMM) is one of the many pieces (and an important one) that would constitute the broader RIG. The attached 2-page document sums up the various discussions pertaining to RIG and RODG and is a summary of where we are now. It also outlines the gaps as we see it now with a call for revision – this reiterates the “need” that Max alluded to in his overview.
2. EHC would need to come up with a plan/structure to revise the RIG that would address the gaps identified. The current RIG was developed as a contracted work. There was a discussion about the process that we could follow for the revision – contractor work, volunteer work. The idea of approaching the Centre of Excellence for IEQ (CEIEQ) for funding to undertake this revision as a contract work was explored. EHC needs to make a recommendation.
3. Irrespective of how RIG revision evolves under EHC framework, RODG under the auspices of 241 ResiWG would continue as this is part of our work plan. There is synergy between RODG and RIG effort. Following some discussion, there seemed to be a consensus that it would be better to have one Residential IEQ Guide that incorporates all aspects of IEQ, including aerosol transmission risk/IRMM) rather than have a standalone RODG.
4. A recommendation was made for the ResiWG to draft the TPS for this integrated/holistic RIG. The following were the discussion points:
 - a) Seems like a good idea. The subject matter experts are already in the ResiWG. It could simply be put together as a “Residential IEQ Guide Working Group [RIGWG]” under Linda’s Education Sub-committee of EHC.
 - b) An effort by the RIGWG to undertake the TPS drafting and subsequent work would be meaningful/valuable if we have an idea of how the final product would be received.
 - c) Do we have a feel for the usage of the current RIG – how many have used it? Who has used it? Etc.
 - d) Where would the end product (Residential IEQ Guide) reside on the ASHRAE website? EHC site? How accessible would it be members/users worldwide? Our idea would be to make something like this widely accessible by the various stakeholders – especially by the broader international community of home owners, residents, tenants etc. We should be reaching out to every individual on this planet with the sole aim of empowering them to do what they can (professional or DIY means) to ensure that they can get excellent IEQ!
 - e) Are there other organizations with whom we could partner to develop the RIG? How about co-funding? Some potential partners - Industrial Hygiene Association (IHA). Iain shared an organization called [Coefficient Giving](#) (please see attached document). They are interested in funding teams to develop and test protocols for improvised building protection from outdoor airborne hazards (with a focus on US residential buildings). Our proposal should be put forward to CEIEQ, who can explore funding options for an effort like the RIG.

Action Items:

- Max to seek a recommendation from the EHC Education Sub-committee for the formation of “Residential IEQ Guide Working Group [RIGWG]” under EHC.

- *Max to take the RIG revision and the proposed RIGWG plan to CEIEQ and explore funding options.*

Ongoing

5.3.2. Residential Occupants DIY Guidance (RODG)

Whilst the RIG revision and the proposed RIGWG under EHC develops into a more concrete plan with input from CEIEQ, the ResiWG of 241 will continue with its effort on the RODG as per our work plan. So, RODG is an ongoing activity of the ResiWG.

Action Items:

- *Chandra to get the draft ready for ResiWG review ASAP.*

Ongoing

Environmental Health
Committee
(EHC)

Reference Manual (version
3.0)

Approved May XX, 2026

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1. History of EHC

The Environmental Health Committee (EHC) was established as a result of a number of issues that converged in the early 1980's. Up until then, environmental health issues were handled by Dr. Robert Horton, an ex-employee of the U.S. Environmental Protection Agency (EPA), who acted as a medical consultant on retainer to the ASHRAE Board of Directors. His resignation left a void in this area of expertise. Concurrently, indoor air quality (IAQ) concerns were growing in response to the increasing reports of building-related illness and the resulting litigation. At that time, a number of other societies and associations started to lay "claim" to the IAQ issue. In reaction to these factors, then President Don Bahnfleth formed an Ad Hoc Committee under the leadership of Dr. Ralph Goldman to study the issue and provide guidance to the Society. Out of recommendations from that study came the formation of the EHC in 1985, created as a Standing Committee initially chaired by Dr. Goldman. The committee was to be made up of experts from areas outside the normal expertise of ASHRAE membership, such as public health, physiology, epidemiology, industrial hygiene, and microbiology. The new body was to report to the Board through the newly formed Technology Council and was to act as a consultant to the Board on matters concerning health. Concurrently, President Bahnfleth initiated the first ASHRAE IAQ Conference, convened in the spring of 1986, which was later assigned to the EHC as the cognizant committee.

The early years of the committee were challenging as the committee learned its role, gained acceptance by other groups within the Society, and learned how to deal with Society processes and procedures. The committee membership included some of the best-known and respected authorities on IAQ in the world. The eventual success of the committee effort is evident in that IAQ (once an "orphan" within ASHRAE) is now fully integrated into the program, research, and technology outreach of the Society. IAQ and environmental health material are now in the ASHRAE Handbooks (and IEQ being incorporated), and the IAQ conference series (now the IEQ conference series since 2024) is one of the premier technical conferences in the field. The Society has also maintained a leadership role on the HVAC side of indoor environmental issues.

The subject of IEQ (indoor environmental quality) versus IAQ was discussed at length by the committee post- COVID and the scope of EHC now encompasses IEQ to recognize the importance of other environmental metrics such as CO₂ levels for cognition, lighting as it pertains to circadian rhythms and noise.

2. EHC Scope

EHC identifies major environmental health trends impacting the practice of HVAC&R, informs and makes recommendations to ASHRAE leadership and membership. EHC also serves as a resource on activities and issues that relate to environmental health impacts of building control technologies.

The committee, through its chairperson, reports to the Technology Council.

3. Operational Definition of Indoor Environmental Health

Preface

Many popular definitions of health and wellness are not operationally useful, i.e., not actionable. Operational definitions, to the extent possible, should be based on causal, preferably quantifiable, relationships between desired effects and factors that influence them. As stated in the ASHRAE Handbook (2025 Fundamentals), chapter 10 Indoor Environmental Health, “Indoor environmental health comprises those aspects of human health and disease that are determined by factors in the indoor environment. It also refers to the theory and practice of assessing and controlling factors in the indoor environment that can potentially affect health”. The following definition restates this definition in a way that is concise and operationally useful in ASHRAE standards, guidelines, policy documents, and as appropriate in other ASHRAE publications and programs.

Definition

Indoor Environmental Health is defined by health outcomes – physical, mental, and social - that can be assessed or quantified and that are related to values of controllable indoor environmental factors.

4. Acronyms and Abbreviations

DRSC	Technology Council Document Review Subcommittee
EH	Environmental Health
EIB	Emerging Issue Briefs
ExCom	Executive Committee
HVAC&R	Heating, Ventilating, Air Conditioning, and Refrigerating
IAQ	Indoor Air Quality
IEQ	Indoor Environmental Quality
IEQ-GA	IEQ Global Alliance https://ieq-ga.net/
MOP	Manual of Procedures
MBO	Management by Objective
PD	Position Document
ROB	Rules of the Board
Ref Man	Reference Manual
RP	Research Project
ResProp	Research proposal
Tech Council	Technology Council
TC	Technical Committee

5. EHC Subcommittees

The EHC Chair can create or disband EHC subcommittees. They also determine the assignment of EHC members on those subcommittees. All EHC members will serve on at least one subcommittee. Each subcommittee will have a Chair and Vice Chair. There are currently four (4) subcommittees for EHC:

- Policy & Advocacy
- Education
- Coordination & Outreach
- ExCom (Executive Committee)

Each subcommittee is charged with the following responsibilities and tasks, and recommended interaction between subcommittees is listed below. Additional details on tasks can be found later in this reference manual and in the Appendix.

Subcommittee	Charge	Interaction between Subcommittees	Task Description
Policy & Advocacy	Identify major environmental health trends impacting HVAC&R	Ask all EHC to send ideas on such trends	Define “environmental health” and update as needed
	Recommend new policy & advocacy activities		
	Recommend new policy documents (EIB, PD,)		

	Position Document (PD) oversight	Submit ideas and final drafts for EHC approval; coordinate with ASHRAE staff to publish	Follow the progress of PD development; recommend reissuance or revisions
	Emerging Issue Briefs (EIB) oversight	Submit ideas and final drafts for EHC approval; coordinate with ASHRAE staff to publish to EHC website	Recommend topics and oversee development by appropriate subject matter experts
	Coordinate with the Government Affairs Committee	Report semi-annually to EHC on relevant GAC activities	Meet Quarterly with GAC
Education	IEQ Column in ASHRAE Journal		Lead the coordination and publishing of IEQ column
	Potential conference programs		Brainstorm programs; team with other Committees and TCs; review program proposals sponsored by other Committees or TCs

	Handbook Chapter		Lead the update of the Handbook Fundamentals chapter “Indoor Environmental Health”, pulling from P&A for new ideas. Work with other groups to review their chapters when appropriate (e.g., Climate Change) and ensure a lack of conflict and limit repeated information (e.g., air contamination and cleaning chapters)
	Research projects (RP)		Stay up to date on ASHRAE-sponsored research projects which are of interest to EHC; prepare report-out for EHC (see also section on Technical Committee Reports)
	Educational resources		Review proposals for technical presentations/seminars/webinars/courses which are of interest to EHC; recommend topics for development of educational resources
	Update Infection Control Website		Update as needed, working with ASHRAE staff, SSPC 241, and other TCs to keep it up to date; suggest improvements to the website to make it more user-friendly
	Update Reference Manual		Review and revise regularly

	Annual Training		Provide annual training for incoming new members and existing members on roles and responsibilities
	Donald Bahnfleth Environmental Health Award		Review nomination packages from ASHRAE staff; propose finalists for EHC vote; propose revisions for award processes (requires EHC approval)
Coordination & Outreach	Interact with ASHRAE committees	Communicate regularly with P&A on EIB, PD, RP that are being updated or under development; communicate regularly with Education on programs that are supported or under development	Take the concepts from P&A and PDs to find leads for those items that we can help support internally and externally to ASHRAE
	Interact with outside organizations that impact EH or IEQ		
	IEQ-GA		
	RTAR review and new RP development with other groups	Communicate regularly with Education on the progress of active ASHRAE-sponsored RPs	Review RTARs to see if we want to support; take ResProp from P&A to other groups for them to lead
	Interface with SSPC 241		
ExCom	Develop a report to Tech Council per MOP		

	Submit Long Range Plan for IEQ Conferences to Tech Council		
	Create MBOs that align with the Strategic Plan		See Sec. 9 Suggested MBO format
	Donald Bahnfleth Environmental Health Award	Ask the entire EHC to suggest candidates	Find candidates for the Award, and promote the winner
	Assign mentors to new members		
	Create EHC budget		
	Review ROB, MOP, and Ref Manual annually		Initiate review and revisions as needed

6. Interested Parties

Staff shall compile and maintain an email list including past EHC members, meeting attendees, and any others who indicate an interest in receiving electronic updates on EHC meetings and activities. Staff shall update the list after each EHC meeting and offer individuals on the list an option to remove themselves from the list if they wish. Staff shall distribute draft meeting minutes, agenda, and other information deemed appropriate by EHC to this distribution list.

Additionally, staff will maintain the EHC page of the ASHRAE website to post past meeting minutes, current EHC procedures, and other information determined appropriate by EHC.

7. EHC Documents

EHC is the cognizant committee over many documents that include a handbook chapter, guidelines, emerging issue briefs (EIB), position documents (PD), the IEQ Column in the ASHRAE Journal, and others.

7.1 Handbook Chapter(s)

- Education leads the revision of the ASHRAE Fundamentals chapter “Indoor Environmental Health”.
- Education coordinates content in other chapters with IAQ and EH-related content, such as Climate Change and Air Contaminants.
- Education coordinates content with other TCs.

7.2 Special Publication(s), Standard(s) and Guideline(s)

- Indoor Air Quality Guide – Best Practice for Design, Construction, and Commissioning
- Residential Indoor Air Quality Guide –Best Practice for Home Design, Construction, Operation, and Maintenance
- Guideline 10 – Interactions Affecting the Achievement of Acceptable Indoor Environments
- Guideline 12 – Managing the Risk of Legionellosis Associated with Building Water Systems
 - Co-cognizant with TC 3.6 and TC 6.6
 - Find the latest version here <https://www.ashrae.org/technical-resources/standards-and-guidelines/guidance-for-water-system-risk-management>
- Standard 188 – Legionellosis: Risk Management for Building Water Systems
 - Co-cognizant with TC 3.6 and TC 6.6
 - Find the latest version here <https://www.ashrae.org/technical-resources/standards-and-guidelines/guidance-for-water-system-risk-management>
- Standard 241 – Control of Infectious Aerosols
- Standard 235P – Standard for Indoor Environmental Quality (IEQ) in Buildings

7.3 Emerging Issue Briefs (EIB)

Emerging Issue Briefs (EIBs) are 1-3 page (including references) descriptions of issues at the forefront of concern for the EHC and ASHRAE. EIB topics should be new to ASHRAE and have not been addressed by research, Position Documents, or other means. Any ASHRAE member can propose an EIB to EHC. EIB proposals will be reviewed by the Policy & Advocacy subcommittee, which will make a recommendation regarding development to EHC. If approved, the Policy & Advocacy Subcommittee will form a committee to draft the EIB. The drafting committee can include any appropriate subject matter expert and is not limited to ASHRAE members. Completed EIB are reported to Tech Council as information and published on the EHC website <https://www.ashrae.org/communities/committees/standing-committees/environmental-health-committee-ehc>.

By their nature, EIBs should not normally be updated. The Policy & Advocacy Subcommittee is responsible for the annual review of current EIBs and will recommend their retirement when it is determined that the issue has been addressed or is no longer of importance. Retired EIBs are posted on the EHC web page.

New EIBs are proposed by sending a proposal of 250 words or less to the chair of the Policy & Advocacy subcommittee for consideration. Proposals should include the name of a person willing to serve as lead author. The subcommittee will consult the proposer if further information is needed. The subcommittee will make a recommendation regarding the proposal to the full committee. If a proposed EIB is approved for development, the lead author will solicit additional authors for review by the subcommittee. When the authoring group is approved, it will proceed with drafting the EIB. When complete, the draft will be submitted to the subcommittee to manage review, revision, and approval by the full committee.

The structure of an EIB is as follows:

Title

What is the issue?

What does this mean for ASHRAE?

What actions should ASHRAE consider?

References

7.4 Position Documents (PD)

Position Documents (PDs) are board-approved technical descriptions of issues of concern to ASHRAE that include the positions the Society takes on them. Currently approved PDs can be found at: <https://www.ashrae.org/about/position-documents>.

The process for initiating, developing, and maintaining a PD is found in the Tech Council Ref Man <https://www.ashrae.org/communities/councils/technology-council>.

EHC is the cognizant committee for the following PDs:

Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries

Indoor Air Quality

Indoor Carbon Dioxide

Environmental Tobacco Smoke

Filtration and Air Cleaning

Infectious Aerosols

Limiting Indoor Mold and Dampness in Buildings Systems

Unvented Combustion Devices and Indoor Air Quality

Policy & Advocacy subcommittee tracks the status of these PDs and makes recommendations to EHC for reaffirmations, revision or withdrawal. The subcommittee is also responsible for managing the development of proposals for new PDs in accordance with Technology Council policy.

7.5 Technical Committee Reports

EHC should have (or assign) an active member of the following technical committees to liaise with EHC. The Coordination & Outreach subcommittee will prepare a report of activities quarterly and report relevant highlights at main EHC meetings. This information can also be shared with ASHRAE's external partners.

TC 2.3 Gaseous Air Contaminants and Gas Contaminant Removal Equipment

TC 2.4 Particulate Air Contaminants and Particulate Contaminant Removal Equipment

TC 2.9 Ultraviolet Air and Surface Treatment

TC 3.6 Water Treatment

TC 6.6 Service Water Heating Systems

TC 9.6 Healthcare Facilities

TG2.IAQMD

TRG4.IAQP

TC1.2

TC2.1

TC2.6

TG2.RAST

TC4.3

TC4.4

TC4.10

TC5.6

TC5.10

TC5.11

TC6.10

TC7.9

TC8.10

SSPC 170

SSPC 185

SSPC 188

SSPC 189.1

SSPC 241

SSPC 55

GPC45PSSPC62.1

SSPC62.2

Guideline 43

Outside organizations:

ACGIH

AIHA
CIBSE
USGBC
AIVC
AIA
CBG

8. Donald Bahnfleth Environmental Health Award

The Environmental Health Committee (EHC) Education Subcommittee will annually review all eligible nominations received and make a recommendation to EHC for its consideration prior to the ASHRAE Winter Meeting based on the following procedure.

1. Purpose. The purpose of the award is to recognize excellence in volunteer service focused on environmental health issues. It will serve to heighten general membership awareness of, and interest in, environmental health activities.
2. Award Presentation. Each year, the Society recognizes the outstanding efforts of a single volunteer in the area of environmental health (EH) and indoor environmental quality (IEQ) activities. Nominations are solicited during the first half of the Society year. The EHC will select the recipient and notify the Honors and Awards Committee of its selection prior to the ASHRAE Winter Meeting.
3. Eligibility Requirements. The award is open to ASHRAE members and non-members who have demonstrated outstanding achievement in ASHRAE service focused on environmental health and IEQ issues. The recipient will be selected from nominations that meet a 10-point minimum requirement as outlined under Section 7 Criteria for Determining Eligibility. EHC Members are ineligible for receipt of the award during the term(s) they serve on EHC; however, their contributions while on EHC can count toward eligibility once they roll off as a member. Nominees should ensure their ASHRAE profiles are up to date and that activities in their profile under Participation fulfill the eligibility requirements.
4. Judging. Nominations are submitted to ASHRAE staff, who will confirm that the nominees meet the award qualifications. ASHRAE staff will provide the total point score for each qualified candidate nominated to the Chair of the Education Subcommittee. Staff will rank order based on the point score. Qualified candidates are submitted to the EHC Education Subcommittee, who will determine the top two candidates by the following procedure: (1) each Subcommittee member assigns a mark 0 to 5 for each candidate (0=lowest; 5=highest); (2) the marks will be tallied. In case of a tie, the candidate with the most points according to Section 7 Criteria for Determining Eligibility will have the higher mark; (3) the Education Subcommittee Chair will forward the names of the two candidates to the Chair of EHC; (4) the full EHC Committee will vote on a winner. In case of a tie, the candidate with the most points according to Section 7 Criteria for Determining Eligibility will have the higher mark. If necessary, at the discretion of the Education Subcommittee,

candidates from the previous year not selected may be brought forward for award consideration. The award may be unawarded if an eligible candidate is not identified.

5. Presentation. The award is presented during the Honors and Awards portion of the Plenary Session at the ASHRAE Annual Meeting. A certificate is presented to the recipient by the ASHRAE President.

6. Application. A nomination for the award must include a cover letter outlining the nominee's environmental health and IEQ activities in ASHRAE to be limited to one page. ASHRAE staff will assign each candidate a point score based on the eligibility criteria. The nomination letter and the score is sent to the Chair of the Education Subcommittee. Both this cover letter and Criteria for Determining Eligibility tally will be provided by the Chair to the EHC Education Subcommittee to propose two candidates for EHC for final selection of a single winner.

7. Criteria for Determining Eligibility. A candidate must meet a 10-point minimum in the following categories:

A. ASHRAE activities

- | | |
|--|--------------------------------|
| 1. Chair of an ASHRAE-sponsored environmental health program ¹ | 2 points / program |
| 2. Presenting at an ASHRAE-sponsored environmental health program ¹ | 1 point / program |
| 3. Chair of a Position Document (PD) or Emerging Issue Briefs (EIB) Committee | 2 points / PD or EIB |
| 4. Member of a PD or EIB Committee | 1 point / PD or EIB |
| 5. Lead editor or author of a handbook chapter related to EH or IEQ | 1 point / chapter ² |
| 6. Chair of a Standard or Guideline PC related to EH or IEQ | 2 points / PC ² |
| 7. Member of a Standard or Guideline project committee (PC) related to EH or IEQ | 1 point / PC ² |
| 8. Service on an ASHRAE event committee that enhances the EH or IEQ of an ASHRAE-sponsored event | 1 point/committee ³ |
| 9. Lead on an ASHRAE event committee that enhances the EH or IEQ of an ASHRAE-sponsored event | 2 point/committee ³ |

B. IAQ/IEQ Conference experience

- | | |
|-----------------------------------|-----------------------|
| • Chair of an IAQ/IEQ conference | 2 points / conference |
| Member of an organizing committee | 1 point / |
| conference | |
| Presentation at the conference | 1 point / conference |

C. Environmental Health Committee Experience

- | | |
|---|------------------------------|
| Chair of the Environmental Health Committee | 3 points / tour ⁴ |
| Subcommittee Chair or Vice Chair | 2 points / tour ⁴ |

¹ ASHRAE-sponsored environmental health programs are broadly defined as programs at ASHRAE-sponsored events and conferences that promote EH and IEQ

² PC equates to an appointed term. List of eligible Standard and Guideline Project Committees:

- Standards 55, 62.1, 62.2, 170, 188, 185, and 241
- Guidelines 10, 12, 42, and 43
- Indoor Air Quality Guide
- Residential Indoor Air Quality Guide

³ Committee activities that enhance the EH or IEQ of an ASHRAE-sponsored event include providing air cleaners in meeting rooms, offering lanyards of different colors to indicate level of personal interaction and similar offerings

⁴ "Tour" refers to an appointed term

9. Sample Letter Ballot
Re: Donald Bahnfleth EHC Award

Please find attached provided by the ASHRAE Staff, the letters of nomination, point/eligibility summary, and ASHRAE biographies for the eligible candidates for the Donald Bahnfleth EHC Award. The nominators and candidates, respectively, are:

- Candidate 1 – Nominator 1
- Candidate 2 – Nominator 2
- Etc.

EHC's recommendation must be approved by Honors and Awards (H&A) at the Winter Meeting so the award can be presented at the Annual Meeting. This e-mail ballot ensures that our recommendation can be approved by H&A in a timely fashion. If you have any questions on the candidates, please e-mail the Chair of the EHC Education Subcommittee.

Please vote for your selection. I would appreciate your e-mail response, prior to 12:00 midnight EST, {insert date}. EHC recommendation of the winner will be based on the candidate who receives the most votes.

8.1 List of Donald Bahnfleth Environmental Health Award Recipients

2006 – No recipient
2007 – David Grimsrud
2008 – Hal Levin
2009 – H. E. “Barney” Burroughs
2010 – Andrew K. Persily
2011 – No recipient
2012 – Steven J. Emmerich
2013 – Lawrence J. Schoen
2014 – Chandra Sekhar
2015 – Jack Spengler
2016 – Francis Offerman
2017 – W. Gene Tucker
2018 – Pawel Wargocki
2019 – William P. Bahnfleth
2020 – Paul Francisco

2021 – Bjarne W. Olesen

2022 – Yuguo Li

2023 – Max Sherman

2024 – Lan Chi Nguyen Weekes

2025 – Jeffrey Siegel

2026 – Iain Walker

9. Mentoring Program

During the final meeting of the Society Year, the EHC Chair shall appoint a current EHC member to be the mentor for each incoming member. The mentor will be responsible for the following tasks:

- Before the next EHC meeting, the mentor should contact the new member by email to introduce themselves and explain the new relationship and its purpose.
- The mentor should make every effort to update the new member on:
 1. EHC functions, focus, and objectives.
 2. Review the Rules of the Board (ROB) and Manual of Procedures (MOP) with the new member.
 3. Discuss the typical meeting format and member duties and responsibilities.
- The mentor should plan to meet the new member before the respective meeting is scheduled to start and introduce them to the chair and early arriving members. The mentor should also introduce the new member with pertinent data, such as:
 1. Member's field of expertise and employer
 2. Chapter and city of the new member
 3. Former chapter, region, and Society positions previously held by the new member
- The new member will be sent a copy of the group Rules of the Board (ROB), Manual of Procedures (MOP) and a copy of the most recent meeting minutes to acquaint them with the function and focus of the group. The new member should be encouraged to develop a rapport with other members to effectively work with fellow members to maximize productivity.

The EHC chair has the following responsibilities:

1. Assign a mentor to each incoming new member of the group prior to the first meeting.
2. Assure that the time allotted at the beginning of the first meeting is sufficient for the proper introduction of the new member by the assigned mentor.
3. Assess at a later meeting the effectiveness of the mentor/new member relationship.
4. Provide any assistance to enhance the mentor/new member relationship.

Completion date: The relationship terminates at the end of the new member's first year in the group.

10. Training

The Chair of the Education Subcommittee or their designee shall be responsible for training all incoming new EHC members in the roles and responsibilities as outlined in the EHC reference manual. This training shall be conducted before July 1st of the new society's fiscal year and shall be mandatory for all incoming members. It is the responsibility of the EHC Chair to provide the names of new incoming committee members in a timely manner. This training shall be made available to

all EHC existing and new members prior to July 1. The training provided will cover the applications of EHC, roles, and responsibilities in the manual and afford new members and existing members the opportunity to ask questions. This training will be required for all new incoming members and will correspond with their committee assignments. The training can be provided as an individual Teams meeting or in a small group. Training will be arranged at the convenience of the new members and the Subcommittee Chair or designee.

11. EHC Chair and Vice Chair Responsibilities

The EHC Chair and Vice Chair shall have the following responsibilities:

Both the EHC Chair and Vice Chair shall abide by society bylaws, Rules of the Board (ROB), and EHC Manual of Procedures (MOP).

EHC Chair

- Serve as Voting Members of the Technology Council and Operations Subcommittee (Ops).
- Appoint EHC member as liaison to related society and technical committees as appropriate, which include but are not limited to Special Projects and centers of excellence.
- Call, at minimum, the following meetings of EHC members: Fall, Spring, and meetings at the Winter and Annual Conferences. The meetings at the Winter and Annual Conferences are in-person only.
- Establish and submit Management by Objective (MBOs) for the Societal Year in coordination with the Vice Chair.
- Appoint consultants to EHC as needed to support advancement of MBOs and Action Items.
- Assign Mentors to new members.

EHC Vice Chair

- Serve duties on behalf of the chair when the chair is unavailable.
- Serve as a Member of the Technology Council and a Voting Member of the Document Review Subcommittee (DRSC).

12. Suggested MBO format

OBJECTIVES

_____ Committee

Chairman: _____

Society Year: 200____ - 200____

Date: _____

Objective	Planned Completion Date	Fiscal Impact	Responsibility	Program Approve d	Cost Budgete d	Status

- List objectives, not action items or ongoing committee activities such as updating the committee's MOP.
- State objectives in clear, concise, measurable language. If necessary, cite sub-tasks and interim steps as a means of measuring objective completion.
- Cite both the completion date for the overall objective as well as individual sub-tasks.
- State fiscal impact in dollars, person-hours, or person-trips. State whether the program has been approved by the council and whether its cost has been included in the budget.
- State the primary responsible individual, subcommittee, or body.

- Report a brief but complete statement of status. Cite completion date if objective is fulfilled.

13. Template for EIB proposals

Title:

What is the issue?

What does this mean for ASHRAE?

What actions should ASHRAE consider?

References

[Note: Citations should be in author-date format and the reference list should be in alphabetical order by author. Typical citation: (Owen, et al. 2023)]

Typical reference entry:

Owen, K., B. Stephens, W. Bahnfleth, and M. Zaatari. 2024. HVAC Fundamentals Column: How do Particle Filters work? ASHRAE J. 66912):15-19]

Contributors [Note – could be authors only or be subdivided into authors and reviewers if appropriate]

Name of author

Name of another author

Etc.

14. Guidelines for Proposing Changes to Rules of the Board (ROB)

ROB 3.400, Manual of Procedures for Officers and Directors, Section 10.3:

10.3 RULES OF THE BOARD

10.3.1 Rules of the ASHRAE Board of Directors, authorized by Bylaws Section 4.3, are compiled annually by the staff of the Society from actions of the Board.

10.3.2 Rules of the Board are contained in the following five volumes:

Volume 1 – Principles, Policies, Position Statements

Volume 2 – Standing Rules for Board, Councils, Committees

Volume 3 – Manuals and Procedures

Volume 4 – Sunset Rules and Interpretations

Volume 5 – Archives

10.3.3 Changes to Rules of the Board - Proposed changes (additions and deletions) to Rules of the Board (ROBs) shall be submitted by committees, councils and Board members. Changes proposed by a committee shall be submitted through the body to which it reports; councils and Board members may submit proposed changes directly to the Board of Directors.

10.3.3.1 To propose a change to an existing ROB, present the current ROB with changes marked by double underlining to designate words proposed to be added and ~~striketrough~~ to designate words proposed to be deleted. A proposed change, as a minimum, shall include the complete ROB number (e.g., 2.106.001.2), the proposed change(s) marked as indicated above, and the reason(s) for the change(s).

10.3.3.2 To propose a new ROB, present the wording for the new rule and include a statement indicating a recommended placement of the new rule within the ROB organization. Examples:

It is recommended that this rule be placed in ROB Volume 1, Policies.

It is recommended that this rule be placed in ROB Volume 2, Publishing and Education Council.

10.3.3.3 To propose rescinding an existing ROB, include in the recommendation the ROB volume in which the rule is located, the rule number or other identification code, and the wording of the rule to be rescinded.

15. Long-Range Plan for Indoor Environmental Quality Conferences

Under development

16. Log of revisions

Version number	Major revisions
2.0 (approved February 10, 2025)	· Addition of the following sections - o Sec. 2 EHC Scope - o Sec. 6.5 Technical Committee Reports - o Appendix: Long-Range Plan for Indoor Environmental Quality Conferences - o Log of revisions · Clarification and charges added to Sec. 4 EHC Subcommittees · Removal of information that is regularly updated, such as the list of EIBs; replaced with live links to ASHRAE · Revisions to Donald Bahnfleth Environmental Health Award eligibility criteria and selection process
2.1 (approved June 10, 2025)	· Insert new Section 3: - o Operational Definition of Indoor Environmental Health
3.0 (approved May XX, 2026)	Procedural update to the Donald Bahnfelt award. Update the roles and responsibilities of the Chair and Vice Chair Updated an operational definition of indoor environmental health Added the previous Bahnfleth award winners Added additional committee Reports Add Training Requirements



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Date: May 15, 2026 (updated 6/10/26)

To: Steve Hammerling, Conor Murray and RAC Committee Members:

The following provides a brief overview of the enclosed Work Statement (1996 WS) “Test Method to evaluate Cross Contamination in Energy Recovery Wheels in Critical Spaces – Part 2” and a summary of the responses to the October 28, 2025, 1996 RTAR Review Letter submitted to the TC 9.10 Chair and Research Chair.

Overview: 1996 WS (attached with included appendices) builds upon RP-1780 which developed a test method to quantify the chemical transfer rate of total energy recovery wheels. The test parameters used for that method’s development did not always reflect typical operating conditions and revealed unanticipated responses to physical or chemical phenomena for various substances. The proposed research seeks to determine if the test method results are reliable across a broader range of operating conditions. Additionally, the previous research utilized two types of total energy recovery wheels, and the proposed research will be expanded to address sensible energy recovery wheels.

As of this date, TC 9.10 (Sponsor) and TC 5.5 (Co-sponsor) have approved the 1996 WS as follows:

- TC 9.10 (Laboratory Systems): 13-0-0 (5/1/26)
- TC 5.5 (Air-to-Air Recovery): 6-0-1-CNV
- TC2.3 approved WS1996 10-0-0-4 (For-Against-Abstain-Absent/Not Returned-Chair Voting Status).

The following co-sponsor subcommittees were not able to get their votes in prior to deadline:

- TC 9.6 (Health Care Facilities)
- SSPC-62.1 (Ventilation and Acceptable Indoor Air Quality)

1996 RTAR Review Comments Responses

RAC Letter Comment 1: Provide detail on how this is meant to build on Part 1 of the project so the bidders are clear where the previous scope stopped.

1996 Committee Response: The following answers are extracted from the 1996 WS’s Executive Summary, and Advancement to the State-of-the-Art sections.

- *The proposed research project will answer questions raised by RP-1780 “Test method to evaluate cross-contamination of gaseous contaminant within total energy recovery wheels” (ref. 1). This includes improving the test procedure based on constructive feedback on RP-1780 and expanding the methodology to cover sensible energy recovery wheels. RP-1780 was conducted to establish a method to evaluate the transfer of airborne chemicals of interest in laboratory settings by mechanisms other than bulk air transfer in total energy recovery wheels.*



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- *Without quantification and measurement of cross contamination, design practitioners will not be able to assess the risk and safely specify this type of high efficiency equipment. The proposed research will be conducted to evaluate gaseous contaminant transfer under an expanded range of operating conditions, including gas concentrations that are typical for the intended applications, and additional types of gases.*
- *Noting that time is of the essence in commercial testing facilities, the researcher will also evaluate methods to reduce the test period to one hour. To accomplish this, significant work is expected to determine the time needed to achieve stability of test results and any techniques, such as preloading of media, that can be used to reduce the testing period to under an hour.*
- *RP-1780 developed a test method to quantify the chemical transfer rate of total energy recovery wheels. The test parameters used for that method's development did not always reflect typical operating conditions and revealed unanticipated responses to physical or chemical phenomena for various substances. The proposed research seeks to determine if the test method results are reliable across a broader range of operating conditions.*
- *The previous research utilized two types of total energy recovery wheels and the proposed research will be expanded to address sensible energy recovery wheels.*
- *Critics of the prior research have also requested a narrower acceptance criterion for chemical mass balance across the energy recovery wheel. A testing procedure that is coordinated with the current guidelines set by ASHRAE Standard 84 should be developed to standardize how gaseous contaminant transfer tests are to be performed. Testing conditions should include the specific gaseous contaminants to be tested, the required precision for the instrumentation used, and the psychrometric properties of the air streams. To this end, a sensitivity analysis will be performed for an exemplar set of contaminants and psychrometric conditions.*

RAC Letter Comment 2: Please review and address other comments in RTAR evaluation worksheet as appropriate.

- 1) Provide copy of report RP 1780.

1996 Committee Response: ASHRAE Steve Hammerling to provide access to RP 1780 Final Report. File size is very large.



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2) What will be modified on the Test Procedure

1996 Committee Response: The following answers are extracted from the 1996 WS's Scope/Technical Approach. These include wider ranges of velocities, temperature variations, high and low concentration changes, multiple chemicals on same test, test to assure saturated wheel prior to validate transfer rate.

- *The following tests should be performed using chemicals, temperature, and relative humidity conditions as stated in the attached Appendix 1, with three types of wheels, one sensible energy recovery wheel and two types of total energy recovery wheels.*
 - 1. Vary the velocity of the air entering the wheel from 200 fpm to 900 fpm.*
 - 2. Conduct tests with high and low concentration of chemical at the entry (exhaust side) of the wheels.*
 - 3. Conduct tests at temperatures that develop condensation to evaluate impact on transfer of the studied chemicals for sensible wheels only (since total energy recovery wheels were studied in RP-1780).*
 - 4. Conduct tests with combinations of multiple different chemicals on the entry (exhaust side) of the wheels.*
 - 5. Conduct tests with chemical concentration sufficient to saturate the wheels, if possible, and measure the chemical transfer rate before, during, and after achieving saturation.*

3) Clarify where 1780 stopped and 1996 picks up

1996 Committee Response: See response to RAC Comment #1 and RAC Comment #2 Paragraph "2)" above.

4) Use Portal for Work Statement File:

Portal did not easily support adding appendices. We elected to develop 1996 WS outside of the portal and distribute for voting via email.

Refer Questions or Comments to:

Robert H. Weidner – TC9.10
Work Statement (1996 WS) Author and WS Committee Chair
Rhweidner1959@gmail.com
717-497-1762

WORK STATEMENT COVER SHEET

(Please Check to Insure the Following Information is in the Work Statement)

A. Title	X
B. Executive Summary	X
C. Applicability to ASHRAE Research Strategic Plan	X
D. Application of the Results	X
E. State-of-the-Art (background)	X
F. Advancement to State-of-the-Art	X
G. Justification and Value to ASHRAE	X
H. Objective	X
I. Scope	X
J. Deliverables/Where Results will be Published	X
K. Level of Effort	
Project Duration in Months	X
Professional-Months: Principal Investigator	X
Professional-Months: Total	X
Estimated \$ Value	X
L. Proposal Evaluation Criteria & Weighting Factors	X
M. References	X
N. Other Information to Bidders (Optional)	

Date: 5/15/26

Title:

Test Method to evaluate Cross Contamination in Energy Recovery Wheels in Critical Spaces – Part 2

WS# 1996

(To be assigned by MORTS - Same as RTAR #)

Results of this Project will affect the following Handbook Chapters, Special Publications, etc.: (See WS for additional publications)

ASHRAE Handbook --HVAC Applications, Chapter 16 - Laboratories
ASHRAE Handbook --HVAC Systems and Equipment, Chapter 26
ASHRAE Laboratory Design Guide
ASHRAE Handbook --HVAC Applications Chapter 18 - Clean Spaces
ASHRAE Handbook - HVAC Applications Chapter 8 - Health Care

Responsible TC/TG: TC 9.10 Laboratory Systems

Date of Vote: 5/1/26

For		13
Against	*	0
Abstaining	*	0
Absent or not returning Ballot	*	0
Total Voting Members		13

This WS has been coordinated with TC/TG/SSPC (give vote and date):

TC 9.10 (TC 5.5 and TC 2.3 Vote Tallies are included in Cover Letter)

Has RTAR been submitted?

Strategic Plan YES
Theme/Goals YES

Work Statement Authors: **

Robert Weidner (TC 9.10)
Roland Charneau (TC 9.10)

Proposal Evaluation Subcommittee:

Chair: Robert H. Weidner (TC 9.10)
Members: Roland Charneau (TC9.10), Gemma Kerr (TC 2.3)
Matthew Friedlander (TC 5.5), Eric Erdman (TC 5.5)
Brendon Burley (TC 9.6); Hoy Bohanon (SSPC 62.1)

Project Monitoring Subcommittee:
(If different from Proposal Evaluation Subcommittee)

Same

Recommended Bidders (name, address, e-mail, tel. number): **

Hygieia Sciences – Dr. Charlen Bayer charlene.bayer@gmail.com, (404) 213-7117

University of Saskatchewan, M. Carey Simonson Ph.D, PE, FASHRAE
cjs330@mail.usask.ca; carey.simonson@usask.ca, (306) 966-5479

BEEESL/Syracuse University, M. Jianshun Zhang
jszhang@syr.edu (315) 443-1366

Potential Co-funders (organization, contact person information):

None have been solicited at this time; awaiting WS approval

A few manufacturers have agreed to provide energy recovery wheels needed for the research.

(Three qualified bidders must be recommended, not including WS authors.)

Is an extended bidding period needed?

Has an electronic copy been furnished to the MORTS?

Will this project result in a special publication?

Has the Research Liaison reviewed work statement?

Yes

X
?
X

No

X
?

How Long (weeks)

* Reasons for negative vote(s) and abstentions

No negative votes from TC 9.10, TC 5.5, TC 2.3; 1 Abstain, 4 votes were not returned. See Cover Letter.

** Denotes WS author is affiliated with this recommended bidder
Use additional sheet if needed.

Work Statement 1996

Work Statement #: 1996

Title: Test Method to evaluate Cross Contamination in Energy Recovery Wheels in Critical Spaces – Part 2

Sponsoring TC: TC 9.10 Laboratory Systems

Co-sponsoring TC's, SSPC's: TC 2.3 Gaseous Air Contaminants and Gas Contaminant Removal Equipment; TC 5.5: Air-to-Air Recovery; TC 9.6: Health Care Facilities; SSPC-62.1 Ventilation and Acceptable Indoor Air Quality

Executive Summary:

The proposed research project will answer questions raised by RP-1780 “Test method to evaluate cross-contamination of gaseous contaminant within total energy recovery wheels” (ref. 1). This includes improving the test procedure based on constructive feedback on RP-1780 and expanding the methodology to cover sensible energy recovery wheels. RP-1780 was conducted to establish a method to evaluate the transfer of airborne chemicals of interest in laboratory settings by mechanisms other than bulk air transfer in total energy recovery wheels.

This project will advance the state of the art to evaluate the cross-contamination recapture of gaseous contaminants in Air-to-Air Total and Sensible Energy recovery wheels when used for laboratory ventilation. Without quantification and measurement of cross contamination, design practitioners will not be able to assess the risk and safely specify this type of high efficiency equipment. The proposed research will be conducted to evaluate gaseous contaminant transfer under an expanded range of operating conditions, including gas concentrations that are typical for the intended applications, and additional types of gases.

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Applicability to the ASHRAE Research Strategic Plan:

This research relates to the 2025-2028 Strategic Plan & Initiatives Strategic Goal to “Position ASHRAE as the global leader in advanced solutions to improve indoor environmental quality (IEQ) and address climate change.

Application of Results:

Results will be appropriate for inclusion in the following ASHRAE Handbook chapters and ASHRAE Standards:

ASHRAE Handbook --HVAC Applications, Chapter 16 - Laboratories

ASHRAE Handbook --HVAC Systems and Equipment, Chapter 26 - Air-to-air energy recovery equipment

ASHRAE Handbook --HVAC Applications Chapter 18 - Clean spaces

ASHRAE Handbook - HVAC Applications Chapter 8 - Health Care facilities

ASHRAE Laboratory Design Guide

ASHRAE Standard 170

ASHRAE Standard 90.1

ASHRAE Standard 62.1

ASHRAE - new test procedure that could be developed as a new ASHRAE Standard

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State-of-the-Art (Background):

The basic function of laboratory HVAC systems is the management of contaminant concentrations in the space in order to reduce the risk to researchers inhaling or being in contact with contaminants. Unlike commercial spaces, energy-intensive laboratories use high volumes of filtered outdoor air to dilute airborne contaminants. This requires large amounts of outdoor air that must be cooled and dehumidified or heated and humidified, resulting in very high energy use. The DOE (2008) states that there are about 9000 laboratory buildings in the US totaling about 650 million square feet of work area. According to the EPA, US laboratories consumed about 150 million MWhr/yr in 2005. Of this, approximately 60% (or 90 million MWhr/yr) was associated with the HVAC systems.

Historically, the glycol loop, which utilizes a coil to transfer thermal energy between the exhaust and supply air streams, has been considered the safest energy recovery system for laboratory HVAC systems. This technology eliminates the risk of contaminant transfer in the incoming air from the exhausted air stream and is the only technology endorsed by ASHRAE TC 5.5 for Class 4 air streams. However, this technology is only about 40-45% efficient in winter and even lower in the summer, since it does not exchange water vapor with the exhausted air.

ASHRAE Standard 90.1 now mandates the use of total energy recovery devices for most buildings. For commercial buildings ASHRAE Standard 62.1 provides acceptable Exhaust Air Transfer Ratios (EATR), which are certified by AHRI, for Class 2 and Class 3 air and prohibits the recirculation and therefore the use of air-to-air energy recovery devices on Class 4 air, which includes fume hood exhausts. However, the standard allows environmental health and safety professionals to reclassify fume hood exhaust, therefore these experts need to consider the degree of contaminant transfer exhibited by a given product in a specific ERV installation to determine if the allowed EATR is acceptable. This research will provide tools for use by these experts and could inform changes to the EATR requirements in ASHRAE Standard 62.1 for all buildings.

Over the past 20 years there have been energy recovery technology developments claiming to limit the transfer of airborne contaminants from the exhaust air stream to the supply air stream. Additionally, laboratory and field research projects have been conducted to quantify contaminant transfer and determine the transfer mechanisms. However, until RP-1780 a standard test procedure did not exist. After completion of RP-1780 several questions were proposed that could not be answered by the previously collected data, including whether the method, and data, could be applied to sensible energy recovery wheels. Therefore, ASHRAE should continue to address the concern of contaminant transfer within both sensible and total energy devices to promote development of a consensus based standard testing procedure.

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Advancement to the State-of-the-Art:

It would be beneficial to use total energy recovery wheels in laboratory buildings as a method to reduce energy consumption, but only if it can be demonstrated that transfer of chemicals from the exhaust air stream to the supply air stream is limited to acceptable levels. A scientific testing procedure for cross-contamination of energy recovery systems needs to be developed to standardize the tests to be performed so that all systems will be tested to the same specifications and conditions. The test method must be validated to show that the data are relevant, repeatable, and sufficient to characterize these systems. Noting that time is of the essence in commercial testing facilities, the researcher will also evaluate methods to reduce the test period to one hour. To accomplish this, significant work is expected to determine the time needed to achieve stability of test results and any techniques, such as preloading of media, that can be used to reduce the testing period to under an hour.

RP-1780 developed a test method to quantify the chemical transfer rate of total energy recovery wheels. The test parameters used for that method's development did not always reflect typical operating conditions and revealed unanticipated responses to physical or chemical phenomena for various substances. The proposed research seeks to determine if the test method results are reliable across a broader range of operating conditions.

The previous research utilized two types of total energy recovery wheels and the proposed research will be expanded to address sensible energy recovery wheels.

Critics of the prior research have also requested a narrower acceptance criterion for chemical mass balance across the energy recovery wheel. A testing procedure that is coordinated with the current guidelines set by ASHRAE Standard 84 should be developed to standardize how gaseous contaminant transfer tests are to be performed. Testing conditions should include the specific gaseous contaminants to be tested, the required precision for the instrumentation used, and the psychrometric properties of the air streams. To this end, a sensitivity analysis will be performed for an exemplar set of contaminants and psychrometric conditions.

Justification and Value to ASHRAE:

Environmental Health and Safety professionals, laboratory designers, and other ASHRAE Members need reliable gaseous contaminant transfer data measurements methodologies to complete risk assessments when evaluating energy recovery systems for their laboratory ventilation projects. Technologies shown to limit contaminant transfer would allow greater

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energy savings and reduce the carbon footprint. The opportunity for energy savings in laboratories is much greater than in commercial buildings. ASHRAE should play a leadership role in optimizing the HVAC systems in laboratories while keeping safety a top priority.

This project relates to the following priorities in the ASHRAE Research Strategic Plan (ref.5)

- IEQ: Indoor Environmental Quality in Occupied Environments and Impacts on Work and Learning, Health and Well-Being and of the ASHRAE strategic plan and Research plan
- Sustainability, Decarbonization, Energy, and Resources

And more globally to the ASHRAE Strategic plan objectives 1 and 2 (ref. 6)

- Resiliency and Decarbonization in Buildings
- Indoor Environmental Quality

Reducing energy consumption in industries and institutions that rely on laboratories will help ASHRAE achieve its mission to attain sustainability and reduce CO₂ emissions while increasing the safety of the lab's occupants and reducing the material and cost of construction.

Objectives:

This additional research will enhance the RP-1780 test protocol by exploring the following questions:

1. Does the test method work for a sensible only wheel and does condensation and/or frost impact the rate of chemical transfer?
2. Does velocity across the heat transfer media affect the rates of chemical transfer?
3. Is it possible to simultaneously test multiple chemicals?
4. Do the chemical transfer rates vary with changes in chemical concentrations?
5. Can the test protocol be amended to achieve a 15% mass balance inequality for each chemical?
6. Can the test protocol be amended to reduce runtime through pretreatment (saturation) of the energy recovery media?

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Scope/Technical Approach:

Research will be conducted in a laboratory using the test procedure developed in RP-1780. The following tests should be performed using chemicals, temperature, and relative humidity conditions as stated in the attached Appendix 1, with three types of wheels, one sensible energy recovery wheel and two types of total energy recovery wheels.

1. Vary the velocity of the air entering the wheel from 200 fpm to 900 fpm.
2. Conduct tests with high and low concentration of chemical at the entry (exhaust side) of the wheels.
3. Conduct tests at temperatures that develop condensation to evaluate impact on transfer of the studied chemicals for sensible wheels only (since total energy recovery wheels were studied in RP-1780).
4. Conduct tests with combinations of multiple different chemicals on the entry (exhaust side) of the wheels.
5. Conduct tests with chemical concentration sufficient to saturate the wheels, if possible, and measure the chemical transfer rate before, during, and after achieving saturation.

Deliverables/Where Results Will Be Published:

Results will include: an updated literature review of existing scientific studies on this topic; a comparison of the previously reported measured data; validation that the developed test procedure is acceptable and consistent; establishing the limitations of the test procedure including the challenge chemicals to be used; validation via in-situ installations that the test procedure is applicable; and determining the metrics that impact the cross-contamination rates.

There are several required deliverables for this project. These include:

1. An updated literature review of existing scientific studies on the topics to be studied. This review will specifically look for advancements since the publication of RP-1780 and literature related to testing of simultaneous air chemistry analysis and sensible energy transfer devices. This will initially be presented to the PMS for review and approval as milestone 1 and will be included in the final project report for publication by ASHRAE.
2. Submit the sensitivity analysis for each chemical and test parameter identified in RP-1780.
3. Propose adjustments to the test procedure if needed. This will be presented to the PMS for review and approval as milestone 2 and will be included in the final project report for publication by ASHRAE.
4. Submit the test rig plans and operation characteristics of flow, temperature, humidity, pressure, etc.

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5. Validate consistency with RP-1780 for each chemical at a common set of operation characteristics and report these data to the PMS.
6. Submit the proposed chemicals, combination of chemicals, and operating parameters to be tested. These tests shall include tests of preconditioning methods for any chemical that did not attain steady state within one hour during the RP-1780 validation.
7. Submit the test results of a desiccant total energy wheel, a molecular sieve total energy wheel, and a sensible energy wheel for the agreed representative set of parameters.
8. Submit a test report for a minimum of three energy recovery devices, preferably one of each type, using a single chemical to verify consistency with laboratory measurements.
9. Submit a final report recommending how to conduct testing and collect, analyze, and report data.
10. ASHRAE Transaction article and/or other publications required by ASHRAE.

Level of Effort:

1. For Detailed Costs, Refer to Appendix 2.

Proposal Evaluation Criteria:

1. Understanding of the Work Statement (15%)
2. Proposed Methodology (20%)
3. Quality of Facilities and Access (15%)
4. Quality of Proposed Personnel: PI, Researchers, Etc. (25%)
5. Student Involvement (5%)
6. Probability of meeting the objectives in the scheduled timeframe (15%)
7. Past performance with ASHRAE or other similar organizations (5%)

Project Milestones:

1. Literature Search Update & RP-1780 Research Review and Question/Comment Period: 2 months
2. Sensitivity analysis and proposed modifications to the test procedure in RP-1780: 2 months
3. Results of the validation of the Test Rig and proposed testing parameters: 2 months
4. Results of preconditioning methods: 2 months

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5. Results of first energy recovery device: 4 months
6. Results of second energy recovery device: 4 months
7. Results of third energy recovery device: 4 months
8. Final report: 3 months

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20. The Effectiveness of a Molecular Sieve Heat Wheel in Maintaining Good Air Quality in a Major Laboratory Research Facility, ASHRAE IAQ 96, Johns Hopkins School of Medicine, Schaefer et.al, 1996
21. Brad Cochran, I2SL, Evaluation of cross-contamination in enthalpy wheel devices in laboratory exhaust system.
22. Labs 21, Energy recovery in laboratory facilities Presentation on Hopkins Ross Facility entitled "Applying 3A Molecular Sieve Total Energy Wheels to Laboratory Environments"
23. DOE, a guide to navigating building and fire codes for laboratories.

Other Information for Bidders (Optional): NA

Feedback to RAC and Suggested Improvements to Work Statement Process: NA

Appendix 1 – Test Facility and Tests

Summary Description of the Test Facility and Tests:

1. Test facility designed in accordance with ASHRAE Standard 84 having a capacity of 500 to 2,000 CFM at 250 to 900 fpm face velocity. Balanced airflow to be utilized for testing.
2. Tests should be conducted using Test procedures detailed in ASHRAE 1780-RP
3. The location of the supply fan upstream of the wheel and the exhaust fan downstream. Establish the wheel purge air volume of the testing rig. The tracer gas testing must be done with established airflows, pressure differentials and temperatures.
4. In addition, the test facility should be able to maintain the following air conditions:
 - Outside air conditions from -10°F to +80°F with 30% RH to 90% RH
 - Exhausted air conditions from 70°F to 80°F with 30% RH to 60% RH
5. Air by-pass (Carry-over) must be measured first using SF₆ tracer gas which is known not to be transferred by the desiccant surfaces.
6. Test rig utilized to investigate the impact of temperature, humidity, pressure, etc. must be designed to allow for the variation in psychrometric conditions and airflows.
7. Test rig shall have a variable speed drive on the wheel. This drive to be controlled by pressure differential on the wheel on the exhaust side to accept a little condensation and frosting while not having the wheel blocked by frost.

Conditions to be tested:

1. Minimum of three face velocities of 250, 500 and 900 fpm
2. Minimum of three chemicals concentrations (Low, medium, high)
3. For 3 wheels, one sensible only wheel, one silica gel wheel and one molecular sieve wheel.

Tests to be conducted:

1. For the sensible wheel only at 3 velocities with SF₆ and two polar chemicals.
 - For the following outside air conditions
 - 10°F : Any RH but RH should be measured and reported
 - 0°F : Any RH but RH should be measured and reported
 - 10°F : Any RH but RH should be measured and reported
 - For exhaust air conditions:
 - 75°F : 50 % HR

2. For the 3 wheels, at 3 velocities, all 9 chemicals and 3 levels of concentration of each chemical, at the same outside and exhaust air conditions

Between 75°F +/- 3°F and between 40% HR +/- 10% RH

3. For the 3 wheels at 3 velocities and 2 combinations of 2 chemicals (Low and medium concentration of each) at the same outside and exhausted air conditions

Between 75°F +/- 3°F and between 40% HR +/- 10% RH

4. For the 3 wheels at 3 velocities and 2 combinations of chemicals of 3 chemicals (Low and medium concentration of each) at the same time at the same outside and exhausted air conditions

Between 75°F +/- 3°F and between 40% HR +/- 10% RH

Chemicals to be used:

- Ammonia – alkaline gas, water soluble and polar
- Acetic acid - small acid, water soluble and polar
- Methyl isobutyl ketone - small ketone, somewhat water soluble and polar
- Xylene - Aromatic hydrocarbon, non-polar and water immiscible
- Carbon dioxide - Small oxide, non-polar and water soluble
- Hexane - Alkane (straight chain hydrocarbon), non-polar, water immiscible
- Formaldéhyde - small aldehyde, water soluble and polar
- Ethyl Alcohol - small alcohol, water soluble and polar
- SF-6

Appendix 2: RTAR Budget - April 23, 2026						
		Number	Hours	Cost		Total
PI Management, 2.5 years,			600	\$150.00		\$ 90,000.00
Literature review			250	\$80.00		\$ 20,000.00
Adapting lab facility to the project						\$ 80,000.00
Laboratory set-up, and tests						
	Sensible, 1 wheel, 3 vel., 3 conc., 3 temp., 2 chem	54	4	\$75.00		\$ 16,200.00
	3 wheels, 3 vel., 3 conc., 1 temp., 9 chem.	243	4	\$75.00		\$ 72,900.00
	3 wheels, 3 vel., 2 conc., 1 temp., 2 combined chem.	36	4	\$75.00		\$ 10,800.00
	3 wheels, 3 vel., 2 conc., 1 temp., 2 combined chem.	36	4	\$75.00		\$ 10,800.00
						\$ 10,000.00
Travel to ASHRAE meetings						
Report - Preliminary			90	\$150.00		\$ 13,500.00
Final Report			60	\$150.00		\$ 9,000.00
Direct Costs						\$ 333,200.00
Indirect Costs 25%						\$ 83,300.00
Sub-Total Project Cost						\$ 416,500.00
	Contingency 10%					\$ 41,650.00
Total Cost						\$ 458,150.00

Emerging Trends and Research Gaps in Environmental Health

2026

An Environmental Health Committee Report to ASHRAE Technology Council

Each year, ASHRAE's Environmental Health Committee (EHC) identifies emerging trends and research gaps that may influence indoor environmental quality and its relationship with human health. These are not predictions or immediate priorities, but signals—areas where evidence, practice, or context may be changing in ways that warrant attention from the HVAC&R community.

Cultural Practices Involving Combustion

ASHRAE's current guidance on indoor smoke is largely framed around tobacco. The ASHRAE Position Document on Environmental Tobacco Smoke (ETS) reflects a strong and well-established consensus: exposure is harmful, and the only reliable way to eliminate risk is to prohibit smoking indoors. This position has shaped standards, guidance, and practice for decades.

But the definition of “indoor smoke” is no longer limited to tobacco. Cultural and social practices involving combustion—such as smudging, incense, candles, and marijuana use—are common in many regions and settings. Other intentional airborne emissions, such as theatrical fogs and hazes, further blur the boundaries between contaminants, controls, and occupancy requirements. Some formulations based on triethylene glycol (TEG) are even being explored for their antimicrobial properties. In some cases, these activities are protected, expected, or explicitly permitted. This creates a practical challenge: buildings are being designed, operated, and occupied in ways that fall outside the assumptions embedded in current guidance.

Discussion within ASHRAE's Policy & Advocacy Subcommittee has highlighted this gap. While the health evidence on combustion emissions remains clear, the issue is no longer limited to whether indoor smoke generation should be permitted. In many contexts, it does. The more immediate question is how to manage exposures in spaces where combustion is allowed or unavoidable.

Currently, ASHRAE provides little technical guidance for these environments. More fundamentally, existing position documents constrain the development of such guidance. Current policy does not recognize engineering approaches—such as ventilation or air cleaning—as a means of controlling health risk from indoor smoke, even in settings where combustion is permitted by design or by policy.

This creates a disconnect between standards and practice. Indoor combustion and other intentional airborne emissions occur in many buildings, yet they are not always explicitly addressed within existing standards and regulatory frameworks. There is therefore a need for design strategies that reduce exposure, even if they cannot eliminate risk. Without such guidance, HVAC professionals do not have an agreed framework for decision-making in situations that are both common and culturally embedded.

Concurrently, the scientific landscape is evolving. New approaches to assessing health impacts, including metrics that account for both exposure and disease burden, are providing additional ways to compare risks across different indoor environmental hazards. These approaches do not alter the current consensus that combustion-related emissions can adversely affect health, nor do they establish acceptable levels of exposure. However, they may provide new tools for understanding relative risks, evaluating mitigation strategies, and informing future discussions about how health protection is assessed within indoor environments.

For now, this remains a gap rather than a resolved issue. It highlights the need for research on emissions, exposure, and mitigation, and for careful consideration of how guidance should address situations where voluntary and involuntary exposures coexist in the same indoor environment.

Air Cleaners – Real World Performance and Wildfire Filtration

Air cleaners are now widely used in buildings, from classrooms and offices to homes and healthcare settings. Their role expanded rapidly during the COVID-19 pandemic, and interest has remained high—driven by concerns about airborne infection, wildfire smoke, and general indoor air quality.

Most devices are characterized using standardized chamber tests, which report metrics such as clean air delivery rate (CADR). These tests are useful for comparing products under controlled conditions. However, the extent to which they represent performance in real buildings is questionable.

Recent discussions within the EHC have highlighted two related concerns. The first is scale and transferability. Chamber tests are conducted in well-mixed environments with defined particle sources, but real spaces are more complex. Airflow patterns, source locations, occupancy, and interactions with HVAC systems can all influence how effectively a device reduces exposure. In addition, performance may depend on the type of contaminant being addressed and the technology employed. For example, filtration, sorption, ultraviolet germicidal irradiation, and other air-cleaning approaches can respond differently to changes in airflow, room geometry, contaminant mixtures, and environmental conditions. As a result, a device that performs well under test conditions may not deliver the same benefit in a classroom, office, care setting, or other occupied space.

The second concern relates to filter behavior over time, particularly for charged media. These filters can be highly effective when new, but their performance may change as they load with particles or lose electrostatic charge. This is especially relevant for wildfire smoke, where high particle concentrations may accelerate loading or alter filtration efficiency. At present, there is limited guidance on how these effects should be accounted for in design or operation.

Emerging research is beginning to address these issues by linking device performance to space-level outcomes, such as equivalent clean air flow. These approaches aim to move beyond device ratings and toward metrics that reflect how air cleaning contributes to overall exposure reduction in occupied spaces. While promising, they are not yet widely adopted in standards or practice.

For practitioners, the implication is clear: specifying an air cleaner based on a single performance metric may not be sufficient. Understanding how devices interact with the space, how their performance evolves over time, and how they contribute to total clean air delivery is becoming increasingly important.

This is not a new problem, but it is becoming more visible as air cleaners are used more widely and in more demanding applications. Further work is needed to connect laboratory test results with real-world performance, particularly in environments with high particle loads or complex airflow patterns.

Artificial Intelligence in Building Data for IEQ

Buildings now generate large volumes of data. Sensors track temperature, humidity, CO₂, particles, occupancy, and system performance—often at high temporal resolution. At the same time, advances in artificial intelligence (AI) and machine learning are making it easier to analyze these data and use them to inform control strategies.

This has led to growing interest in applying AI to indoor environmental quality (IEQ). Potential applications include identifying patterns in building performance, detecting faults, predicting conditions, and optimizing HVAC operation to meet multiple objectives, such as comfort, energy use, and air quality.

Work in this area is advancing, with increasing focus on applying data-driven methods to understand building performance and inform control strategies. AI-based control systems can, in principle, respond to changing conditions more dynamically than conventional rule-based approaches. They may also be able to integrate multiple data streams and identify relationships that are not captured in simplified control logic.

However, there are important limitations. The quality of any AI-driven system depends on the quality of the data it receives. Many IEQ measurements remain uncertain, poorly calibrated, or only indirectly related to health outcomes. If the inputs are unreliable, the outputs—however sophisticated the model—may not reflect actual conditions or risks. Moreover, AI systems may evolve in ways that are not anticipated by their designers,

particularly when objectives are poorly defined or competing priorities exist. The values and assumptions embedded within the data, algorithms, and performance targets may therefore influence outcomes in ways that are not always transparent.

There is also a question of objective function. Optimizing for energy, comfort, or CO₂ is relatively well understood. Optimizing for health is not. The relationships between environmental parameters and health outcomes are often complex, uncertain, and context-dependent. Without clear and agreed targets, AI systems may optimize what is easy to measure rather than what matters most.

Transparency and trust are additional challenges. AI-based systems can be difficult to interpret, particularly when using data-driven models. This raises questions about how decisions are made, how performance is verified, and how systems can be validated for use in critical environments such as healthcare or schools.

For now, the use of AI in IEQ should be seen as an enabling capability rather than a solution in itself. It offers new ways to analyze data and manage buildings, but it does not resolve the underlying challenges of defining, measuring, and achieving healthy indoor environments.

Further work is needed to link AI applications with robust IEQ metrics, validated sensors, and clearly defined performance targets. Without this foundation, there is a risk that increasingly complex control systems will give an impression of precision without delivering meaningful improvements in occupant health.

Schools: Persistent Visible Problems

Concerns about ventilation in schools are not new. Elevated CO₂ levels, poor thermal conditions, and inadequate maintenance have been documented for decades. What is changing is not the existence of the problem, but its visibility.

Low-cost sensors, increased awareness following the COVID-19 pandemic, and greater attention from parents and staff have made indoor conditions in schools more transparent. In many cases, this has confirmed what practitioners already suspected: classrooms frequently operate with insufficient ventilation and inconsistent environmental control.

At the same time, expectations have shifted. There is now broader recognition that schools should provide environments that support both health and learning. This includes not only thermal comfort, but also adequate ventilation, low pollutant concentrations, and resilience during events such as heatwaves or outdoor pollution episodes.

The challenge is that performance is often constrained not by knowledge, but by resources. Ageing building stock, limited maintenance budgets, and competing priorities mean that known deficiencies are not always addressed. Even where guidance exists, implementation may be partial or inconsistent.

For HVAC professionals, this raises a familiar but unresolved question: how to translate standards and best practice into environments that can be delivered within real-world constraints. The issue is not a lack of technical solutions, but a gap between what is recommended and what is achieved in practice.

This is unlikely to be resolved quickly. However, the increased availability of data and growing public awareness may change how these environments are assessed and prioritized. Schools are becoming a visible test case for whether indoor environmental quality targets are not only defined, but actually delivered.

Airborne Infection Risk Returns

For many years, building-related infection control has operated under an implicit assumption: that highly transmissible airborne diseases such as measles are rare in most settings due to widespread vaccination. This assumption is beginning to change.

Recent declines in routine vaccination coverage in several countries have increased the risk of outbreaks of diseases previously considered controlled. Measles, in particular, remains one of the most transmissible airborne pathogens and has the potential to spread rapidly in shared indoor environments such as schools, healthcare facilities, and other high-occupancy spaces. At the same time, other emerging or re-emerging infections—including avian influenza in certain occupational and agricultural settings—highlight the potential for airborne transmission under specific conditions, even where this is not the dominant route.

This shift has implications for the built environment. Ventilation, air cleaning, and other engineering controls were historically considered supplementary to public health measures such as vaccination. In settings where immunity cannot be assumed, these controls may take on greater importance as part of a layered approach to risk reduction.

ASHRAE has already begun to address airborne infection through standards such as Standard 241. However, the context in which these standards are applied may be changing. Design assumptions based on low prevalence or limited transmission risk may no longer hold in all cases.

The issue also extends beyond traditional buildings. Enclosed and highly occupied environments such as vehicle cabins—including cars, trains, and aircraft—share many of the characteristics associated with airborne transmission risk, including limited volume, recirculation, and high occupant density. These spaces are not consistently addressed within existing building-focused frameworks, and are instead covered by separate standards and guidance (e.g., for aircraft cabins), highlighting a gap between how exposure environments are experienced and how they are treated across different domains.

This is not necessarily a call for immediate changes to standards. Rather, it is a signal that underlying public health conditions may be changing in ways that could affect how indoor environments are designed and operated. These changes are prompting renewed discussion

about infection-risk assumptions, performance targets, and the role of engineering controls in reducing the burden of airborne disease. Further work is needed to understand how engineering controls can complement public health strategies in environments where susceptibility to airborne infection is increasing.

Non-infectious Bioaerosols

Non-infectious bioaerosols—including allergens, fungal fragments, endotoxins, and microbial by-products—are present in many indoor environments. Unlike pathogens, these exposures are not associated with person-to-person transmission, but they can contribute to a range of health effects, from acute allergic or inflammatory responses to longer-term respiratory and inflammatory burden.

Despite this, they are not well characterized in current indoor air quality frameworks. Measurement approaches are inconsistent, dose-response relationships are uncertain, and there is limited agreement on what constitutes a meaningful exposure metric. As a result, these contaminants are often detected but not interpreted.

This creates a gap between measurement and action. While chemical pollutants and infectious agents are increasingly linked to health-based guidance, non-infectious bioaerosols remain difficult to assess within existing standards and design approaches. Further work is needed to define relevant metrics and understand their contribution to long-term health outcomes.



Center for Green Schools
at the U.S. Green Building Council

National School Air Quality Fellowship Program

I am excited to announce the opening of the **School Air Quality Fellowship**, a 9-month program running from September 2026 through May 2027. The application window will be **open until July 10th**. We are looking for **50 Fellows** Nationwide.

Fellowship Benefits*

- **Up to \$30,000 in grant funding** to enhance indoor air quality (IAQ) and energy efficiency.
- **Personalized Training and Technical Assistance:** Delivered by industry experts on IAQ and energy management.
- **Professional Credentials:** Fully paid access to respected professional credentials, including [Building Operator Certification](#), [Registered Environmental Health Specialist/Registered Sanitarian](#), and [Leadership in Energy and Environmental Design Green Associate](#)
- ***Green Schools Conference Attendance:** Travel and attendance to the [Green Schools Conference](#) in Austin, TX, including the [School Facilities Leadership Summit](#) *The estimated monetary value of the Fellowship is **\$5,000**.

Next Steps & Important Links:

- **Show Interest:** You can fill out the [Fellowship Interest Form](#) right now.
- **Learn More:** Read about the programs and explore free tools like the [School District Indoor Air Quality Management Plan Toolkit](#).
- **Reach Out:** To get immediate support or ask questions, you can [School District Interest Form](#) or email me directly at lgreenfield@usgbc.org.

CFGS would greatly appreciate you sharing this opportunity(see attached image or forward this email) with your contacts so we can reach as many school districts as possible with this opportunity and funding.

Kind regards,

Lisa



Lisa Greenfield, CAFS | *She/Her*

Regional Program Manager (Midwest) | Center of Green Schools |

U.S. Green Building Council

202.828.1159 | centerforgreenschools.org | usgbc.org

- [IAQ Fellowship Program 2026-2027](#) Cohort July 10th application deadline
- For more information fill out the [District Interest Form](#)
- Download the Toolkit: [School District Energy Efficient Indoor Air Quality Management Plan Toolkit](#)