



Shaping Tomorrow's
Built Environment Today

MINUTES (DRAFT)
Environmental Health Committee (EHC)
February 10, 2025 – Winter Meeting

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

MEMBERS PRESENT:

Marwa Zaatari, Chair
Max Sherman, Vice-Chair
Bill Bahnfleth
Seema Bhangar
Richard Bruns
Dimitris Charalambopoulos
Benjamin Jones
Linda Lee
John McKeon
Corey Metzger, BOD Ex-O
Connor Murray
Lisa Ng
Kathleen Owen
Donald Weekes

MEMBERS NOT PRESENT:

Wade Conlan, *Coordinating Officer*
Howard Kipen
Ken Mead

ASHRAE STAFF:

Steve Hammerling
Emily Pocari
Alice Yates

GUESTS:

Sherry Abbott-Adkins
Costas Balaras
Hoy Bohanon
Brandon Burley
Guangyu Cao
Nurio Casqueo
Nicholas Clements
Darryl DeAngelis
Jason DeGraw
Jonathan Flannery
Sama Haratian
Mark Jumper
Kishor Khankari
Insung Kong
Kazukiyo Kumagai
Stelios Lampadakis
Josephine Lau
Alex Marrelis
Nancy McClellan
Meghan McNulty
Nitin Naik
Wilmer Pasut
Margarett Scarlett
Larry Schoen
Julien Shamakakis
Larry Smith
Stephanie Taylor
Jennifer Wager
Iain Walker
Walt Vernon
Jensen Zhang
Vassilis Zovkos

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MOTIONS

No.	Motion	STATUS
1	the draft minutes from December 16 th meeting be approved	
2	Tech Council that they reaffirm the <i>Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries</i> PD.	
3	Tech Council recommend to BOD ExCom that the <i>Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries</i> Position Document (PD) be revised with Paul Francisco as chair of the Position Document Committee (PDC).	
4	Tech Council recommend to BOD ExCom that the <i>Infectious Aerosols</i> PD be revised.	
5	Tech Council recommend to BOD ExCom that the Title, Purpose, and Scope (TPS) of the ASHRAE PD " <i>Infectious Aerosols</i> " be revised as shown:	
6	the following members be appointed to the committee to revise the <i>Infectious Aerosols</i> PD:	
7	Honors and Awards committee award Jeff Siegel the 2025 Donald Bahnfleth Environmental Health Award.	
8	approve revisions to the Reference Manual.	

LIST OF ATTACHMENTS

No.	Attachment
A	2024-2025 MBOs
B	Planning Committee presentation
C	PEAC Leadership presentation
D	IEQ standard action plan - scoping document
E	Policy Subcommittee Report to EHC for MBO5
F	Reference Manual
G	Infection Control Website structure
H	Draft report on Unified metric of harm and discomfort

LIST OF ACRONYMS

ASHRAE	American Society of Heating Refrigerating and Air-conditioning Engineers
BOD	Board of Directors
CEBD	Center for Excellence in Building Decarbonization
CO	Coordinating Officer
CO2	Carbon Dioxide
CRC	Chapters Regional Conference
DRSC	Document Review Subcommittee
EH	Environmental Health
EHC	Environmental Health Committee
EIB	Emerging Issue Brief
ENDS	Electronic Nicotine Delivery Systems
ETF	Epidemic Task Force
HHWBE	Human Health & Wellness in Built Environment
HVAC	Heating, Ventilating and Air Conditioning
IAQ	Indoor Air Quality

IEQ	Indoor Environmental Quality
IEQ-GA	Indoor Environmental Quality Global Alliance
KPI	Key Performance Indicator
MBO	Management by Objectives
PD	Position Document
PDC	Position Document Committee
PEAC	Presidential Elect Advisory Committee
PPIB	Public Policy Information Briefs
ROB	Rules of the Board
SME	Subject Matter Expert
TC	Technical Committee
TechC	Technology Council
TPS	Title, Purpose, Scope
USGBC	US Green Building Council

ACTION ITEMS

ORLANDO WINTER 25 MEETING

No.	Responsibility	Action Item	Status
1	Policy	Consider and draft proposal for a new position document on Ozone/Indoor Chemistry	
2	Schoen, Burley, Sherman	Review the ROB (1.201.008) and suggest a plan of action to Policy Subcommittee	
3	Lee	Request EHC approval of programs via letter ballot when speakers and program titles are confirmed by Feb. 26 th	
4	EHC/Staff	Staff would send assignment sheet to members to assign experts to review ETF website	

INDIANAPOLIS ANNUAL 24 MEETING

No.	Responsibility	Action Item	Status
IN4	EHC	Review EIB format and consider proposals for new EIBs of interest to EHC and ASHRAE	Complete
IN6	Education Subcommittee	Review point criteria for award eligibility to determine if it should be updated.	Complete
IN8	Outreach & Coordination	Develop and propose a list of committees/organizations to liaise with	Complete

CHICAGO MEETING

No.	Responsibility	Action Item	Status
CH1	Metzger, Schoen, Jones	Lead the revision of the Electronic Nicotine Delivery Systems (ENDS) in Indoor Environments EIB	Ongoing
CH3	Burley/Clark	Review template and consider drafting EIB on IEQ sensors and building automation systems	Complete
CH6	Policy Subcommittee, Clements, Bohanon, Charalambopoulos	Develop proposal (TPS) and chair for an ASHRAE PD on Ozone/Indoor Chemistry	Complete

1. Call to Order & Welcome

Zaatari called meeting to order at 8 AM EST. Members and guests introduced themselves. The ASHRAE Value Statement was read and other policies were referenced in the agenda.

- 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.*

Code of Ethics – Please review prior to meeting

Core Values - Please review prior to meeting

Diversity Statement – Please review prior to meeting

2. Approval of Minutes

- December 16, 2024 Meeting (posted to Teams)

(1) it was moved (Sherman) and seconded (Lee) that the draft minutes from the December 16th meeting be approved

BACKGROUND: draft minutes were posted to Teams for review on January 2nd

MOTION 1 VOTE: 12-0-0 CNV - PASSES

3. Review of Agenda

No changes were suggested.

4. Remarks from Chair/VC (Zaatari/Sherman)

- a) Motions from Past Meetings requiring higher approval
No motions from Dec 16 meeting required higher body approval.
- b) Review of Action Items
Action items would be discussed as they arise on agenda and summarized in the minutes
- c) MBOs and MBO Assignments
MBOs were reviewed and discussed as they arose on the agenda. A status report on EHC's 2024-2025 MBOs (**Attachment A**) would be reported to OPS.
- d) Other
Sherman noted EHC has a great deal of work to accomplish in the coming year and is exploring how to involve non-EHC members as consultants in EHC related tasks and projects.

5. Report from ASHRAE Planning Committee

Abbott-Adkins gave a presentation (**Attachment B**) from the Planning Committee. The Planning Committee is tasked to develop and maintain ASHRAE long range and strategic planning activities. ASHRAE committees and TCs are asked to align their goals and MBOs to align with the ASHRAE Strategic Plan. EHC and members are asked to reach out to offer input. KPIs are being drafted now. Aim to be finalized before spring CRCs in April.

Abbott-Adkins offered to help with EHC MBOs if desired.

6. Remarks from BOD ExO and CO

a) BOD Ex-O

Metzger presented the PEAC Leadership presentation (**Attachment C**).

Highlights for EHC include:

- New ASHRAE tagline adds global focus: *Shaping Tomorrow's Global Built Environment Today*
- New ASHRAE Strategic Plan to be announced at 2025 Annual Conference – www.ashrae.org/strategicplan
- Share your expertise with Government Officials through SMEs for GOEs program (email govaffairs@ashrae.org) if interested.
- Nominations for appointed standing committees due Feb. 14th.

7. Policy (Bahnfleth)

a) Position Document Updates

- Human Health and Wellness in the Built Environment (HHWBE)
EHC reviewed draft PD and sent comments to PD committee for their review. The PD committee is meeting later today and targets Phoenix for a revised draft.
- Unvented Combustion Devices and IAQ
A revision is underway now. A title, purpose and scope (TPS) was developed and reviewed by subcommittee. A draft is anticipated for the Annual Meeting in Phoenix.
- Indoor CO₂
The revised PD is on DRSC/TechC/BOD agenda to be considered for approval in Orlando.
- Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries
It was moved that,

- (2) EHC recommends that DRSC recommend to Tech Council that they reaffirm the [Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries](#) PD.

BACKGROUND: The document submitted for reaffirmation is the previously reaffirmed (2022) version reformatted to conform to current guidelines. It does not make substantive changes to anything in the previous version. The position document is in need of revision but will expire (June 2025) before a revision can be completed. The proposed chair, Paul Francisco, is currently chairing a committee revising the *Unvented Combustion Devices and Indoor Air Quality* PD

and does not feel he can manage two revisions at the same time. It is expected that work on the revision can begin following the 2025 Annual Conference.

MOTION 2 VOTE: 12-0-0 CNV - PASSED

It was moved that,

- (3) EHC recommends that DRSC recommend that Tech Council recommend to BOD ExCom that the *Combustion of Solid Fuels and Indoor Air Quality in Primarily Developing Countries* Position Document (PD) be revised with Paul Francisco as chair of the Position Document Committee (PDC).

BACKGROUND: This PD is of continuing value, expires in June 2025, and needs a significant update. The proposed chair (Francisco) led the development of the current position document and is willing to lead this revision as well. The chair and EHC will propose a PD committee. The approved title, purpose and scope (TPS) is unchanged.

EHC MOTION 3 PASSED: 12-0-0 CNV

- Infectious Aerosols

It was moved that,

- (4) EHC recommends that DRSC recommend that Tech Council recommend to BOD ExCom that the *Infectious Aerosols PD* be revised.

BACKGROUND: This PD expires October 2025. It is of continuing value but needs to be updated because of the rapidly expanding literature on airborne disease transmission and because ASHRAE Standard 241 was published after the previous revision and is, therefore, not reflected in it. A motion to revise the TPS is listed below.

MOTION 4 VOTE: 12-0-0 CNV - PASSED

It was moved that,

- (5) EHC recommends that DRSC recommend that Tech Council recommend to BOD ExCom that the Title, Purpose, and Scope (TPS) of the ASHRAE PD "*Infectious Aerosols*" be revised as shown:

Title:

Infectious Aerosols

Purpose:

Inform the ASHRAE membership and the public of the impact of HVAC systems on the distribution of infectious-aerosols. These aerosols can subsequently be inhaled directly in the upper respiratory tract, deep into the lung, or may ~~settle out~~ deposit on surfaces and ~~become indirectly transmitted~~ cause exposure by resuspension or fomite contact.

Scope:

The document will address the impact of HVAC systems ~~that are described in the Systems Handbook~~ on exposure to infectious aerosols. It will discuss available engineering controls and requirements for their use, in particular, as specified in ASHRAE Standard 241 that results in exposure.

~~The document will address a variety of built and transportation environments.~~
The document will take positions and make recommendations that are supported by peer-reviewed research and for which references will be provided.
~~The document will be written with sufficient scientific rigor and references to be useful to specialists such as a range of audiences. Including policy makes, researchers, architects and engineers; and containing material that will be useful to the general public.~~

~~The document will provide the content from which a brief can be prepared for advocacy purposes.~~

BACKGROUND: The revised TPS updates terminology, more specifically defines what aspects of HVAC systems are to be addressed, adds a reference to ASHRAE Standard 241 and is more reflective of current practice for position documents.

MOTION 5 VOTE: 12-0-0 CNV - PASSED

It was moved that,

- (6) EHC recommends to DRSC recommend to Tech Council that the following members be appointed to the committee to revise the *Infectious Aerosols* PD:
- Meghan McNulty (PNNL, chair)
 - Dennis Knight (Whole Building Systems)
 - Chandra Sekhar (National University of Singapore)
 - William Bahnfleth (Penn State)
 - Katherine Ratliff (EPA)
 - Lewis Radonovich (CDC)
 - David Fisman (University of Toronto)

BACKGROUND: The proposed chair and committee members are all willing to serve and all have extensive and current expertise in various aspects of this subject. The committee meets the balance requirements for PD committees. Primary employer for each person is listed, but some have multiple roles across more than one balance category.

MOTION 6 VOTE: 12-0-0 CNV - PASSED

- Indoor Ozone
Policy subcommittee is considering drafting a proposal for a new position document on Ozone/Indoor Chemistry. EHC aims to develop a TPS for next EHC Meeting (**Action Item 1**) consider developing a TPS and a possible chair for a future meeting. Elliott Gall, Nicholas Clements and Charlie Weschler were mentioned as possible participants.

- b) Emerging Issue Briefs
Metzger, Schoen, Jones would continue to lead the revision of the Electronic Nicotine Delivery Systems (ENDS) in Indoor Environments EIB

Burley and Clark would explore a program on the topic of IEQ sensors and building automation systems, not the EIB as discussed at a previous meeting.

New EIBS were discussed:

- Air quality implications of water chlorination
- microplastics (McKeon)
- cannabis (ENDS or all delivery systems?) - (Schoen?)
- other

- c) Public Policy Issue Briefs (PPIB)
Persily and Bahnfleth were helping to develop a PPIB on Infectious Aerosols but is not yet for review.

- d) ASHRAE Policy on Standards and Guidelines that Address Smoking - ROB 1.201.008:

1.201.008 ASHRAE Policy on Standards and Guidelines that Address Smoking Spaces.

ASHRAE standards and guidelines that address ventilation or indoor air quality in their purpose shall not prescribe ventilation rates in smoking spaces or claim to provide acceptable indoor air quality.

EHC discussed the current rule of the Board, if it had unintended consequences, if it was already addressed in ASHRAE publications, or appropriate to address technical content outside of ASHRAE publications. Schoen, Burley and Sherman were asked to review the ROB and suggest a plan of action to Policy Subcommittee (**Action Item 2**).

- e) MBO 1 – IEQ standard action plan (Owen)
A scoping document was drafted before the meeting (**Attachment D**). The plan is to eventually develop a standard TPS. This MBO is perhaps 30-40% done.

- f) MBO 2 - Operational definition of acceptable indoor environmental health (*Bahnfleth*)
A group is making progress on collecting definitions. A draft definition is expected shortly after this meeting for EHC review. This MBO is approximately ~30% complete.

Clement noted the HHWBE PD includes definitions within its scope and may like to reference or adopt the eventual EHC definition in the PD.

- g) MBO 5 – Align US IAQ/IEQ regulations with EHC objectives
A draft report (Attachment E) was sent ahead of meeting. The report summarizes legislative engagements or developments related to environmental health that ASHRAE Washington office is tracking.

Zaatari asked if ASHRAE can help develop a model code for schools that is more focused on indoor air quality. Funding for legal expertise may be helpful towards such an effort.

- h) PEAC initiative 1 related to MBO1
EHC will continue to work with McQuade to support next year's Presidential themes related to the IEQ and energy nexus. Bahnfleth would carry message of EHC support

and efforts to McQuade's group.

8. Education (Lee)

- a) Donald Bahnfleth Environmental Health Award
It was moved that,

(7) EHC recommends that Honors & Awards committee award Jeff Siegel the 2025 Donald Bahnfleth Environmental Health Award.

MOTION 7 VOTE: 10-0-0 CNV – PASSED

- b) EHC programs for Orlando

There were no programs sponsored by co-sponsored by EHC in Orlando.

- c) EHC program ideas for Phoenix

Lee noted there were two program proposals for Phoenix:

- The Epidemic Task Force, Infectious Aerosol Control, and Beyond!
- Case Studies on Infection Control

Lee would request EHC approval via letter ballot after the conference when speakers and program titles are confirmed (**Action Item #3**). The deadline for program submissions is February 26th.

- d) IEQ Column Updates

Burley thanked EHC for continued support of the column. Seven of eight of the last Journal's included an IEQ column. There are two months in the current society year that needs an article.

- e) EHC Reference Manual updates

A revised Reference Manual (**Attachment F**) was sent to EHC members ahead of the meeting.

It was moved that,

(8) EHC approve revisions to the Reference Manual.

MOTION 8 VOTE: 12-0-0 CNV - PASSED

- f) Infection Control Website

Work continues on an infection control webpage on the ASHRAE website. A proposed structure is included as **Attachment G**. ETF materials have been identified and sorted by topic and subject matter experts (SMEs) are being identified to help determine what information is still current and what should be archived. Funding for this effort was approved in fall for SY 25-26. Staff would send sheet to members to assign experts to review (**Action Item #4**).

- g) Other

USGBC Fact Sheets

Zaatari described an effort within USGBC to develop a series of fact sheets. They are seeking review by EHC and eventually ASHRAE co-branding. EHC will send sheets

out shortly with a request that EHC review and comment.

9. Outreach & Coordination (Weekes)

a) IEQ2025 Conference update – Weekes

Weekes updated EHC on the IEQ2025 Conference, “Rising to New Challenges: Connecting IEQ with Sustainable Buildings” taking place in Montreal, Quebec, Canada September 24-26th, 2025. The conference is co-chaired by Jennifer Isenbeck and Iain Walker. Conference organizers are now seeking co-sponsorships. This conference theme aligns well with President-Elect Bill McQuade’s Presidential Theme for 2025-2026 and will be colocated with a related workshop.

b) Annual EHS Trends and Research Gaps report – Jones

- June 2025 completion

Work continues on the draft report for presentation at the 2025 Annual Meeting.

Issues include:

- microplastics. (McKeon)
- IEQ metrics, cost benefit, etc. (Bruns)
- Sensors (McClellan/Weekes)
- Heat stress
- ASHRAE research gaps

A draft can be sent to EHC for review in next couple months.

The 2024 Trends and Research Gaps report was reported to Tech Council. EHC will lead a presentation to Tech Council in Orlando to discuss further.

c) Unified metric of harm and discomfort – McKeon

A draft of this report was sent ahead of meeting (**Attachment H**).

d) Convene discussion on future of IAQ Standards

- Roadmap for change

Zaatari noted there was a draft that still needs some work. Currently awaiting 62.1 to address and make changes.

10. Other Business

Abbott-Adkins offered for her email contact (sadkins a2esg.com) be included in the minutes if members wanted to reach out for help with mind mapping exercises.

11. Next Meeting

a) Subcommittee meetings

Asked to meet ahead of EHC meetings.

b) Spring EHC meeting

Will return to bi-monthly Executive Committee and Full EHC meetings after this Winter Meeting

c) ASHRAE Annual Meeting – June 23, 2025 – Phoenix AZ

12. Adjournment

EHC adjourned at 12:00 PM EST.

MBO Submission to Planning

Council: Technology
Committee: Environmental Health

Chair: Marwa Zaatari
Vice-chair: Max Sherman

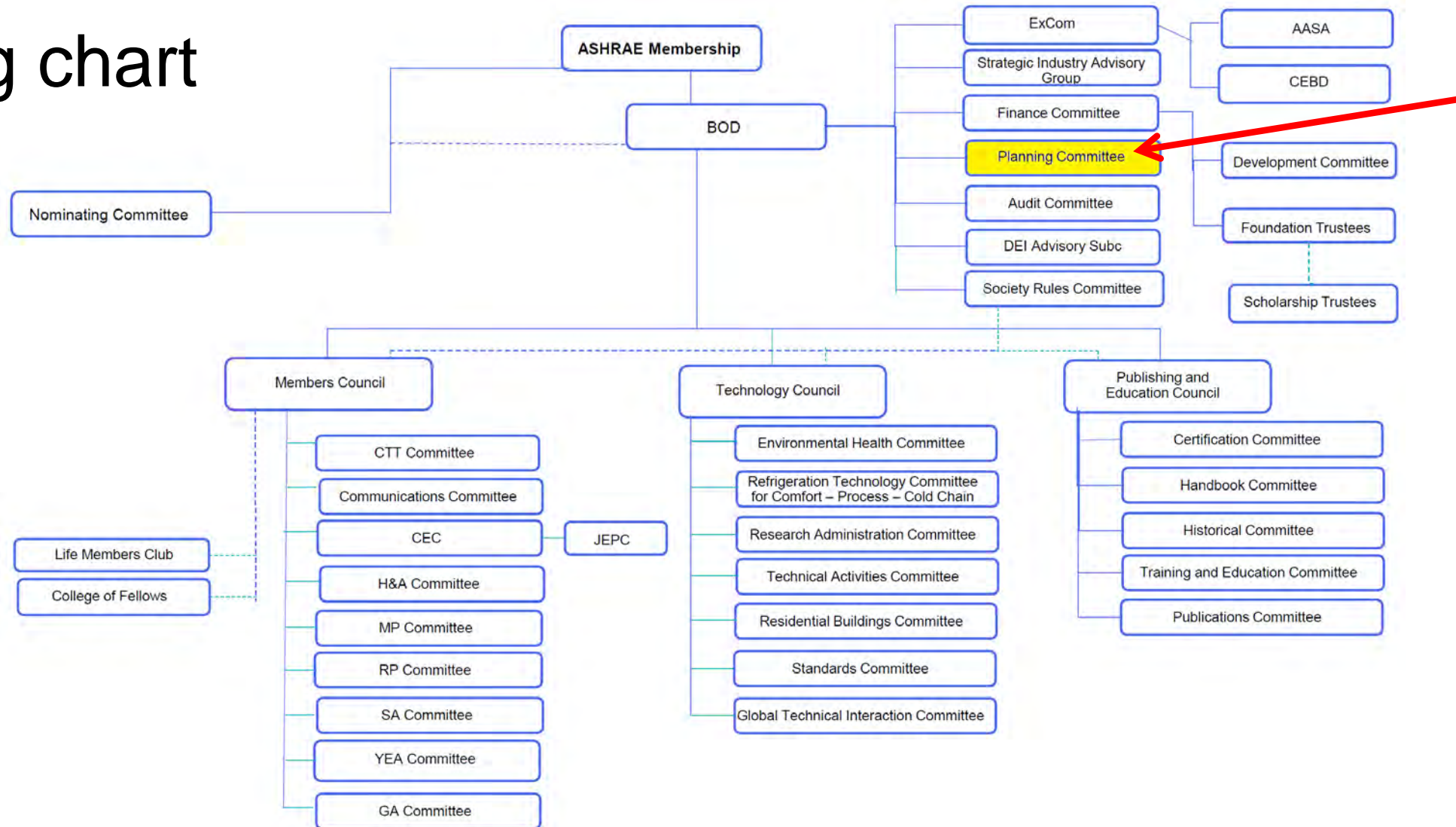
MBO #	Description	Metric	Subcommittee	Initiative #	Goal #	Completion % / Date	Financial Assist Req'd?	MBO Comments
		(how do we determine success?)						
1	IEQ standard action plan discussion	Completed scoping document, TPS.	Policy	2	1a, 2b	40% winter meeting 2025	No	The current strategic plan, under initiative 2, has the outcome "Develop an IEQ standard based on health and productivity objectives that addresses air quality, thermal environment, light, sound, and vibration in an integrated way." A scoping document is needed to discuss what it will take to achieve this, starting from the report of the MTG on health and wellness. McQuade presidential initiative for next SY is related to this MBO. EHC will work to support these efforts and communicate a willingness to help McQuade and PEAC initiatives related to these issues. EHC subcommittee has drafted a scoping document that aims to develop a TPS for a standard by June.
2	Operational definition of Acceptable Indoor Environmental Health	Completed Definition.	Policy	2	1a	30% winter meeting 2025	No	EHC continues to explore how to define this term. A draft definition for EHC review is expected shortly after Winter Meeting. This definition can be listed in EHC Reference Manual, Handbook, and HHBWE position document
3	Infectious control education	Coordinate with 241 on website updates and FAQs (contingent on 241 approval of a proposal). ETF Clean-up website.	Education (bring consultant?)	2, 3	1a,2b,3b		No	The ETF website is a historical document and requires a clean-up to: 1) clarify that it is not a current compliance document, and 2) preserve unique and necessary content (e.g., dental spaces). EHC subcommittee has secured funding for an infection control website on ASHRAE website to be a resource for all relevant materials. ETF materials have been identified and sorted by topic and subject matter experts (SMEs) are being identified to help determine what information is still current and what should be archived.
4	Unified metric of harm and discomfort	Completed scoping document. Evaluation of whether it is possible.	Outreach and coordination	2	1a		No	The need for an IAQ metric/index has been identified. There are several approaches to defining one or more metrics related to harm, IAQ/IEQ, and comfort. An evaluation of these options is necessary to inform IAQ/IEQ-related standards. EHC has drafted a scoping document on "unified metric for harm and discomfort" in buildings.
5	Align U.S. IAQ/IEQ regulations with EHC objectives	Advice ASHRAE Government Affairs Committee on EHC related issues.	Policy	2,3	2b		No	EHC members have been serving as a resource to Washington office in supporting efforts to communicate IAQ issues to legislatures and government officials. EHC discussed developing model language for IAQ in schools or other common issues getting attention.
6	Update reference manual	Complete update to the reference manual: 1- Definition of health. 2- Award process. 3- IEQ Conference clarify rules regarding the conference.	Ex comm/ Education	3	3b		No	The reference manual has not been updated since few years. Also, we do not have a process for the IEQ conference. Minor changes were reviewed and approved by EHC in ORL.
7	Convene discussion on future of IAQ standards	Discussions held and recommendations summarized. Complete a roadmap for change.	Coordination and outreach	2, 3	1a, 3b		Possibly (if in-person meeting is held)	ASHRAE Standard 241 introduces a number of significant changes to how IAQ standards are designed (e.g., the use of equivalent clean air as the basis). The board envisioned other ASHRAE IAQ standards incorporating 241. Discussions to develop a way forward are needed. EHC continues to work with ASHRAE Standards (62.X,170) to reference or incorporate Standard 241 as appropriate



Planning Committee (PLC)

Who is the Planning Committee?

- Org chart



What does the Planning Committee do?

- Role

- The role of the Planning Committee (PLC) is to assist the Board of Directors (BOD) and the organization in the development of strategic thinking for the future.
- The PLC uses an approved method of soliciting continuous strategic planning from the councils and committees for use in advising the Board of Directors on ideas which may be considered for changes to the strategic goals and directions of the Society.
- On a regular basis the PLC:
 - Reports on Findings & Recommendations
 - Provides Gap Analysis on Strategic directions & goals of committees

What does the Planning Committee do?

• Subcommittees

Innovation and Implementation Subcommittee:

- Oversee Strategic Plan implementation
- **Teams with ASHRAE Councils and Committees** to ensure each develops appropriate timelines for implementation, metrics to measure success, and a method to measure progress related to the strategic plan
- Develops methodology to **identify gaps** and overlaps in implementing the Strategic Plan
- **Solicits creative ideas from the membership**, makes strategic assessments, identifies strategies, develops and recommends new initiatives to the PLC to adopt as strategic goals
- Makes recommendations for next year, three (3) year, five (5) year, ten (10) year, and twenty (20) year goals.

What does the Planning Committee do?

Validation and Documentation Subcommittee (is responsible for):

- **Receiving, reviewing, and quantifying each Council and Committee's MBOs.**
- Receiving the Continuous Strategic Planning (CSP) **input from the committees and councils** and presenting them to the full PLC for consideration by the Board of Directors at the Fall BOD meeting.
- Updating the survey, reviewing the responses, and compiling summary information and potential actionable items from the annual Membership Survey.
- Utilizing the metrics and Key Performance Indicators (KPIs) to evaluate the success and progress of the Strategic Plan and presenting them for the full PLC Annual Meeting.

What does the Planning Committee do?

• Strategic Plan

The Planning Committee (PLC) is responsible for ASHRAE's long-range and strategic planning activities on a continuing basis. The PLC role is to assist the Board of Directors (BOD) and the organization to think strategically in planning for the future.



Healthy, Sustainable and Resilient Communities

Providing a healthy, productive and resilient indoor environment, while minimizing greenhouse gas emissions, is critical to today's built environment. Further, global stakeholders' leveraging of ASHRAE's standards and technical resources presents an opportunity for ASHRAE to solidify global leadership in supporting healthy, sustainable and resilient communities. ASHRAE prioritizes timely identification of industry trends, expedient content development, and forges key partnerships to advocate and collaborate with industry.



Empowered Workforce

The development of a skilled, competent, and solutions-oriented workforce is critical to addressing the challenges facing the built environment and the HVAC&R industry, today and in the future. ASHRAE continues to provide educational and professional development resources. Our members and industry partners need these tools to implement key initiatives such as decarbonization, resiliency, and indoor environmental quality goals and policies. ASHRAE, with the support of our chapters and regions, partners with key industry stakeholders in tackling the unique workforce challenges facing the industry globally.



Organizational Agility

ASHRAE's ability to serve communities, the industry, the current and future workforce, and provide value to its volunteer members, is dependent on forward-looking products, services, and solutions. ASHRAE will use emerging technologies to support the development of resources and knowledge flow between ASHRAE's chapters, regions, technical bodies, and the industry, harnessing organizational and operational efficiencies.



Emerging Technologies

In today's rapidly evolving landscape, emerging technologies are revolutionizing the built environment and HVAC&R industry, expanding numerous career opportunities. By combining technological advancements such as AI with human creativity, both seasoned professionals and new talent can collaborate to drive industry-wide progress. Advanced automation and AI-enabled systems propel energy efficiency and smart buildings, enhance comfort and IEQ, improve operations and maintenance, and deliver holistic and sustainable solutions for industry professionals. ASHRAE engages in a thoughtful process to evaluate and prioritize opportunities to leverage new technologies.

How does the Planning Committee affect you?

- The Planning Committee (PLC) helps ASHRAE Committee and TC's design their goals and MBO's to align with the ASHRAE Strategic Plan.

How can the Planning Committee help you?

- Members of the Planning Committee (PLC) are available to help discuss anything related to ASHRAE's Strategic Plan, or even regarding your MBO's (and how they align with the Strategic Plan)
- Members of PLC are available to carry your suggestions / inputs back to PLC.



Contact Information

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2025 ASHRAE WINTER CONFERENCE

ORLANDO, FEB 8-12 | AHR EXPO, FEB 10-12

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.

MARKETING CENTRAL

ASHRAE has a **NEW TAGLINE!** Shaping Tomorrow's ***Global*** Built Environment Today.



Shaping Tomorrow's Global
Built Environment Today

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2025-28 Strategic Plan Available for Committees and Councils



A preview of the new Strategic Plan is available for committees, councils and chapters to reference while planning for the upcoming Society year.



The complete 2025-28 Strategic Plan will be announced at the 2025 ASHRAE Annual Conference.

Download the Strategic Plan at
ashrae.org/strategicplan

Download

ASHRAE Board of Directors



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GOVERNMENT OUTREACH



Get Involved!

136 Government Outreach
Events during the 23-24 SY

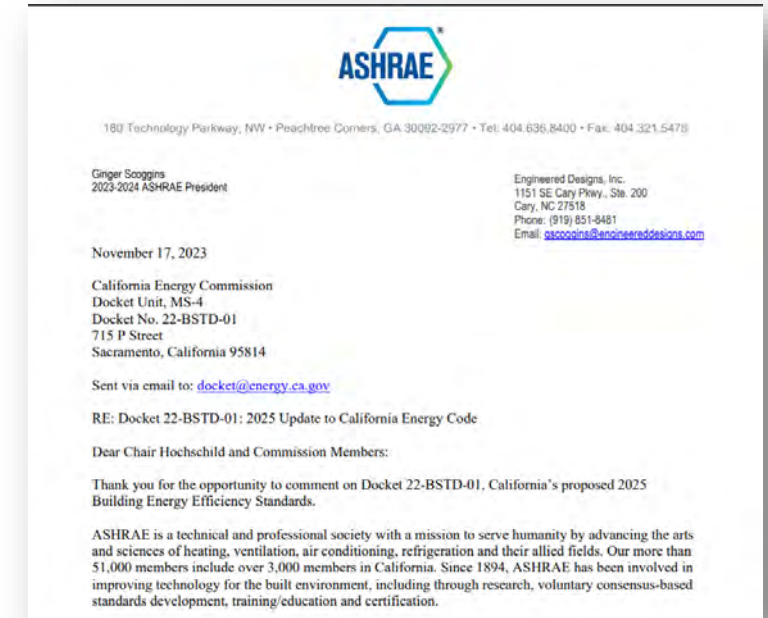
GOVERNMENT AFFAIRS UPDATE



BI-WEEKLY NEWSLETTER

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

LETTERS & TESTIMONY



Share your Expertise with Government Officials through the new SMEs for GOEs Program



Policymakers and elected officials need your expertise to make better decisions as they craft legislation and regulations impacting HVAC&R and the built environment.

The Government Affairs Committee (GAC) has developed a new program to identify Subject Matter Experts (SMEs) who can effectively communicate with non-technical audiences such as government officials

BE THE SOURCE of technical expertise for these decisions!



Sign up online or email GovAffairs@ashrae.org

Society Year ending June 30, 2024



\$2.7M Research Promotion Campaign
(Research, YEA, ALI, Scholarships, General)



\$1.5M Raised for Endowments



\$232,100 Awarded through
52 Scholarships



\$1.9M Raised for Research



\$57,600 Raised by College
of Fellows and Life Members Club



\$1.18M Given by ASHRAE
Regions, Chapters and Sections

More than 4,000 contributions from Members, Organizations and other Associations



- Developed Project Summaries for eight (8) CEBD projects
- New eLearning Course on Grid Interactive Buildings
- Publication of Guides:
 - ✓ Grid Interactive Buildings for Decarbonization Design
 - ✓ Decarbonizing Hospital Buildings
 - ✓ TM65 Addendum for North America with CIBSE
 - ✓ Building Decarbonization Retrofits for Commercial & Multifamily Buildings
 - ✓ Decarbonizing Building Thermal Systems: A Guide for Applying Heat Pumps & Beyond with NREL
 - ✓ *Whole Life Carbon Guide for Building Systems: In Process*
 - ✓ *Guide to Strategic Decarbonization Planning with USGBC: In Process*

Standards



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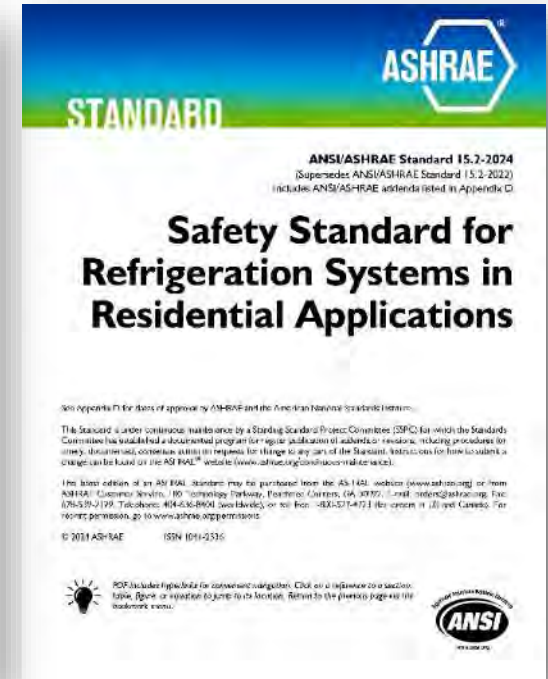
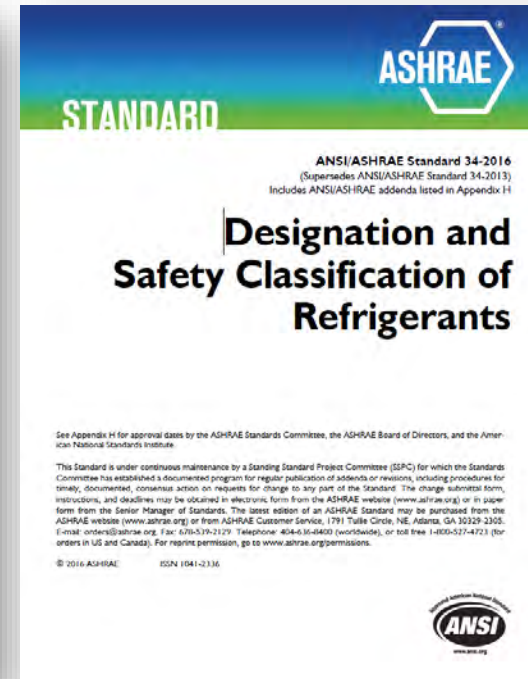
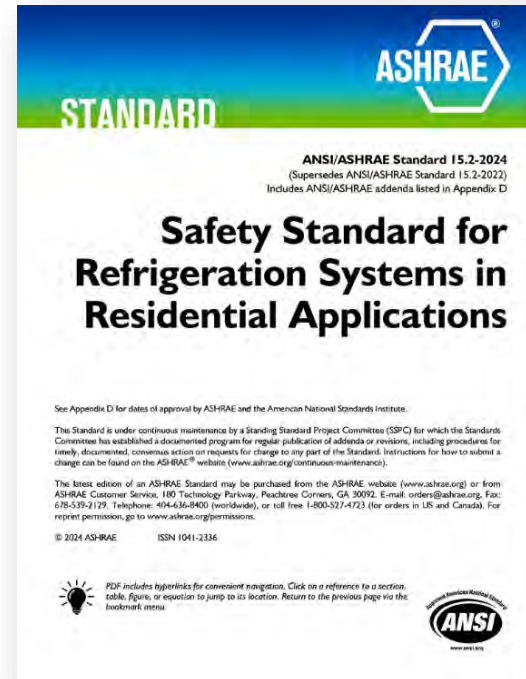
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2024
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AND EQUIPMENT

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Just Released

Building Decarbonization Retrofits for Commercial and Multifamily Buildings



Decarbonizing Hospital Buildings

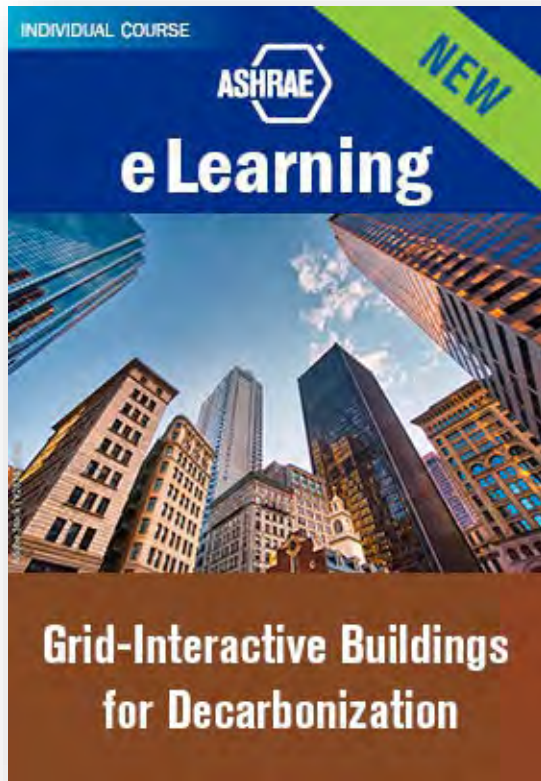


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eLearning

New Course



ASHRAE Learning Institute

New Training in Orlando

Ultra-Low-Energy Buildings
and Microgrids:
Tools for Resilience and
Decarbonization

February 10 | 2:45 PM



Solar Energy Systems Design, Applications,
and Real-World Best Strategies

February 11 | 9 AM

Certification

New Certification



Record Application Total in SY 2024

2025 Conferences

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Qatar, Doha, April 23-24, 2025

Third International Conference on Energy and Indoor Environment for Hot Climates



Denver, August 13-15, 2025

2025 ASHRAE Conference for Integrated Design, Construction & Operations



Montreal, September 24-26, 2025

IEQ 2025 Conference
Co-Organized by ASHRAE and AIVC



Chicago, October 22-24, 2025

2025 ASHRAE Building Decarbonization Conference



Clearwater Beach, FL, December 8-11, 2025

Buildings XVI Conference



**2025 ASHRAE
Annual Conference**

Phoenix, AZ, June 21-25, 2025

Registration opens in Spring 2025. See you in Phoenix!

**Meet and Greet with Dennis Knight at the
ASHRAE Booth (3201)
Monday at 3:00 PM**



**M. Dennis Knight, P.E., BEMP, Fellow ASHRAE
2024-25 ASHRAE President**

**Stop by the ASHRAE Booth 3201 and
Bookstore 455 while at the AHR Expo.**

Your paid conference badge provides entry to the show.

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New ASHRAE Region XV



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Director and Regional Chair: **Bassel Anbari**



Director and Regional Chair: **Richie Mittal**

Committees and Student Scholarships

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Find Committees and Nominate Yourself or Others

**FEB
2025**

February 14: Nominations for appointed committees are due.

**JUN
2025**

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

**SEP
2025**

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

Communities > Student Zone > Scholarships

44 Society Scholarships Available for 2025-2026 SY

Each year the ASHRAE Foundation awards scholarships of up to **\$12,500 USD** each to qualified students.



Spread the word to students and encourage them to apply.



Consider donating to help support the scholarship program.

Membership

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Have you selected your Annual Membership Benefit?

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New, Full Dues Paying Members Automatically Get:

1 Free Registration  to Winter or Annual Conference	&	12 Months FREE  Handbook Online
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HONORS & AWARDS

The following award nominations have a May 1 deadline:

Fellow | Honorary Member | ASHRAE Hall of Fame | F. Paul Anderson Award

ASHRAE Pioneers of the Industry | Award for Distinguished Public Service

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)

Justification for Proposing an IEQ Standard within ASHRAE

Introduction

Good Indoor Air Quality (IAQ) has been recognized as a goal of ASHRAE for many years. Even longer, ASHRAE has pursued goals in achieving acceptable temperatures and other indoor air metrics. More recently, the concept of Indoor Environmental Quality (IEQ) has come to recognize the need to meet both traditional and IAQ goals to yield acceptable and better human environments in buildings. But, at this stage, there are no combined standards to meet the mutual goals and provide recognized requirements to meet needed endpoints.

Within ASHRAE and other Standards organizations, there exist standards covering many of the individual pieces of the IEQ arena. But not all aspects are covered and no one standard combines all needed requirement. In addition, the community needs organization in requirements to meet these goals at the same time.

Current Standards

Current standards that address some of these issues with very brief description are shown below:
List.....descriptions....

Given that much good work exists but much is needed to unify the field, we propose forming a Standard Committee to write a new ASHRAE Standard. The first step is to write a Title, Purpose and Scope (TPS) as the basis for a new standard and the committee to write it.

To start the planning process a team of experts from within ASHRAE and from other organizations have met several times to establish a rough idea of what we believe should be included. It is, of course, anticipated that the team writing the TPS will revise these goals after additional discussion. However, we believe that this outline is sufficient to explain our goals and to seek approval to move forward to the TPS writing stage.

Suggested Outline for new IEQ Standard

Prescriptive standard with levels of minimum/acceptable, better, best for each of the following categories (similar to P100 approach, possibly TAIL)

Indoor Air Quality:

- Create prescriptive baseline of small group of measurable contaminants of concern (may be similar to IAQP list in 62.1)
 - Start with baseline and reduce allowable concentrations for better/best options
 - Maintain at least requirements in 62.1 to deal with abnormal/unique outdoor air contaminants

Thermal Comfort:

- Temperature/humidity requirements can be referenced/taken from ASHRAE Standard 55 - basically approach better/best with tighter control zones and/or more individual adjustment capabilities - may be more appropriate to go with more individual zone control due to different preferences for comfort - may also want to consider humidification or lack thereof - always a concern with existing buildings and the potential for condensation within building envelopes
- Air velocity requirements for different space types/operating conditions

Lighting (IES?):

- Likely have some requirements for color rendering, lumens, adjustability/dimming in baseline with color shifting for circadian rhythm control on a better/best option
- Consider glare or other factors - need to be measurable/verifiable

Acoustics (ASA?):

- Likely some requirements for maximum sound power levels or NC ratings per space, with reductions/improvements for better/best options
- May need to have more detailed information such as target sound power levels per octave, consistency of background noise, etc.

Scenarios:

- One basic one or several (e.g., routine, pandemic, wildfire)

Overall Rating:

- Possibly a single metric with good/better/even better levels
- Or levels for each area, assessed separately, then combined for final value

Limitations

Discuss what we left out and why

Challenges

Can we do this? How much work? Is there a point to trying to do this? What issues might come up that we need to plan for. Will people use the final product?

Is there trade-off between the variables? Example – standard for IEQ proposed. Asset rating (IEQ Compas)? Too complicated? What makes sense to include if we want something useful?

Could plan to start with a basic level version, learn from it, then improve. Both to know more and to help building engineers to implement it.

Regional and climate issues.

Policy and Advocacy Subcommittee - Report to EHC for MBO5 (Align US IAQ/IEQ regulations with EHC objectives)

Subcommittee Chair: Bill Bahnfleth. Report compiled by: Seema Bhargar
(from material provided by Alice Yates, Head of Government Affairs)

February 10, 2025

Engagements or Developments ASHRAE is tracking or participating in (first two from Government Affairs)

- February, 7, 2025: Policy and Advocacy Subcommittee Chair Bill Bahnfleth attended the ASHRAE Government Affairs Committee meeting on February 7 during the ASHRAE Winter Conference in Orlando, FL. He thanked the committee and ASHRAE staff for their strong support over the past five years and expressed the desire to continue to develop the partnership between EHC and GAC on environmental health issues. He described EHC's 2024-2025 MBO 5 and asked that the two committees work together to achieve its intent. Preliminary discussions about scheduling regular (perhaps quarterly) meetings to coordinate activities and share information were initiated.
- Fall/Winter 2024-2025: K&L Gates Roadmapping Exercise: The ASHRAE Board commissioned a study by a policy consulting firm to develop a roadmap for ASHRAE efforts to get ASHRAE Standards 62.1, 62.2, and 241 recognized as US national model codes. A report has been prepared and a presentation to the board will take place at the 2025 winter meeting in Orlando, FL.
- November 2024: **United Arab Emirates adopts ASHRAE Standard 241-2023** for infrastructure projects implemented nationwide. [Their press release](#) states, "These standards represent the most advanced international protocols for controlling airborne infectious agents and improving indoor air quality in enclosed spaces."
- September 11, 2024 GOE: ASHRAE members met with the **Brazilian Department of State and discussed the use of ionizing devices** to improve IAQ, among other topics.
- Dec 2024: Clean Air Policy Roundtable convening by Brown University and Texas A&M in DC. Alice Yates, Bill Bahnfleth, and Seema Bhargar presented.
- Jan-Feb 2025: School IAQ bill in Virginia. HB 2619 passed the House. Its companion, SB 1413 passed the Senate.
- April planned: IAQ Policy "Uncommon Dialogue" at Stanford University. Seema might attend (not invited yet).

ASHRAE Letters, Testimony, and other Technical Assistance Provided to Governments related to IEQ – 2025 (From Government Affairs)

State and Local

- **1-16-2025- Testimony of Corey Metzger to the Washington, D.C. State Board of Education regarding IAQ in Schools.** This gives an introduction to ASHRAE and Standards 62.1 and 241, as well as Guidelines 42 and 44.
- **1-31-2025- Letter on Maryland HB 339, “Residential Rental Apartments – Air Conditioning Requirements.”** This bill references to Standard 55 and Standard 90.1 in its requirements for landlords to provide air conditioning in certain rental apartments. Steve Hammerling, ASHRAE staff, also provided oral testimony based on the letter.
- **2-5-2025- Letter on Washington State regulation revising the School Environmental Health and Safety Rule.** These revisions propose updated standards for K-12 schools in the state and include a section on Indoor Air Quality and on water system safety. The letter recommends incorporating the relevant ASHRAE standards into the updated regulation, including Standards 62.1, 241, and 188, along with Guideline 44.
- **2-5-2025- Letter on Mississippi HB 361, the Smoke-Free Air Act,** which would ban smoking in enclosed public places in the state. The bill specifically references ASHRAE’s Position Document on Environmental Tobacco Smoke (ETS).
- **2-21-2025- Nomination of ASHRAE member to the California State Hospital Building Safety Board,** which advises the Director of Health Care Access and Information (HCAI) on matters related to the healthcare building industry in California, including building code standards related to acute care hospital and skilled nursing facility projects.
- *Pending:* Letter on **Virginia HB 2618, which would create an IAQ management program for schools,** including inspection and maintenance of HVAC and plumbing systems and require operation of ventilation systems consistent with ASHRAE standards, though without referencing a specific standard. The letter will recommend that the bill specifically reference Standards 62.1, 241 and 188.
- *Pending:* Letter re: **New York S. 3107, which would require schools to undergo ventilation verification assessments** consistent with ASHRAE standards.
- *Pending:* Letter re: **New York S. 3342, which would create a state office of IAQ Management and Workforce Development,** and specifically mentions ASHRAE as an organization to partner with on these issues.
- *Pending:* Letter re: **Massachusetts SD 2588, which would require development of a plan for IAQ management in all public buildings;** the bill mentions adherence to the "ASHRAE standard" but not any specific standard.

- *Pending*: Letter re: **Massachusetts SD 2303, which would create a Healthy and Sustainable Schools Office and require energy audits and ventilation assessments for certain schools** that are consistent with Standard 62.1.
- *Pending*: Letter re: **New York A. 980, which would require buildings with daycare facilities** to provide HVAC systems that meet “currently accepted industry **ventilation** standards.”

Federal

- Reps. Tonko-Fitzpatrick [Indoor Air Quality and Healthy Schools Act](#) – working with these members to incorporate a new section on **building codes** in this bipartisan legislation that would protect the public from poor indoor air quality (IAQ). Anticipate that bill will be reintroduced in Q1.
 - Rep. Beyer’s [Airborne Act](#) – working with this office on bill reintroduction – may be included in the larger tax package.
 - EPA and GSA – continuing to work with federal agencies to provide technical assistance and increase awareness of ASHRAE’s standards, guidelines and other resources.
-

Environmental Health
Committee
(EHC)

Reference Manual v2.0
(approved February 10, 2025)

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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. Concurrently, 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 industry. 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.

3. 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

4. EHC Subcommittees

The EHC Chair can create or disband subcommittees of EHC. They also determine the involvement of the 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
- Education
- Coordination and Outreach
- ExCom (Executive Committee)

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

Subcommittee	Charge	Interaction between Subcommittees	Task Description
Policy	Identify major environmental health trends impacting HVAC&R	Ask all EHC to send ideas	Define “environmental health” and update as needed
	Recommend new activities		
	Recommend policy documents that EHC should consider developing (EIB, PD, ResProp)		Brainstorm what should be researched and think about by whom
	Position Document (PD) oversight	Submit ideas and final drafts for EHC approval; coordinate with ASHRAE staff to publish	Follow 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	Develop the idea and the document
	Environmental Health Trends and Research Gaps		Drafts report for EHC approval annually; submits to Tech Council
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”, pull from Policy for new ideas.

			Work with other groups to review their chapters when appropriate (e.g., Climate Change) and ensure lack of conflict and limit repeat 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 website to make it more user-friendly
	Update Reference Manual		Review and revise regularly
	Donald Bahnfleth Environmental Health Award		Review nomination packages from ASHRAE staff; propose finalists for EHC vote; propose revisions for award processes (requires EHC approval)
Outreach and Coordination	Interact with ASHRAE committees	Communicate regularly with Policy 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 Policy and PDs to find leads for those items that we can help support internal and external to ASHRAE
	Interact with outside organizations that impact EH or IEQ		
	IEQ-GA		

ExCom	RTAR review and new RP development with other groups	Communicate regularly with Education on progress of active ASHRAE sponsored RPs	Review RTARs to see if we want to support; take ResProp from Policy to other groups for them to lead
	Interface with SSPC 241		
	Develop report to Tech Council per MOP		
	Submit Long Range Plan for IEQ Conferences to Tech Council	See also Coordination and Outreach	
	Create MBOs that align with Strategic Plan		See Sec. 9 Suggested MBO format
	Donald Bahnfleth Environmental Health Award	Ask entire EHC to think of candidates	Try to find candidates for the Award, Promote the winner
	Assign mentors to new members		
	Create EHC budget		
	Review ROB, MOP, and Ref Manual annually		Initiate review and revisions as needed

5. 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 be removed 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 continue to maintain the EHC page of ASHRAE website to post past meeting minutes, current EHC procedures, and other information determined appropriate by EHC.

6. 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.

6.1. 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 Global Climate Change, and Air Contaminants.
- Education coordinates content with other TCs.

6.2. 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

6.3. Emerging Issue Briefs (EIB)

These are one- or two-page description of issues that are the forefront of concern for the EHC and ASHRAE. EIB raise awareness on emerging issues of importance to the ASHRAE community. Topics considered for EIB should be new to ASHRAE and not already covered by other ASHRAE documents or committee work. EHC members can propose an EIB to EHC or the Policy Subcommittee for EHC approval. After approval, the Policy Subcommittee will form a committee to draft the EIB. Outside experts may be sought out. Final EIB are approved by EHC and do not need approval by the Tech Council Document Review Subcommittee (DRSC). Completed EIB are reported to Tech Council and published on the EHC website <https://www.ashrae.org/communities/committees/standing-committees/environmental-health-committee-ehc>. Archived EIBs are also on the EHC website.

6.4. Position Documents (PD)

These are governed and approved by the DRSC and can be found here <https://www.ashrae.org/about/position-documents>. These are technical descriptions of issues and concerns of ASHRAE that indicate positions that ASHRAE takes with regards to the built environment. The process for initiating and submitting a PD is found in the Tech Council Ref Man <https://www.ashrae.org/File%20Library/Communities/Councils/Technology%20Council/Tech-Council-Reference-Manual-January-2014.pdf>.

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 Growth and Dampness in Buildings Systems
Unvented Combustion Devices and Indoor Air Quality

It is the responsibility of the Policy Subcommittee to review and update these PD as needed (or propose new PD), with final versions published after EHC and DSRC, Tech Council, and ASHRAE Board of Directors approval.

6.5. Technical Committee Reports

EHC should have (or assign) an active member in the following technical committees. The Education Subcommittee will prepare a report of activities quarterly, and report-out relevant highlights 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

7. Donald Bahnfleth Environmental Health Award

Environmental Health Committee (EHC) Education Subcommittee will annually review all eligible nominations received and make a recommendations 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. 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) 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. t Both this cover letter and Criteria for Determining Eligibility tally will be provided 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
<u>B. IAQ/IEQ Conference experience</u>	
10. Chair of an IAQ/IEQ conference	2 points / conference
11. Member of an organizing committee	1 point / conference
12. Presentation at the conference	1 point / conference
<u>C. Environmental Health Committee Experience</u>	
10. Chair of the Environmental Health Committee	3 points / tour ⁴
11. Subcommittee Chair or Vice Chair	2 points / tour ⁴
12. Member	1 point / 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 and 241
- Guidelines 10, 12 and 42
- 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 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 AM EST, {insert date}. EHC recommendation of the winner will be based on the candidate who receives the most votes.

8. Mentoring Program

During the final meeting of the Fiscal Year, the EHC Chair shall appoint an incumbent to be the mentor for an incoming member. A mentor should be appointed for each new member. The mentor will be responsible for the following tasks:

- Before the next EHC meeting, the mentor should contact the new member 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 shall have 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 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.

9. Suggested MBO format

OBJECTIVES

_____ Committee

Chairman: _____

Society Year: 200____ - 200____

Date: _____

Objective	Planned Completion Date	Fiscal Impact	Responsibility	Program Approved	Cost Budgeted	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.

10. 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.

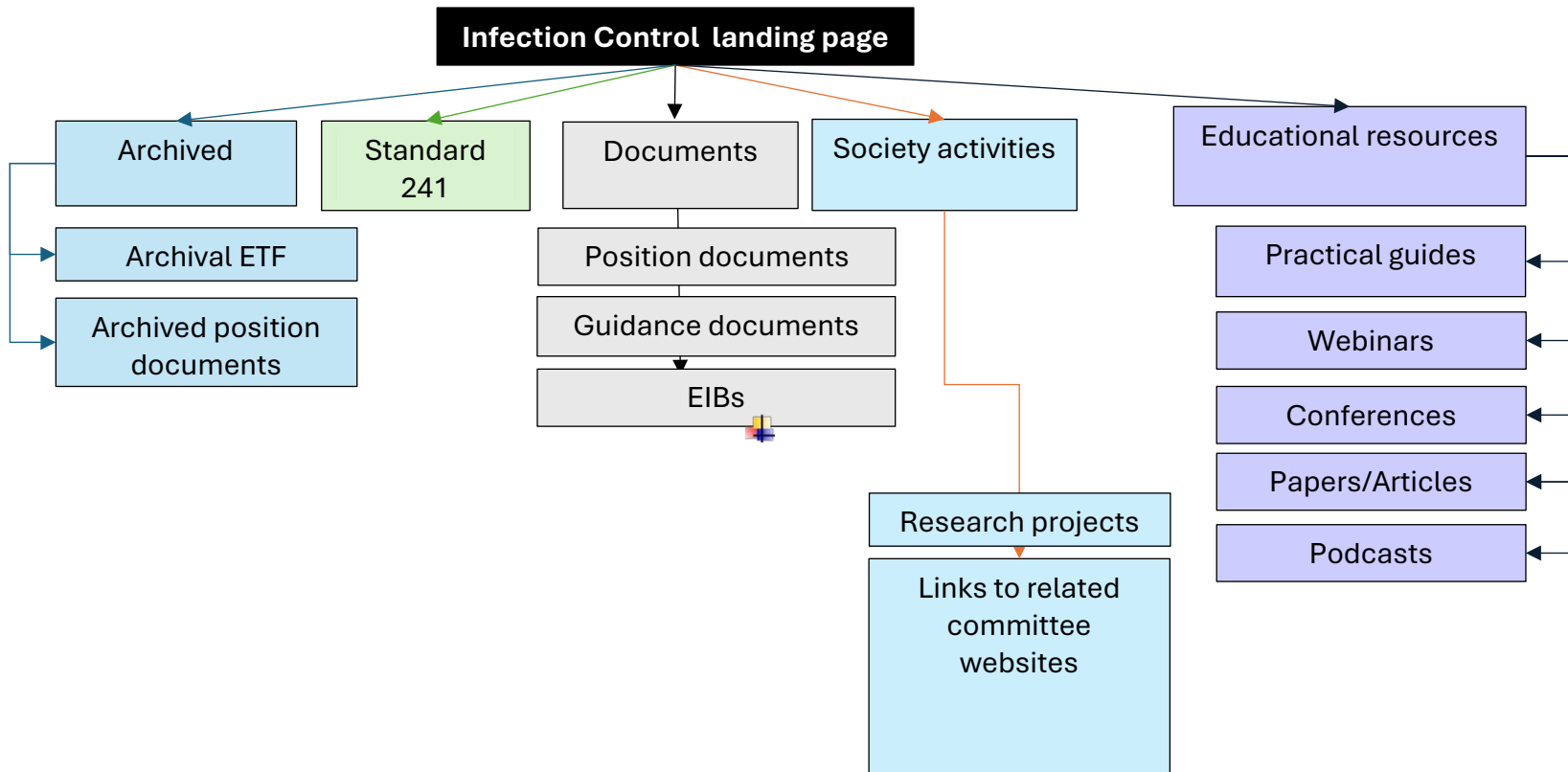
10.3.3.3 To propose rescinding an existing ROB, include in the recommendation the ROB volume in which the rule is located, the rule number or other identification code, and the wording of the rule to be rescinded.

11. Appendix: Long-Range plan for Indoor Environmental Quality Conferences

Under development

12. Log of revisions

Version number	Major revisions
2.0 (approved February 10, 2025)	<ul style="list-style-type: none">• Addition of the following sections<ul style="list-style-type: none">◦ Sec. 2 EHC Scope◦ Sec. 6.5 Technical Committee Reports◦ Appendix: Long-Range plan for Indoor Environmental Quality Conferences◦ 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



Purpose: This scoping document will briefly explain the rationale behind developing a “unified metric for harm and discomfort” in buildings.

1. Introduction and Background

- The ASHRAE Strategic plan calls for the development of an Indoor Environmental Quality (IEQ) standard.
- It is suggested that a standard cannot be developed without an IEQ metric to measure the successful compliance with the standard.
- First do no harm principle, “*primum non nocere*”ⁱ, bio ethicsⁱⁱ and maleficence.
- Definition of health¹ and wellbeing.
- Relevant context within ASHRAE and the Environmental Health Committee (EHC).
- Relatedness to IAQ² and IEQ³; and relationship to each other.
- Overview of how IAQ and IEQ impact health, comfort, and productivity in buildings.

2. Objectives

- Create a framework that allows a combination of actionable metrics that can integrate:
 - “harm”⁴ (health risks and negative health impact)
 - discomfort (subjective experiences)
 - wellbeing (supporting of health, regenerative, sustenance)
- Establish consistency in how IAQ and IEQ parameters are evaluated across buildings.
- Decide if the metric accounts for acute, short-term and long-term health risks⁵.

3. Parameters to Consider

- **“Indoor Air” “IAQ” Factors:**
 - Pollutants (e.g., VOCs, particulate matter, biological contaminants).
 - Ventilation rates and air circulation.
 - Indoor conditions including temperature, humidity, surfaces that emission rates and indoor chemistry
- **Indoor Environmental Factors “IEQ”:**
 - Thermal comfort (temperature, humidity).
 - Lighting (natural and artificial)⁶.
 - Noise and acoustic comfort.
 - Odor and perceived air freshness.

¹ ASHRAE definition of Health? WHO definition perceived as unworkable?

² Brief definition of IAQ (Indoor Air Quality).

³ Brief definition of IEQ (Indoor Environmental Quality, including air, lighting, thermal, and acoustic comfort).

⁴ Define “harm” in this instance

⁵ QALYs and DALYs

⁶ Debate on ASHRAE commenting on Light and Noise?

- **Health and Comfort Indicators; “Clinical”⁷**

- Direct health risks (e.g., respiratory issues, chemical sensitivities).
- Direct clinical impact⁸
- Discomfort leading to reduced well-being or productivity (e.g., headaches, fatigue).
- Biomarkers and clinical indices⁹

4. **Associated Metrics for the Potential Parameters¹⁰**

a. Airborne Pollutant Load Index

- A metric to quantify the combined concentration of “harmful” airborne pollutants (e.g., CO₂¹¹, VOCs, PM2.5, ozone) that directly impact respiratory health and overall occupant well-being.

b. ‘Thermal’ Discomfort Score

- A composite measure of thermal conditions (temperature, humidity, air movement) to assess occupant discomfort, which can lead to reduced productivity and long-term health effects.

c. Acoustic Discomfort Threshold

- A metric that integrates background noise levels and sound disturbances to determine when acoustic discomfort in indoor environments begins to negatively affect cognitive function and mental well-being.

d. Lighting Quality Index

- A measurement to assess both natural and artificial lighting in relation to visual comfort, circadian rhythms, and occupant satisfaction, accounting for glare, illumination levels, and light color.

e. Occupant Symptom Reporting System

- A subjective but standardized index where occupants report health symptoms (e.g., headaches, eye irritation, fatigue) that can be linked to poor IAQ/IEQ conditions, providing insight into perceived harm and discomfort.
- These metrics would benefit from further research to refine their definitions, thresholds, and potential for integration into a unified system.
- This could be very simple but large data sets like in an airport “how did we do today or a washroom”¹².

4. **Methodology and Approach**

- **Research and Data Collection, including sensors:**

⁷ (see my article on bio markers)

⁸ Define risk, risk factor, health impact and social determinant of health

⁹ I have attached my AHRAE Journal paper for reference.

¹⁰ Combined/singular/aggregated/weighted?

¹¹ Debate point!

¹² <https://sensmax.eu/solutions/visitor-survey-system-for-toilets/>

- Review existing literature and gap analysis on health risks and comfort levels related to IAQ and IEQ.
- Identify gaps in current standards and guidelines ASHRAE and Non-ASHRAE
- **Development of Unified Metric:**
 - Discuss potential frameworks for combining harm (quantitative health risks) and discomfort (qualitative, subjective experiences).
 - Consider different weighting models or indices that balance immediate, short term and long-term impacts.
- **SEHC to drive stakeholder Engagement:**
 - Involve health professionals, including industrial hygienists, building scientists, and end users (occupants) in defining the metric.
 - Develop feedback mechanisms to adjust the metric based on real-world applications.

5. Expected Outcomes and Deliverables, including an Action Plan

- **Unified Metric Proposal:** A conceptual framework for the metric to present to ASHRAE Task Forces, sub committees, committees and working groups
- **Standards and Guidelines:** A draft of recommendations for incorporating this metric into existing ASHRAE standards (e.g., IAQ/IEQ standards).
- **(Potential Pilot Studies/Validation:** A plan for piloting and validating the metric in different building environments.

6. Constraints and Assumptions

- **Data Availability:** Assumptions about the availability of data on IAQ and IEQ in typical buildings. Privacy concerns. Heavier burden with perceived clinical data, even if anonymised.
- **Measurement Challenges:** Potential difficulties in measuring subjective discomfort vs. objective health harm.
- **Time and Resources:** Limitations regarding the scope of research and development time.

7. Timeline

- Process steps
 - Email first draft to Don; 27th Sept 2024
 - Task Force review ... Nov 2024
 - Full EHC review... Dec 2024?
 - Full ASHRAE committee ... Winter meeting, Feb 2025
- Potential Phases of Development:
 - Phase 1: Initial Research and Literature Review.
 - Phase 2: Metric Development.
 - Phase 3: Validation and Feedback.

- **Key Milestones:** Use this scoping document to define specific timelines for deliverables, such as completion of the initial draft, WG review, and final EHC approval.

8. Conclusions and Next Steps

- Summarize and re-emphasize the importance of developing a unified metric of harm and discomfort in buildings.
- Reinforce the expected benefits for industry professionals, building occupants, and public health.
- Why should ASHRAE acting alone do this, or, instead of other professional organization adjacent to ASHRAE?
- Request potential partners in the occupational and environmental health fields, such as American Industrial Hygiene Association (AIHA), to assist in the development of the unified metric of harm and discomfort in buildings.

Footnotes

ⁱ *Primum non nocere*: First Do No Harm!

[https://en.wikipedia.org/wiki/Primum_non_nocere#:~:text=Primum%20non%20nocere%20\(Classical%20Latin,first%2C%20do%20no%20harm%22.](https://en.wikipedia.org/wiki/Primum_non_nocere#:~:text=Primum%20non%20nocere%20(Classical%20Latin,first%2C%20do%20no%20harm%22.)

ⁱⁱ <https://en.wikipedia.org/wiki/Bioethics>

Bioethics is both a field of study and professional practice, interested in ethical issues related to health (primarily focused on the human, but also increasingly includes animal ethics), including those emerging from advances in biology, medicine, and technologies. It proposes the discussion about moral discernment in society (what decisions are "good" or "bad" and why) and it is often related to medical policy and practice, but also to broader questions as environment, well-being and public health.

