MINUTES

GOVERNMENT AFFAIRS COMMITTEE
THURSDAY, MAY 5, 2022
10:00 AM – 12:00 PM EDT
~Virtual Meeting~

Approved June 24, 2022.

ATTENDANCE

Members Present	Members Absent	Guests	Staff
Chad Smith, Chair	RJ Hartman	Dennis Knight	Alice Yates
Darryl Boyce, Vice Chair	Louis Van Belle		Matt Young
George "Billy" Austin	Damon McClure		Isla Kennedy
Cindy Callaway	Daryl Collerman		Patricia Ryan
Bryan Holcomb	Sonya Pouncy		
Michael Wolf	Eduardo Conghos		
Sheila Hayter	Ginger Scoggins		
Meghan McNulty			
Nanette Lockwood			
Artorius “Arthur” M. Reyes			
Mike Genin			
Tim Ashby			
Beth Tomlinson			
Jessica Gardner			
Andrea Phillips			
Colin Laisure-Pool			
Tim Theriault			
Yew "Albert" Sin			
George Pantelidis			
Gian Chand Modgil			
Ken Fulk			

CALL TO ORDER, WELCOME AND ROLL CALL

Chad Smith called the meeting to order at 10:06 a.m. EDT and welcomed the attendees. A quorum was present.

GUEST INTRODUCTIONS – Smith welcomed the following guests:

- Dennis Knight, ASHRAE International Standards Interaction Task Force

ASHRAE CODE OF ETHICS

Smith read the summary of the Code of Ethics commitment.

> *In this and all other 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 we shall avoid all real or perceived conflicts of interests.

(Code of Ethics: https://www.ashrae.org/about/governance/code-of-ethics)

(Core Values: https://www.ashrae.org/about/ashrae-s-core-values)

REVIEW OF AGENDA

Smith reviewed the agenda; no changes were requested.

APPROVAL OF MINUTES FROM JANUARY 29, 2022 MEETING

Smith asked to review the minutes from the last GAC meeting on January 29, 2022. No comments or revisions were identified.

MOTION: To approve the minutes of January 29, 2022 as presented.

Motion made by Tim Ashby and seconded by Meghan McNulty.

MOTION PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

UPDATE ON ACTION ITEMS

Yates reported on the status of the Action Items (see Attachment), and noted there was one open item (AI #1). Smith clarified that materials had been received by him, and asked Yates to mark AI #1 as complete.

REPORTS

ExO Report

Ken Fulk provided the following updates:

(1) The Board approved simplified Rules of Order; these should be used after June 30. Fulk encouraged everyone to review the revised rules, especially if you are a chair. (See Attachment)

(2) Government Outreach – Fulk reminded GAC members that meetings with government officials can take place when they are out of session. While we tend to focus on legislators when they are in session, a lot occurs when they are out of session, and this is a good time to build relationships.

(3) Decarbonization – ASHRAE has committed a lot of resources to decarbonization, and a lot of documents are being developed by ASHRAE and others around the world; he encouraged GAC members to read as much as you can on decarbonization.

Communications Coordinator
Sonya Pouncy was not on the call, but she completed a survey on how to improve the website.

Technology Council Representative
Billy Austin reported on the development of Building Decarbonization Position Document, and stated that it should be sent to Tech Council this spring and is expected to go to the Board at the Annual Meeting. Austin also noted that Tech Council is developing training on the PD and PPIB processes. A flow chart was developed and was sent to Tech Council.

Members Council Representative
Bryan Holcomb did not have any updates and stated that he will have more information at the annual meeting.

Pub-Ed Council Representative

Cindy Callaway reported that the AEDG for Multifamily Buildings was released and is available for free download. Callaway also reported that several standards have been revised, and are being revised and will soon be published.

> **Action Item:** Callaway will email the list of updates to Smith and Yates. COMPLETED (Please see Attachment for this list.)

REPORTS FROM COMMITTEE LIAISONS

International Standards Task Force
Dennis Knight provided a presentation that reviewed what the ISTF is doing and plans to do. (See Attachment for presentation.) Knight noted that they are having a good deal of interaction with government entities, and that's why he wants the GAC to be aware of its activities. He also noted that they are working with Gulf States and may enter into an MOU with them which is focused on codes and standards.

Building EQ Committee
Daryl Collerman was not in attendance but reported via email that he will be attending their meeting at the Annual Conference.

Environmental Health Committee
Meghan McNulty provided an update from this committee (See Attachment). She also noted that the EHC tends to meet after the GAC, and so she won't be able to provide updates at the Annual Conference since the EHC will not yet have met.

Refrigeration Technology Committee for Comfort, Process and Cold-Chain
Nanette Lockwood will be attending their meeting at the Annual Conference.

SUBCOMMITTEE REPORTS AND MBO STATUS REPORTS

Chairs of each of the GAC Subcommittees reported on the work of their subcommittees and provided updates on their MBOs (see Attachment for a summary of the updates).

Executive Subcommittee – Smith reported that a report on MBO #1 will be provided at the annual meeting.

Policy and Programs Subcommittee - Tim Ashby reported that this subcommittee has updated and approved several PPIBs:

1) Building Energy Benchmarking, Assessments, and Performance Targets
2) Climate Change and the Built Environment
3) Consensus Standards: Expert Solutions to Meet Global Needs
4) Indoor Air Quality (see also Amendment from Meghan McNulty)
5) Refrigerants and their Responsible Use
6) Resiliency in the Built Environment
7) STEM Education & Workforce – **Modified** to broaden the language beyond engineers.
8) Monitoring Indoor Carbon Dioxide – **New**; based on the new Position Document on Indoor Carbon Dioxide (Note that Andy Persily, Chair of the PD Committee, drafted the document and reviewed the final version)
9) Environmental Tobacco Smoke and Electronic Nicotine Delivery Systems - **Modified** to include ENDS using language from the Environmental Health Committee's Emerging Issue Brief

MOTION: That the GAC approve en-bloc PPIBs numbers 1, 2, 3, 5, and 6; these PPIBs had no or minor edits.

Motion made by Tim Ashby, Chair of the PPSC.

MOTION PASSED: APPROVED BY VOICE VOTE (CNV).[1] NO OBJECTIONS.

MOTION: That the GAC approve PPIB #4, Indoor Air Quality.

Motion made by Tim Ashby, Chair of the PPSC.

MOTION: That PPIB #4 be amended with the language contained in the Attachment.

Motion made by Meghan McNulty and seconded by Nanette Lockwood.

AMENDMENT PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

AMENDED MOTION PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

[1] RJ Hartman, Damon McClure, and Collin Laisure-Pool supported approval of these PPIBs by proxy.

MOTION: That the GAC approve PPIB #7, STEM Education and Workforce.

Motion made by Tim Ashby, Chair of the PPSC.

MOTION PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

MOTION: That the GAC approve PPIB #8, Monitoring Indoor Carbon Dioxide.

Motion made by Tim Ashby, Chair of the PPSC.

MOTION PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

MOTION: That the GAC approve PPIB #9, Environmental Tobacco Smoke and Electronic Nicotine Delivery Systems.

Motion made by Tim Ashby, Chair of the PPSC.

> MOTION TO AMEND: That the PPIB be amended with the language shown in the Attachment.
>
> Motion made by Meghan McNulty, seconded by Nanette Lockwood.
>
> MOTION PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

AMENDED MOTION PASSED: APPROVED BY VOICE VOTE (CNV). NO OBJECTIONS.

Member Mobilization Subcommittee

Colin Laisure-Pool reported on the status of GOEs (see Attachment). He also reminded GAC members that GAC office hours will be held on May 18.

Global Affairs Subcommittee

Gian Modgil reported that many international meetings have been held with government officials.

Rules Subcommittee

Darryl Boyce reminded GAC members that the final meeting of this subcommittee is scheduled for Wednesday June 22; if there are any documents that other subcommittees want to revise, please let Darryl know ASAP, and he will add those to the subcommittee's agenda for the 22nd.

Nominating Subcommittee

Sheila Hayter reported that the nominating subcommittee has completed its work for the year.

REPORTS FROM REGIONAL VICE CHAIRS

The GAC RVCs reported on highlights from their regions.

- Region I – Artorius Reyes reported for Region I.
- Region II – Mike Genin reported for Region II.
- Region III – RJ Hartman was not on the call, but Yates shared information that he had emailed to her.
- Region IV – Tim Ashby reported for Region IV.
- Region V – Louis Van Belle was not on the call.
- Region VI – Beth Tomlinson reported for Region VI.
- Region VII – Jessica Gardner reported for Region VII.
- Region VIII – Damon McClure was not on the call, but provided a written report (see Attachment).
- Region IX – Andrea Phillips reported for Region IX.
- Region XI – Darryl Collerman was not on the call but provided a written report for (see Attachment).
- Region XII – Tim Theriault reported for Region XII.
- Region XIII – Albert Sin reported for Region XIII.
- Region XIV – George Pantelidis reported for Region XIV.
- Region at Large – Gian Modgil reported for the Region at Large.

OTHER BUSINESS
There was no other business that came before the committee.

REVIEW OF NEW ACTION ITEMS FROM TODAY'S MEETING –
Yates identified the new action items from this meeting (see Attachment).

NEXT COMMITTEE MEETING

Smith reported that the next committee meeting will be at the annual meeting:

Friday, June 24

1:00-5:00 EDT

Toronto, Ontario, CANADA

Smith also noted that he is working on a GAC dinner for that evening; details will be sent out later. Smith also encouraged the outgoing RVCs to strongly encourage their incoming GAC replacement to attend the GAC meeting in Toronto.

ADJOURNMENT

Smith adjourned the meeting at 11:55 EDT

Respectfully submitted,
Alice M. Yates, Staff Liaison

ACTION ITEMS

GOVERNMENT AFFAIRS COMMITTEE

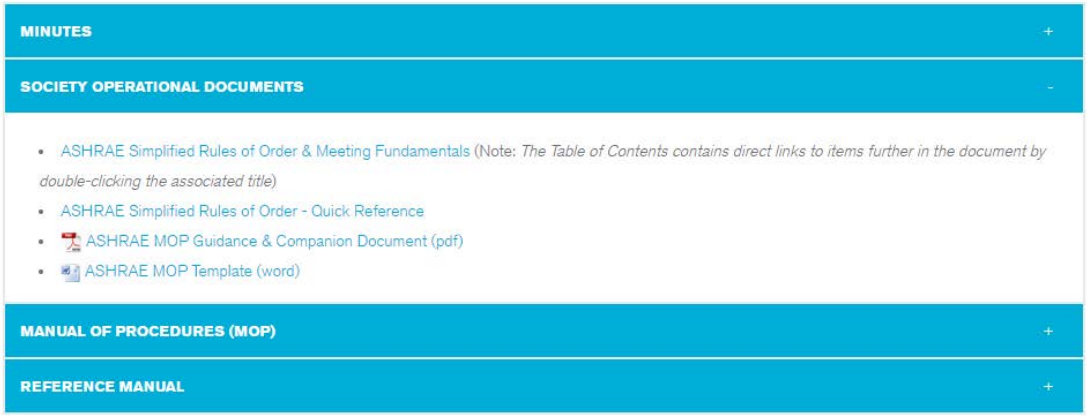
Last Updated: April 28, 2022

#	Action	Assigned To	Due Date	Status	C/O
1	Provide a list of needs (resources, tools, educational products, etc.) that policy makers and elected officials are looking for from a technical perspective; please provide these lists to Chad and/or GovAffairs@ashrae.org In the list you send, please provide the name of the government group that was looking for this information, and/or the context for the request	All GAC Members	Oct. 22	11/22: Nothing yet received	O
2	Send recommendations to Hayter for SY22-23 GAC leadership.	All GAC Members	Nov. 30		C
Added at 12-02-2021 meeting					
	None				
Added at 01-29-2022 meeting (ASHRAE Winter Meeting)					
3	Add a slide to the CRC PPT training that speaks to the topic of chapters within a state working together on advocacy).	Staff	Before Spring CRCs	4/26 Emily Porcari added a slide to the CRC training, posted online.	C
4					

From: Jolly, Chandrias
Sent: Tuesday, February 8, 2022 12:02 PM
To: Yates, Alice <AYates@ashrae.org>
Subject: RE: IMPORTANT: New Rules of Order and New MOP Template

HI Alice,

The 2 Page Quick Reference can be found at the link - https://www.ashrae.org/communities/committees/society-rules-committee under Society Operational Documents :



ASHRAE Simplified Rules of Order – Quick Reference

Guiding Principles:

- Quorum is required before business can be conducted.
- Everyone has the right to participate in discussion if they wish before anyone may speak a second time.
- Everyone has the right to know what is going on at all times. Only urgent matters may interrupt a speaker.
- Only one thing (motion) can be discussed at a time.

A **motion** is the topic under discussion (e.g., "I move that we add a coffee break to this meeting"). After being recognized by the president of the board, any member can introduce a motion when no other motion is on the table. A motion requires a second to be considered. If there is no second, the matter is not considered. Each motion must be disposed of (passed, defeated, tabled, referred to committee, or postponed indefinitely).

How to do things:

You want to bring up a new idea before the group.

After recognition by the president of the board, present your motion. A second is required for the motion to go to the floor for discussion, or consideration.

You want to change some of the wording in a motion under discussion.

After recognition by the president of the board, move to amend by

- adding words,
- striking words or
- striking and inserting words.

You like the idea of a motion being discussed, but you need to reword it beyond simple word changes.

Move to substitute your motion for the original motion. If it is seconded, discussion will continue on both motions and eventually the body will vote on which motion they prefer.

You want more study and/or investigation given to the idea being discussed.

Move to refer to a committee. Try to be specific as to the charge to the committee.

You want more time personally to study the proposal being discussed.

Move to postpone to a definite time or date.

You are tired of the current discussion.

Move to limit debate to a set period of time or to a set number of speakers. Requires a 2/3^{rds} vote.

You have heard enough discussion.

Move to close the debate. Also referred to as calling the question. This cuts off discussion and brings the assembly to a vote on the pending question only. Requires a 2/3^{rds} vote.

You want to postpone a motion until some later time.

Move to table the motion. The motion may be taken from the table after 1 item of business has been conducted. <u>If the motion is not taken from the table by the end of the next meeting, it is dead.</u> To kill a motion at the time it is tabled requires a 2/3^{rds} vote. A majority is required to table a motion without killing it.

You believe the discussion has drifted away from the agenda and want to bring it back.

"Call for orders of the day."

You want to take a short break.

Move to recess for a set period of time.

You want to end the meeting.

Move to adjourn.

ASHRAE Simplified Rules of Order – Quick Reference

You are unsure the president of the board announced the results of a vote correctly.
Without being recognized, call for a "division of the house." A roll call vote will then be taken.

You are confused about a procedure being used and want clarification.
Without recognition, call for "Point of Information" or "Point of Parliamentary Inquiry." The president of the board will ask you to state your question and will attempt to clarify the situation.

You have changed your mind about something that was voted on earlier in the meeting for which you were on the winning side.
Move to reconsider. If the majority agrees, the motion comes back on the floor as though the vote had not occurred.

You want to change an action voted on at an earlier meeting.
Move to rescind. If previous written notice is given, a simple majority is required. If no notice is given, a 2/3^{rds} vote is required.

Executive Session.
Discussion of an issue of sensitive, proprietary or personal in nature.

Unanimous Consent:
If a matter is considered relatively minor or opposition is not expected, a call for unanimous consent may be requested. If the request is made by others, the president of the board will repeat the request and then pause for objections. If none are heard, the motion passes.

- **You may INTERRUPT a speaker for these reasons only**:
  - to get information about business –point of information to get information about rules– parliamentary inquiry
  - if you can't hear, safety reasons, comfort, etc. –question of privilege
  - if you see a breach of the rules –point of order
  - if you disagree with the president of the board's ruling –appeal
  - if you disagree with a call for Unanimous Consent –object

Order of Precedence of Motions

The rules are in descending order of importance. A rule higher in the table takes precedence over one lower in the table. Implication is that everything takes precedence over the main motion on the floor.

Rule	Must Be Seconded	Open for Discussion	Can be Amended	Vote Count Required to Pass	May Be Reconsidered or Rescinded
Adjourn (End meeting)	X			Majority	
Recess	X		X	Majority	
Table	X			Majority	
Close Discussion	X			2/3 rds	X
Limit Debate	X		X	2/3 rds	X
Postpone to a later time (##)	X	X	X	Majority	X
Refer to Committee	X	X (+)	X	Majority	X
Kill a Motion	X			Majority	X
Amend Motion (* #)	X	X		Majority	X
Postpone Indefinitely (**)	X	X	X	Majority	X
Main Motion	X	X	X	Majority	X

(#, ##, *, **,+) See full Rules of Order for explanation of symbols

From:	Cindy Callaway
To:	Yates, Alice
Cc:	Chad Smith
Subject:	ashrae gac - today"s pub ed report
Date:	Thursday, May 5, 2022 10:58:35 AM
Attachments:	image001.png

Alice,
This is follow up to today's GAC meeting regarding the PubEd Council report items.

Advanced Energy Design Guide for Multifamily Buildings – Achieving Zero Energy was recently published and is available for free download (ashrae free aedg).

Continuous Maintenance Documents with addenda currently out for public review (public review draft stds). Note that while PubEd Council does not develop the technical content, we anticipate that these items will be published later this year.
Standard 15 – Safety Standard for Refrigeration Systems (closing 9 May 2022)
Standard 62.2 – Ventilation and Acceptable Indoor Air Quality in Residential Buildings (closing 8 May 2022)
Standard 62.1 – Ventilation and Acceptable Indoor Air Quality (closing 8 & 23 May 2022)
Standard 90.1 – Energy Standard for Buildings Except Low-Rise Residential Buildings (closing 15 May 2022)
Standard 189.1 – Design of High-Performance Green Buildings Except Low-Rise Residential Buildings (closing 15 & 29 May 2022)
Standard 34 – Designation and Safety Classification of Refrigerants (closing 29 May 2022)
Standard 189.3 – Design, Construction and Operation of Sustainable High-Performance Health Care Facilities (closing 22 May 2022)

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P2S ENG

ASHRAE's Role in the Globalization of Standards

The International Standards Interaction Task Force

M. Dennis Knight, P.E., FASHRAE

GAC Meeting

Thursday May 5, 2022

Recognizing a Need for Further Globalization Efforts

ASHRAE Society Strategic Plan

Goal 1 "Position ASHRAE as an essential knowledgeable resource for a sustainable high-performance built environment

- **Goal1b** is intended to "expand capabilities **globally** (emphasis added) to create, aggregate and disseminate essential information and knowledge focusing on emerging market trends and transformative approaches."

The Board of Directors has recognized the need to increase ASHRAE's global relevance and authorized the formation of the International Standards Interaction (ISI) Task Force

ISI Task Force Members

Steven Bushby, Co-Chair

Hugh Crowther, Society Transformation Ad-Hoc

Kevin Kwong (ISO TC 142)

Kelly Seeger (ISO/TC 205)

Craig Messmer (2021-22 Technical Activities Committee Vice Chair)

Oswaldo de Siqueira Bueno (Brazil/Region XII)

Hesham Safwat (RAL)

Drake Erbe, Co-Chair

Dennis Knight (ISO TC 59/SC 13)

Danny Halel (ISO TC 86)

Susanna Hanson (2021-22 Standards Committee Vice Chair)

Henry Seck Kan Yeo (Singapore/Region XIII)

George Pantelidis (Europe/Region XIV and GAC Liaison)

Farhan Mehboob (RAL)

International Standards Interaction (ISI) Task Force Scope

1. Harness ASHRAE technical resources to influence international standards impacting built environment.

2. Informing leadership of international activities
   - Provide recommendation on activities
   - Provide recommendations on policies

International Standards Interaction (ISI) Task Force Scope (Continued)

3. Serving as a resource to maximize international impacts of ASHRAE standards and technical work.

4. Implementing the international aspects of the Society Strategic plan - Coordinating interactions internally and externally.

5. Coordinating with the Government Affairs Committee - Provide guidance for policy makers on relevance of ASHRAE standards and international standards.

What is ASHRAE doing today?

ASHRAE has:

- Staff serving as Administrator for 5 TAGs and Secretariat for 2 ISO TCs.
- Procedures that enable adoption of ASHRAE standards by ISO or IEC.
- Procedures to adopt international standards as ANSI/ASHRAE standards.
- Members outside the U.S. that can participate on project committees.
- Procedures for project committees to establish liaisons with international organizations.
- Provided technical assistance to countries that wish to adapt ASHRAE standards to their local needs.

ASHRAE's Successes

Our successes have one common key characteristic- there were one or more individuals who had a passion to make it happen.

Four Task Groups Formed to Address Focus Areas

Task Group One: Interacting and Outreach with Chapters Globally

Task Group Two: Outreach to Technical Committees

Task Group Three: Outreach to Project Committees

Task Group Four: Tracking of Emerging Standards That Affect ASHRAE

ASHRAE Strengths

- A diverse membership with global reach
- An excellent reputation
- High-quality, time tested procedures for developing and maintaining standards
- Dedicated, hard working members with a long history of volunteer service on project committees

ISI Task Force - Measures of Success

1. The use of ASHRAE standards goes up globally.

2. ASHRAE Standards Tech delivered in a way that it can be used locally in a local document.

3. Outreach to chapters increased.

4. Outreach to PCs and TCs increased.

5. Processes developed that could be the starting point for other groups within ASHRAE to make their services, products, etc. more global.

We Want You Involved!

QUESTIONS?

Report to GAC from Environmental Health Committee

Winter Conference (Feb 2022) highlights

Presentation on gaps in building code that result in little to no filtration requirements in senior living / long term care facilities. Presentation on uptake of Epidemic Task Force recommendations in existing buildings. EHC considering recommending changes to I-Codes in 2025, specifically for filtration requirements.

Emerging Issue Briefs

Posted here: https://www.ashrae.org/communities/committees/standing-committees/environmental-health-committee-ehc

- Approved 4/28/22, to be posted to EHC webpage shortly: *Increased Awareness of Health Impacts of Indoor PM2.5 and Need for Particulate Matter Control in Occupied Spaces*
    - Increasing awareness of extent of negative health impacts of particle pollution, particularly fine particle pollution (PM2.5); infectious respiratory aerosols also in this size range. However, ASHRAE Standards for IAQ only address PM2.5 minimally – high outdoor pollution levels, healthcare.
    - Given leadership of ETF with MERV-13 recommendation, many orgs moving forward with MERV-13 requirements, but this may not fully address the issue of indoor PM2.5.
    - "A comprehensive, consistent, and flexible approach is needed, and ASHRAE is best positioned to create the framework for reducing indoor environmental exposures to PM2.5."
    - Calls for ASHRAE consensus standards to require control of indoor particle concentrations for 24-hr and annual levels; require commissioning of filtration and air cleaning systems.
    - Calls for ASHRAE to propose changes to model building codes to require minimum filtration capacities; incorporate cost-benefit analysis of reducing PM2.5 exposure; establish global outdoor air quality design data; create recommendations for existing building retrofits to meet new particle concentration guidance; provide education about the benefits of reducing PM2.5 concentrations with HVAC equipment to our allies in the built environment and the public.
- In progress:
    - ROS (Reactive oxygen species), an IAQ issue
    - Dynamic Thermal Environment

Position Documents related to EHC

Posted here: https://www.ashrae.org/about/position-documents

- Recently published
    - November 2021: Limiting Indoor Mold and Dampness in Buildings
    - March 2022: Indoor Carbon Dioxide (GAC already incorporating into PPIB)
- In progress
    - Infectious Aerosols update (last updated April 2020, expires next spring)
    - Filtration and Air Cleaning update (last updated 2015, reaffirmed since)

- Under consideration
    - Health & Wellness in the Built Environment

Research

- Reviewing Work Statement 1928, *Improving biological efficacy test methods to measure in-room air cleaner performance against airborne pathogens.*
- Summary of ongoing efforts to establish test standards for all types of air cleaning technologies:

Title	Surface or Air	Target Pollutant	Test setup	Single pass versus multiple pass	Technology	Status
145.2	Air	Gases	Duct	Single pass	Sorbent- Being updated to apply to EACs.	Established Standard
AHAM AC-5	Air	bioaerosols	Chamber	draw down	electric room air cleaners	Published
185.3	Air	Microorganisms	Chamber	draw down	Commercial In-room devices	Standard being written
"145.3" TPS	Air	Gases + byproducts	Chamber+ Duct	recirculation	All air cleaners- in duct and in room	TPS written
RAST TPS	Air	particles and bioaerosols/ microorganisms	Chamber+ Duct	recirculation	All air cleaners- in duct and in room	TPS being written
Proposed Research Project						
WS-1928	Air	bioaerosols/ microorganisms	Chamber+ Duct	recirculation	All air cleaners- in room only	New votes in progress, (cleared TC2.9 ?)

Next EHC meeting: Annual Conference in June 2022.

- Meghan McNulty, liaison to EHC from GAC

GAC MBOs: Status Update
SY2021- 2022

Updated: 04-27-2022

MBO	Subcommittee Assigned	Metric	Status
1. Develop a long-term strategic plan for the GAC that will maximize the impact of member engagement.	Executive Subcommittee	Plan is developed by June 30, 2022.	A preliminary plan will be brought to the GAC in Spring 2022.
2. Increase the participation of ASHRAE members in Government Outreach Events and other advocacy opportunities by hosting promotional GAC meetings, webinars, and other events to non-GAC ASHRAE members to increase awareness about the GAC.	Member Mobilization	Hold a "intro to GAC" session at the 2022 Winter Conference that targets ASHRAE members who are not on the GAC. Host 2 "Office Hour" events. Create a DL presentation on the benefits of Government outreach for ASHRAE members.	"Office Hours" education session was held in March. Two additional sessions are planned: one on May 18, and another session for international attendees is being planned.
3. Increase effectiveness of volunteer members through formalizing the GAC member mentorship program and the multi-module training system.	Member Mobilization	Mentorship program and training program are included in Resource Manual.	Staff has provided examples of mentoring documents for Subcommittee review. Subcommittee members will provide edits and additions to the Chair prior to the next Subcommittee meeting. Any proposed updates to the Resource Manual will then be shared with the Rules Subcommittee for review. This item will be further discussed at the Annual meeting on June 3.
4. Build the foundation of a consistent global government engagement program by planning and identifying country- or region-specific events attended by government officials for the purpose of outreach and advocacy.	Global Affairs	Each global RVC identifies at least two events per region that are held annually. Each global chapter chair holds a minimum of one government outreach event. Each global chapter chair identifies the schedule for revision of Energy	Subcommittee members are reaching out to GAC Chapter Chairs to ask what information or tools are needed by these chapters. A list of events have been completed for Region XI. Subcommittee members filled out a form with GOE ideas for SY22-23 that will be shared with

MBO	Subcommittee Assigned	Metric	Status
		Codes/Building Codes of the country/state and lists out the possibility of ASHRAE standards that can be referred in the relevant sections. Each global affairs chapter chair develops list of the officer/s associated with the revision of codes and devise the means to get involved with the committee responsible for revision of codes. The chair identifies the pool of expert speakers on ASHRAE standards and arrange meetings of these experts with the committee responsible for revision of codes so as to apprise them of the wealth of knowledge available in ASHRAE resources.	the incoming subcommittee members.
5. Identify ASHRAE resources and develop advocacy materials that can help state, provincial, federal, and global governmental entities reach their 2030/2050 goals	Policy & Programs	Create at least one piece of advocacy collateral material to support outreach efforts.	The 2030/2050 goals spreadsheet developed by staff has been posted to Basecamp and could be helpful for outreach efforts. An *internal* Decarbonization 101 factsheet was developed to be used for outreach events A basic outreach presentation on ASHRAE resources was developed to help Chapter Chairs conduct events. The presentation will be improved after PD is approved.
6. Work with International Standards Task Force to increase ASHRAE advocacy efforts, including through the tracking and adoption of	Global Affairs	Long-term coordination structure defined. Each global affairs chapter chair identifies societies/associations working towards sustainability, climate	GAC Member Pantelidis, the liaison to this group, is attending their meetings and assessing how the GAC should best coordinate with this task force.

MBO	Subcommittee Assigned	Metric	Status
ASHRAE standards around the world.		change, green/efficient/smart buildings. Each global affairs chapter chair identifies sustainability/climate change/energy efficiency/decarbonization programs/schemes by all UN/International agencies working in the region. Each global affairs chapter chair holds at least one outreach event with every organization.	Dennis Knight provided a summary of activity to the GAC at the Winter Meeting, and will be providing a more detailed presentation at the GAC Spring meeting, which will help to clarify how the GAC could interface with this Task Force. The subcommittee is exploring other resources for tracking, including by other ASHRAE departments; others are not tracking, so this activity seems to be a good one for working with the ISTF.
7. Assess how EHC and Residential Committee Emerging Issue Briefs can be used to inform ASHRAE advocacy	Policy & Programs	Review process for EHC Emerging Issue Briefs developed and defined.	The subcommittee is recommending an annual review of emerging issues briefs to determine the benefits of a complementary policy brief.
8. Establish a GAC Advisory Board made up of senior staff from various government bodies; this group would advise ASHRAE on what technical resources they need.	Policy & Programs	A group is formed that provides input to ASHRAE on resources needs for governmental purposes.	A couple of initial advisory groups were formed through outreach conducted by a WG of the TFBD. The subcommittee is exploring how the advisory boards can be expanded, including through emphasizing soliciting feedback at Government Outreach Events. Tim Ashby is organizing a meeting with governmental representatives who have worked with the TFBD to determine interest in a GAC Advisory Board.

MBO	Subcommittee Assigned	Metric	Status
9. Improve the effectiveness of the Government Affairs Website	Communications Coordinator, in cooperation with PPSC and MMSC	GAC evaluation indicates improvement.	Sonya Pouncy has been working with Emily Porcari to identify areas for updates. Pouncy also sent out a survey in December, to be completed by RVCs and chapter chairs, that is due in early February. Pouncy is reviewing the results of the survey with PPSC and MMSC to identify recommendations.

PPIBs

Updates, Revisions, and New Documents

For VOTES at Spring 2022 GAC Meeting

Shaping Tomorrow's Built Environment Today

BUILDING ENERGY BENCHMARKING, ASSESSMENTS, AND PERFORMANCE TARGETS

THE ISSUE

Heating, ventilation, air conditioning, and refrigerating (HVAC&R) account for about 61% of commercial building site energy use. [1] While new buildings have realized improved energy performance, existing buildings represent the greatest opportunity for energy use performance improvement within the sector. Improving the energy performance of existing buildings requires the availability of a robust database of building energy data. Without understanding how a building is performing, it is difficult to effectively improve the building's energy footprint.

To address this concern, building energy benchmarking has become a critical tool for quantifying and evaluating building operational energy use patterns needed to develop the most effective ways to reduce energy use in a city or state's building stock. In addition, better understanding of true energy performance is needed; a building may be designed as energy efficient, but its operations may prove otherwise.

Over 39 US cities have building energy benchmarking programs.[2] Some jurisdictions require actions beyond benchmarking, such as performing energy assessments (audits, tune-ups, or retrocommissioning) or meeting performance targets (maximum energy use or carbon emissions). Municipalities such as Montréal, Dallas, Atlanta, and New York City have set aggressive carbon reduction goals for existing buildings that will require accurate benchmarking to determine emissions and energy savings.

ASHRAE's ROLE

ASHRAE disseminates credible evidence-based practices and technical information to professionals across the building sector by developing standards, guidance and educational resources informed by robust data on the actual energy performance of buildings. ASHRAE's tools and resources include:

- Benchmarking:
  - **ASHRAE Standard 105** provides a method for determining and comparing building energy performance and greenhouse gas emissions.
  - **ASHRAE Standard 214** provides uniformity in the building energy labeling and disclosure process.

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[1] Includes water heating; *2012 Commercial Building Energy Consumption Survey: Energy Usage Summary.* U.S. Energy Information Administration, 18 March 2016, https://www.eia.gov/consumption/commercial/reports/2012/energyusage/

[2] *Comparison of U.S. Commercial Building Energy Benchmarking and Transparency Policies*. Institute for Market Transformation, October 2021, https://www.imt.org/resources/comparison-of-u-s-building-audit-tune-ups-and-retrocommissioning-policies/

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  - **ASHRAE Standard 228P**: *Standard Method of Evaluating Zero Energy Building Performance* provides a consistent method of expressing qualifications for zero net energy and zero net carbon buildings associated with the design of new buildings and the operation of existing buildings.

- Energy Assessments:
  - **ASHRAE Standard 211** establishes consistent practices for conducting and reporting energy audits for commercial buildings. *Referenced by ordinances in Atlanta, GA; Boulder, CO; Los Angeles, CA; New York, NY; and San Francisco, CA.*

- Building performance targets:
  - **ASHRAE Standard 100** sets energy use intensity (EUI) benchmarks for existing buildings in the commercial and residential sector and establishes methods for determining opportunities for improvement in EUI leading to compliance with the standard benchmarks. *Referenced by Washington State's Clean Buildings Act of 2019.*

  - **ASHRAE's Building EQ**[3] program calculates a building's energy performance in relation to other similar buildings, identifies the gap between "as designed" potential and actual performance in operation, and provides recommendations to reduce energy use. Building EQ can be used to publicly display building energy use and comply with disclosure requirements.

ASHRAE certification programs were developed to meet the industry needs of today and provide value to thousands of built-environment professionals, employers, and building owners. Certifications like Building Commissioning Professional (BCxP) and Building Energy Assessment Professional (BEAP) are recognized by the U.S. Department of Energy (DOE) as meeting the Better Buildings Workforce Guidelines (BBWG) and are used frequently by local jurisdictions to designate who is qualified to perform benchmarking and energy assessments.

ASHRAE's VIEW

Energy metrics that are widely accepted, robust, and validated, are critical to achieving desired policy objectives including benchmarking, code compliance and investment decisions. Standardized procedures for energy performance assessments ensure an appropriate level of rigor and scope of work. Within a building owner's portfolio or across a city's building stock, decision-makers need consistent language, metrics, and procedures to effectively communicate goals, evaluate potential investments, and measure success. ASHRAE remains dedicated to sharing technical resources with policymakers to support legislative and regulatory solutions that improve building energy efficiency.

[3] For more information, see https://www.ashrae.org/technical-resources/building-eq

Shaping Tomorrow's Built Environment Today

CLIMATE CHANGE AND THE BUILT ENVIRONMENT

THE ISSUE

Worldwide concern for changes in the global climate has escalated as scientific evidence has become more definitive, linking increased concentrations of atmospheric greenhouse gases (GHGs) with global warming. As a response, ASHRAE is increasing our attention and consideration on standards, regulations, legislation and policies that involve GHGs.

When developing policy to combat climate change, it is important to consider that buildings and their heating, ventilating, air conditioning and refrigeration (HVAC&R) systems directly and indirectly contribute to GHG emissions. Buildings are responsible for more than 35% of global final energy use and nearly 40% of energy-related CO2 emissions worldwide.[1] These emissions are associated with construction and the energy needed to operate buildings and building systems, and to a lesser extent indirectly through the release of refrigerants, if not properly contained. According to the United Nations Intergovernmental Panel on Climate Change (IPCC), "buildings offer immediately available, highly cost-effective opportunities to reduce energy demand, while contributing to meeting other key sustainable development goals including poverty alleviation, energy security and improved employment."[2] Improving the energy efficiency, and the ongoing efficient performance of building systems provide a significant opportunity for climate change mitigation.

ASHRAE's ROLE

ASHRAE is the leading source of information and research for HVAC&R systems and building performance making this issue a key area for our members. ASHRAE's members use their expertise to help policymakers promote the implementation of energy efficient design practices and sustainable technologies that can help reduce GHG emissions. This is done most notably through ASHRAE's wide-ranging standards development such as Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings, Standard 100 Energy Efficiency in Existing Buildings, Standard 189.1 International Green Construction Code, and Standard 105 Standard Methods Of Determining, Expressing, And Comparing Building Energy Performance And Green House Gas Emissions

ASHRAE and its partners have published several free-to-download Advanced Energy Design Guides (including Zero Energy Building Guides for K-12 Schools and Offices), which are available for free download and provide educational guidance to reduce energy consumption while achieving proper IEQ conditions.[3]

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[1] United Nations Environment Programme, International Energy Agency (IEA) , and Global Alliance for Buildings and Construction (GlobalABC),"*2018 Global Status Report Towards a Zero-Emission, Efficient and Resilient Buildings and Construction Sector*." .

[2] Lucon, Oswaldo, and Diana Ürge-Vorsatz. "AR5 Synthesis Report: Climate Change 2014."*Chapter 9: Buildings*, United Nations Intergovernmental Panel on Climate Change, 2014, https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter9.pdf.

[3] For more information, see www.ashrae.org/technical-resources/aedgs.

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ASHRAE is also in the process of developing BSR/ASHRAE Standard 228P which will set requirements for evaluating whether a building or group of buildings meets a definition of "zero energy."

With respect to refrigerants, ASHRAE also advances the HVAC&R field by performing research on low global warming potential (GWP) refrigerants and developing safety and classification standards on refrigerants[4], developing guides and a standard for designing systems that minimize energy consumption and reduce emissions of high GWP refrigerants. As part of this effort, ASHRAE supports the global phasedown of the production and consumption of refrigerants that are high-GWP HFCs, including through legislation, regulations, and policy.

ASHRAE's VIEW

ASHRAE is committed to a leadership role in reducing climate change contributed to by building systems and responding to climate change experienced in the built environment. ASHRAE recommends:

- States adopt the most recent version of ANSI/ASHRAE/IES Standard 100 for existing buildings and ANSI/ASHRAE/IES Standard 90.1, which has been a benchmark for new commercial building energy performance in the United States and a key basis for codes and standards around the world for more than 40 years. The 2019 version of the standard is about 4.3% more energy efficient than the 2016 version.
- A full evaluation of new and existing buildings' climate impacts, carbon balance, and energy performance.
- Funding for research that improves energy efficiency/utilization in HVAC&R technology to minimize GHG emissions.
- Funding for building science research leading to advanced equipment and systems, grid-interactive designs and ability to load-shift, integration of the Internet of Things (IoT), net metering, and building based energy storage systems capable of providing dispatchable energy systems.
- Promotion of carbon and energy life-cycle- analysis to building owners to encourage sustainable building construction, operation and renewal.

[4] For more information, see: https://www.ashrae.org/technical-resources/bookstore/standards-15-34

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CONSENSUS STANDARDS: EXPERT SOLUTIONS TO MEET GLOBAL NEEDS

THE ISSUE

Voluntary consensus standards developed by private organizations are essential for a productive global economy and to facilitate global commerce. Standards foster building technology innovation by providing a transparent baseline and needed metrics for assessing how that technology can impact building design and performance. They are necessary for comparing technologies in the expanding global marketplace and facilitating cross-border collaboration. U.S. Federal policy recognizes the value of voluntary consensus standards by requiring their use in regulations when consistent with agency policy and appropriate for agency purposes.[1]

Voluntary consensus standards are developed through the participation of interested and affected stakeholders including manufacturers, consumers, users, advocacy organizations and representatives of government and academia. Standards accreditors such as the American National Standards Institute (ANSI), the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) follow several principles such as including consensus, openness, balance, transparency and due process, and ensuring that designated standards development organizations follow these principles and processes.

Copyright protection of voluntary consensus standards is critical to the continuation of the development and maintenance of standards. Governments at all levels utilize and benefit from the development of standards by private organizations who rely on copyright protection to continue developing future standards. Without copyright protection, standards development organizations will be challenged to provide the public with the benefit of rigorously research, tested and science-backed standards.

ASHRAE's ROLE

ASHRAE develops and publishes robust standards; many of which are adopted into building codes. ASHRAE standards establish recommended practice in the areas of indoor air quality, energy conservation and management, building water systems, high-performance buildings and others. ASHRAE's standard development process is rigorous, and it is one of only six standards-developing organizations in the U.S. that can self-certify that its standards have followed ANSI's procedures. ASHRAE also serves on U.S. Technical Advisory Groups (TAGS) for ISO Committees and in the role of international secretariat for ISO Technical Committees to help ensure that ASHRAE views are represented. These standards are supported by technical committees that develop publications and educational materials to assist in the application of ASHRAE standards. ASHRAE standards are developed by knowledgeable and skilled volunteers from around the globe under strict ethical and non-commercialism guidelines.

[1] The National Technology Transfer and Advancement Act of 1995 (P.L. 104-113) (NTTAA) and OMB Circular A-119

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ASHRAE's VIEW

Use of voluntary consensus standards at all levels of government are a benefit to society. For this reason:

- Government entities should continue to support voluntary consensus standard development, use, and adoption in laws and regulations, which will protect public health and safety, improve commerce and save taxpayers money.
- Agencies should work with standards developers and industry experts to identify situations where societal interests could be addressed through the use of voluntary consensus standards.
- Governments should continue to foster and support the unique character and strengths of the public-private partnership in standards development as they pursue trade and other international agreements, regulatory harmonization and legislative and regulatory approaches.
- Governments should support policies, both domestically and internationally, which ensure the continued ownership and control of the copyrights and trademarks of standards developers.
- Agencies should increase participation in the development of voluntary consensus standards by encouraging government experts to participate through work release time and reimbursement of expenses incurred.
- Governments should regularly update regulations and policies to reference the latest versions of standards since they reflect the latest technical advances.

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INDOOR AIR QUALITY

THE ISSUE

The average adult breathes about 2,000 gallons of air each day and most Americans spend around 87% of their time inside buildings – amplifying the importance of indoor environmental quality. Specifically, the quality of the air inside our buildings is a critical part of a person's health, performance and wellbeing. Indoor air is a significant exposure route for airborne contaminants and may contain particulate materials and volatile organic compounds, which can be eye and lung irritants as well as carcinogens, Carbon Monoxide, Carbon Dioxide and aerosolized pathogens like viruses and bacteria. Many of these contaminants impact health, comfort, well-being, learning, sleep, and work performance.

The direct connection between health and wellness encourages building designers and operators to prioritize indoor air quality (IAQ) in buildings. Cost-benefit analyses have estimated the health and economic benefits of improved IAQ to be far greater than the costs of implementing strategies that yield IAQ improvements. There are three widely accepted approaches to improving IAQ – source control, ventilation, and air cleaning. Many strategies exist within these approaches that can help achieve good IAQ efficiently and can be implemented to lower energy use and improve occupant satisfaction.

ASHRAE's ROLE

Many strategies exist within these approaches that can help achieve good IAQ efficiently and can be implemented to lower energy use and improve occupant satisfaction. The critical connection to ventilation and other HVAC systems in buildings has made IAQ a fundamental issue for ASHRAE and its members for more than 50 years. ASHRAE provides technical resources, coordinates and funds research, organizes conferences, and educates practitioners about IAQ.

ASHRAE has developed and continues to support standards, guidelines, and other resources related to efficiently improving IAQ. For example, ASHRAE promulgates the following standards and guides that specifically address IAQ:

- ***ANSI/ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality*** – This Standard establishes ventilation and other IAQ related requirements for buildings other than residential and health care. Its outdoor air ventilation rate requirements have been adopted into the International Mechanical Code and Uniform Mechanical Code, the two most common model building codes in the US. The standard is also referenced by most green commercial building programs including LEED.
- ***ANSI/ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings*** – This Standard covers residential buildings. Ventilation requirements from this standard have been adopted into codes, including California's Title 24, and into LEED for Homes and the U.S. Environmental Protection Agency's (EPA) Indoor airPlus program.

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- ***ANSI/ASHRAE/ASHE Standard 170, Ventilation of Health Care Facilities*** – Standard 170 brought together several documents used throughout North America into a single standard. It is now widely used in building codes for ventilation requirements in hospitals and other health care facilities.
- ***ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1, Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*** – This Standard was developed in conjunction with USBGC, the International Code Council and Illuminating Engineering Society (IES), this standard provides IAQ requirements beyond those in Standard 62.1.
- ***ASHRAE Indoor Air Quality Guide*****:** Best Practices for Design, Construction, and Commissioning and ***ASHRAE Residential Indoor Air Quality Guide***: Best Practices for Acquisition, Design, Construction, Maintenance and Operation – These guides present best practices for design, construction, commissioning, operation and maintenance that have proven successful in building projects to achieve good IAQ.
- ***2017 ASHRAE Handbook Fundamentals*** – This handbook covers basic principles and data used in the HVAC&R industry including indoor air quality. The ASHRAE Technical Committees that prepare these chapters provide new information, clarify existing content, delete obsolete materials, and reorganize chapters to make the Handbook more understandable and easier to use.
- ***Damp Buildings, Human Health and HVAC Design*** – This report provides a summary of what is understood about dampness-related health risks in buildings as well as suggestions for HVAC system designers that can help avoid such risks.

ASHRAE'S VIEW

ASHRAE's view is that achieving and maintaining good IAQ should be included in all decisions that affect the design and operation of buildings and HVAC systems, including efforts to improve building energy efficiency, sustainability and resiliency. ASHRAE's IAQ standards should be adopted by building codes and regulations to enhance building purpose and improve occupant health, productivity and well-being.

ASHRAE recommends research and standards development in the following areas:

- Development of IAQ control systems and solutions that contribute to other building goals including reducing energy use and greenhouse gas emissions and supporting grid integration.
- The relationship of ventilation rates and contaminant concentrations to occupant health, comfort, well-being, learning outcomes and work performance.
- Approaches to improving IAQ beyond dilution ventilation, e.g., air cleaning and source control.
- Development of tools to allow economic valuation of IAQ benefits for individual buildings and groups of buildings.
- Development of monitoring and HVAC equipment to automatically control IAQ by measurement of contaminants.
- Development of diagnostics for commissioning and maintenance of ventilation and related IAQ systems.
- The role of IAQ in building sustainability and resilience.
- Research on new contaminants of concern and development of technologies and approaches to address them.

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INDOOR AIR QUALITY

THE ISSUE

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ASHRAE'S ROLE

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- ***ANSI/ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings*** – ~~This Standard covers~~ ~~r~~Residential ~~buildings~~(multifamily to single family homes)~~.~~ ~~V~~ventilation requirements from this standard have been adopted

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- ***Damp Buildings, Human Health and HVAC Design*** – This report provides a summary of what is understood about dampness-related health risks in buildings as well as suggestions for HVAC system designers that can help avoid such risks.

ASHRAE'S VIEW

ASHRAE's view is that the provision of acceptable IAQ is an essential building service. Improved IAQ brings substantial health and economic benefits from a broad public health perspective, as well as to individual building owners and occupants. ~~Achieving and maintaining good IAQ should be included in all decisions that affect the design and operation of buildings and HVAC systems, including efforts to improve building energy efficiency, sustainability and resiliency. ASHRAE's IAQ standards should be adopted by building codes and regulations to enhance building purpose and improve occupant health, productivity and well-being.~~

Therefore, ASHRAE recommends that:

- Achieving and maintaining good IAQ should be included in all decisions (including policy decisions) that affect the design and operation of buildings and HVAC systems, including efforts to improve building energy efficiency, sustainability and resiliency.
- The importance of IAQ and the fundamentals of achieving good IAQ through building design and operation should be included in education programs for all stakeholders in built environment – from developers, owners, and operators to designers, technicians, and consultants.
- The latest versions of ASHRAE's IAQ standards should be adopted by building codes and regulations when they are updated every three years, specifically:

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- Standard 62.1-2019 for commercial buildings
- Standard 62.2-2019 for residential buildings
- Standard 170-2021 for healthcare buildings

- Research and standards development should be supported by the government, including improvement of indoor contaminant monitoring and measurement technologies, approaches to improving IAQ beyond ventilation and filtration (e.g., air cleaning), development of tools to assess the economic valuation of IAQ benefits, and improved understanding of new contaminants of concern and techniques for adding them.

~~ASHRAE recommends research and standards development in the following areas:~~

- ~~Development of IAQ control systems and solutions that contribute to other building goals including reducing energy use and greenhouse gas emissions and supporting grid integration.~~
- ~~The relationship of ventilation rates and contaminant concentrations to occupant health, comfort, well-being, learning outcomes and work performance.~~
- ~~Approaches to improving IAQ beyond dilution ventilation, e.g., air cleaning and source control.~~
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- ~~Research on new contaminants of concern and development of technologies and approaches to address them.~~

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REFRIGERANTS AND THEIR RESPONSIBLE USE

THE ISSUE

Choosing a refrigerant for a given HVAC&R application has become increasingly complex due to their direct and indirect environmental impacts, performance, cost-effectiveness and safety for employees and the public. Following the implementation of the Kigali Amendment to the Montreal Protocol in 2019, the use of lower global warming potential (GWP) refrigerants began to replace today's high GWP refrigerants. Many of the lower GWP refrigerants are mildly flammable, which required the updating of common codes and standards.

ASHRAE's ROLE

With its technical expertise, ASHRAE plays a key role in guiding the selection and analysis of new refrigerants, and the potential environmental and societal consequences of their use. ASHRAE contributed to successfully phasing out the use of ozone depleting refrigerants and is already contributing to reducing the use of high GWP refrigerants. ASHRAE develops voluntary standards and guidelines governing the classification, application, and use of refrigerants, which are referenced by various codes and regulations, globally.

As lower GWP refrigerants become prevalent, ASHRAE commits to ensure their safe classification and application in residential, commercial and industrial uses as prescribed by the Standard 34 – 2019, *Designation and Classification of Refrigerants* and the ASHRAE Standard 15 – 2019, *Safety Standard for Refrigeration Systems*. Significant updates to these standards were based on a $5.2 million research program, with contributions from DOE ($3 million), ASHRAE ($1.2 million) and AHRI ($1 million), as part of ASHRAE's commitment to support climate change mitigation.

ASHRAE's VIEW

ASHRAE supports the classification and use of refrigerants based on safety, performance and environmental impact. As the transition to more climate-friendly alternatives continues, ASHRAE supports reducing emissions from high GWP refrigerants through research, education, and improvements to design, installation, operation, maintenance, and decommissioning of equipment in accordance with applicable standards and policies.

ASHRAE supports the global phasedown of the production and consumption of high GWP refrigerants through policies such as legislation and regulation. ASHRAE also supports adoption of the latest standards and application of the latest policies in order to enable these new lower GWP refrigerants. ASHRAE encourages and supports ongoing efforts to develop new refrigerants and improve the application of existing refrigerants to meet these criteria.

Furthermore, used refrigerants should be safely recovered for reuse, recycle, reclamation or destruction during service or at the end of the equipment life. Refrigerant inventory and management programs should be implemented to closely track refrigerant use.

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RESILIENCY IN THE BUILT ENVIRONMENT

THE ISSUE

Resiliency in the built environment is a complex subject that involves many disciplines. The National Institute of Building Sciences (NIBS) Coalition on Resiliency, which includes ASHRAE and 38 other organizations, has defined resiliency as "the ability to prepare and plan for, absorb, recover from and more successfully adapt to adverse events or threats." These events or threats may be financial, political, environmental, as well as disaster, conflict, cyber, climate, or health-related. Its recent prominence is in part due to increasing concerns over the adequacy of responses to natural or climate-related events around the world, as well as recognition that many such events are likely to increase in frequency and severity.[1] According to the National Oceanic and Atmospheric Administration (NOAA), weather and climate disasters in the United States alone have caused more than $456 billion in damages in the last 3 years and over 3,500 deaths.[2]

Strengthening the built environment is vital to protecting the public when natural and human-induced events occur. Buildings often serve as the first line of defense and as a result, the built environment and engineered systems in buildings must become more resilient in how they are designed and operated in order to protect the public. A building's ability to recover and be available to occupants following such an event, can have widespread economic and health implications. Additionally, as the built environment becomes more interconnected and operations shift towards automation, building systems will see increased vulnerability to cyber threats.

ASHRAE's ROLE

It is ASHRAE's position that building design and operation must consider resiliency as part of an overall risk assessment and planning approach, and that major new efforts in research, education, standards and guidelines, and guidance documents are required to increase building resiliency. Building resiliency is of such importance that it has been identified as one of four key initiatives in the 2019-2024 ASHRAE Strategic Plan.

ASHRAE also has partnered with CIBSE to release a Joint Position Document on Resiliency in the Built Environment.[3] The two societies are committed to taking a leadership role with respect to building resiliency. ASHRAE will be developing and adopting designs, materials,

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[1] IPCC. 2014. Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland: Intergovernmental Panel on Climate Change. www.ipcc.ch/report/ar5/.

[2] "Billion-Dollar Weather and Climate Disasters: Overview." National Climatic Data Center, National Oceanic and Atmospheric Administration, www.ncdc.noaa.gov/billions/overview.

[3] For more information, see https://www.ashrae.org/file%20library/about/position%20documents/ashrae_cibse_resiliencyinthebuiltenvironment_2019.pdf

components, systems, and processes that minimize the adverse impacts of extreme events and environmental changes over time.

ASHRAE's VIEW

Investing in building resiliency is crucial to saving lives, protecting public property, and reducing the financial strain of post-disaster recovery. For these reasons, ASHRAE sees the need for policy setting entities world-wide to encourage sound, balanced, and innovative actions to address long-range resiliency issues and the specific technical concerns associated with them.

When it comes to strengthening the built environment, building codes and standards, such as those developed by ASHRAE, make our communities more sustainable, more efficient and more resilient. According to a 2018 study released by NIBS, by adopting the most recent building codes, there is an impressive cost-benefit ratio ranging from $4—12 for every $1 invested towards hazard mitigation. Unfortunately, most jurisdictions have not yet adopted the most recent standards and codes that are based on the latest research and technological innovation. Legislators and other government officials should examine the best ways to assist these jurisdictions with the adoption, implementation and enforcement of the most recent building energy efficiency codes and standards. This will help prevent future destruction and improve the resilience of the built environment. ASHRAE is committed to being a resource for government with respect to building codes and standards, and will continue to publish and maintain consensus-based building standards, guidelines, and Design Guides.

ASHRAE also holds the following positions with respect to resiliency in the built environment:

- Resiliency is an important societal, economical and technical issue that has a major impact on the built environment as well as how engineered building systems are designed and operated.
- Technical solutions to these challenges are needed. These solutions will include research, standard and guideline development, and the production of educational material.
- Policy setting entities need to encourage sound, balanced, and innovative actions to address the broad issues of resiliency and the specific technical concerns associated with them.
- Built environments need to be developed which are both resilient and sustainable.

Additionally, ASHRAE recommends that additional and continuing research be conducted with the intent to guide resilient infrastructure, building systems and community designs. ASHRAE aims to continue collaborating on building resiliency research opportunities with external organizations, national and international government agencies, and foundations. This is in addition to the over $10 million in ongoing research projects currently funded by ASHRAE.

Shaping Tomorrow's Built Environment Today

STEM EDUCATION AND HVAC&R WORKFORCE

THE ISSUE

Commitment to a solid education in science, technology, engineering and mathematics (STEM) to develop the future supply of technicians, engineers and scientists is critical to our future well-being and standard of living. Even students pursuing non-STEM specialties need basic knowledge of scientific and technological applications for effective participation in the workforce, success in their personal lives and responsible citizenship.

Moreover, there has been increased growth in jobs related to STEM that need to be filled. The U.S. Bureau of Labor Statistics projects that employment in architecture and engineering occupations is expected to grow 6% from 2020 to 2030, with a median annual wage of **double** that of the median wage across all occupations. Over the next decade, about 167,800 openings for construction employment are projected **each year** on average over the next decade.

The HVAC&R workforce in North America remains a male-dominated employment sector; the share of female workers in engineering and architecture is 13.6 percent[1] and 4.8 percent of HVAC&R Technicians[2] . Additionally, people of color remain under-represented in the engineering of buildings and HVAC&R sectors; 70 percent of the HVAC&R workforce is white.[3]

ASHRAE's ROLE

As professionals focused on design, construction, operation and maintenance of buildings and infrastructure, and as educators of future generations of engineers and the HVAC&R workforce, our members also recognize the importance of mentoring and helping students learn about STEM careers, which is why our members are active in their local communities and in national programs, bringing exciting science and engineering programs to students. ASHRAE is actively engaged in the Solar Decathlon, National Engineers Week and other STEM education efforts worldwide, including through its 440 active student branches.

ASHRAE is also a member of the National STEM Education Coalition, which supports new and innovative initiatives that help improve the content, knowledge, skills and professional development of the K-12 STEM teacher workforce, and informal educators. ASHRAE is dedicated to ensuring quality STEM programs for teachers and students all around the world by encouraging its members to get involved with their local school systems.[4]

ASHRAE's Board of Directors has committed to promoting diversity and inclusion in all levels

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[1] U.S. Bureau of Labor Statistics. 2013. *Women in the Labor Force: A Databook*. https://www.bls.gov/cps/wlf-databook-2012.pdf

[2] Zippia. 2021. *HVAC-R Technician Demographics And Statistics In The US.* https://www.zippia.com/hvac-r-technician-jobs/demographics/#statistics-section

[3] *Ibid.*

[4] For more information, see https://www.ashrae.org/communities/student-zone/k-12-activities.

of the society. This includes efforts to promote STEM education and training to children, schools, and educators, in a way that will attract, train, and retain more women, disabled, LGBTQ, and people of all socioeconomic and ethnic backgrounds to engineering education and employment.

ASHRAE also supports strengthening the broader HVAC&R workforce, including technicians who install and maintain HVAC&R equipment as well as distributors, contractors, and facility operators and managers. The HVAC&R and buildings industry has been facing a serious shortage of skilled trade employees for several years and has more recently been exacerbated by the overall shortage of U.S. workers. Unfortunately there is a broadening skills gap as well due to several factors, including: the retirement of the baby boomers, advancements in technology that require new skills, increased job competition in the global marketplace, failure to cultivate a and retain skilled talent, a societal focus only on four-year degree programs to the exclusion of technical and technological education, and a lack of emphasis on the necessary skill sets for advanced manufacturing. Of these, the last two are most critical to ensuring innovative, high efficiency products are able to be manufactured and installed properly. Community colleges, training programs, internships, apprenticeships and certification programs can strengthen the pipeline for the HVAC&R workforce.

ASHRAE's VIEW

Future generations need to possess the skills and critical competencies necessary to be successful in a highly competitive, global and technologically sophisticated economy. We must work cooperatively to ensure that students receive the STEM training essential for future success. ASHRAE encourages policymakers to implement the following recommendations:

- Increase government funded research to improve teaching and learning of STEM concepts and critical thinking skills.
- Recruit, train and retain qualified STEM teachers through the development of programs recognizing educators who excel in STEM education and incentives, that encourage the best and brightest scientists, engineers, technologists, and technicians to act as role models and teachers, to pave the way for future generations..
- Foster partnerships among educational institutions, industry and non-profit organizations and their members to introduce students of all backgrounds to STEM career opportunities, including those careers that do not necessarily require a university degree.
- Support and encourage students who choose to enroll in community college, or other career and technical education programs, that prepare and qualify individuals for careers as HVACR technologists, technicians, facility operators, and buildings managers by providing these students with affordable tuition options.
- Create opportunities and incentives for women and those of diverse backgrounds to pursue STEM coursework and careers.
- Encourage diversity in STEM education and the HVAC&R workforce.

Shaping Tomorrow's Built Environment Today

INDOOR CARBON DIOXIDE

THE ISSUE

Indoor CO_2 has been considered in the context of building ventilation and indoor air quality (IAQ) for centuries. Most of these discussions have focused on how CO_2 concentrations relate to occupant perceptions of IAQ, and the use of CO_2 to evaluate ventilation rates. While these topics have been studied for decades, misinterpretation of CO_2 concentration as an indicator of IAQ and ventilation is common in the HVAC industry, IAQ research community, and the public. Despite many efforts to address this confusion in standards, guidance documents, technical publications, and conference presentations, significant misunderstanding remains.

In addition, recent research has studied the impacts of CO_2 on human performance at commonly observed indoor concentrations and indoor CO_2 monitoring has also been promoted as a ventilation indicator in the context of managing the risks of airborne disease transmission. Also, concerns have long existed regarding the accuracy of indoor CO_2 concentration measurements, which are now more common due to the availability and more widespread application of less expensive sensors. Given all of these factors, as well as increasing calls to monitor CO_2 in buildings, ASHRAE is working to clarify the use of indoor CO_2 measurements as a tool to help improve IAQ and building ventilation.

ASHRAE's ROLE

ASHRAE has long been active in providing engineering technology, standards and design guidance to support the goal of providing healthy and comfortable indoor environments in an energy-efficient manner. For decades, these efforts have focused on providing effective ventilation in buildings, designing and operating ventilation systems and managing the wide range of air pollutants within buildings. For example, ANSI/ASHRAE Standards 62.1 and 62.2 are standards that specify minimum ventilation rates and other measures to support the health, comfort and productivity of building occupants; these standards do not include CO2 limits.

ASHRAE's VIEW

Monitoring indoor CO_2 can be a useful tool for understanding building ventilation and IAQ, supporting efforts to provide high quality indoor environments and manage the energy needed to do so. However, using indoor CO_2 measurements requires an understanding of the how these measurements are conducted and interpreted to ensure that they provide useful information. This is not always been the case in the HVAC and industry hygiene communities by the practitioners, building operators and others striving to manage buildings. For example, many practitioners make claims that a building has good IAQ because the indoor CO_2 concentration is below 1000 ppm, and then linking that statement to ASHRAE Standard 62.1. In reality, Standard 62.1 has not had a CO_2 limit since 1989 and achieving good IAQ involves

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managing many more pollutants than just CO_2.[1]

Because of ASHRAE's mission to act for the benefit of the public, it encourages building designers, lawmakers, policymakers and others to exercise caution when recommending the measurement of indoor CO_2 concentrations. To that end, ASHRAE stresses that:

- Indoor CO_2 concentrations do not provide an overall indication of IAQ, but they can be a useful tool in IAQ assessments if users understand the limitations in these applications.
- Existing evidence for the impacts of CO_2 on health, well-being, learning outcomes and work performance is inconsistent and does not justify changes to ventilation and IAQ standards, regulations and guidelines.
- The use of indoor CO_2 measurements to evaluate the risk of airborne disease transmission must account for the differences in CO_2 and infectious aerosols.
- Sensor accuracy, location and calibration are all critical for drawing meaningful inferences from measured indoor CO_2 concentrations.
- Programs or requirements to monitor CO_2 in buildings, when conducted with an understanding of their technical basis, can be helpful, but monitoring CO2 with such understanding can lead to confusion on the part of building occupants and the public.

[1] In a 2010 study by J.M. Logue, T.E. McKone, M.H. Sherman, and B.C. Singer of the Berkeley National Laboratory titled, *Hazard Assessment of Chemical Air Contaminants Measured in Residents*, fifteen pollutants were identified as contaminants of concern for chronic health effects in a large fraction of homes. Nine pollutants were identified as priority hazards: acetaldehyde; acrolein; benzene; 1,3-butadiene; 1,4-dichlorobenzene; formaldehyde; naphthalene; nitrogen dioxide; and $PM_{2.5}$. Activity-based emissions are shown to pose potential acute health hazards for $PM_{2.5}$, formaldehyde, CO, chloroform, and NO_2.

Shaping Tomorrow's Built Environment Today

ENVIRONMENTAL TOBACCO SMOKE AND ELECTRONIC NICOTINE DELIVERY SYSTEMS

THE ISSUE

While indoor smoking has become less common in recent years in many countries the use of Electronic Nicotine Delivery Systems (ENDS) has significantly increased. Both smoking and the use of ENDS negatively affects indoor air quality and each has inherent health risks.

Exposure to Environmental Tobacco Smoke (ETS) continues to have considerable health and cost impacts. Researchers have investigated the health and irritant effects among non-smokers exposed to tobacco smoke in indoor environments. Such exposure is also known as passive smoking and as involuntary exposure to secondhand smoke. A number of national and global health research groups and agencies have concluded, based on the preponderance of evidence, that exposure of non-smokers to tobacco smoke causes specific diseases and other adverse effects to human health, most significantly cardiovascular disease and lung cancer. No cognizant authorities have identified an acceptable level of ETS exposure to non-smokers, nor is there any guarantee that further research will identify such a level.

Simultaneously with the decline of tobacco smoking, the use of Electronic Nicotine Delivery Systems (ENDS) including vape pens, electronic cigarettes, and other device that convert nicotine into an inhalable aerosol without combustion has rapidly increased. The vapor or aerosol emitted from these devices contains varying amounts of nicotine dissolved in propylene glycol, or glycerol along with volatile compounds (VOCs). Unique to the use of ENDS is the concentration and type of compounds that may deposit and remain on indoor surfaces. These deposits represent a unique source of contamination in buildings that varies depending on indoor climate, air flow, and area that may require specialized cleaning, HVAC maintenance, and other operational practices. In addition, limited studies have been performed to evaluate the chemical reactions and health interactions that may occur between ENDS emissions and other airborne contaminants commonly found indoors.

Despite the well-documented benefits of smoking bans, many locations worldwide still lack laws and policies that provide sufficient protection. Still fewer bans include the use of ENDs. In many locations, laws and policies are only partially protective, permitting smoking and ENDS usage in certain areas of buildings or specific building types including casino, entertainment and multifamily housing.

ASHRAE's ROLE

Providing healthy and comfortable indoor environments through the management of indoor air quality is a fundamental goal of building and HVAC design and operation. ASHRAE has long been active in providing engineering technology, standards and design guidance in support of this goal. For example, ANSI/ASHRAE Standards 62.1 and 62.2 are standards that specify

minimum ventilation rates and other measures in order to minimize adverse health effects for occupants. Therefore, the health effects of indoor exposure to emissions from tobacco products, and ENDs devices are relevant to ASHRAE.

ASHRAE's VIEW

Exposure to ETS can be reduced through a variety of strategies, but they do not completely eliminate exposure to ETS . Only an indoor smoking ban, leading to near zero exposure, provides effective control, and bans on ETS exposure have only been recognized as effective by health authorities. Effects of secondary involuntary exposure to ENDS have not been thoroughly studied by the scientific community, in part because these devices are new, evolving, diverse and customizable. However, because ENDS have become so prevalent, indoor building components and occupants are being exposed to passive vapors. Many cognizant public health authorities argue that caution should prevail in all situations of human exposure when limited data is available about health impacts. Applying this principle to ENDS argues that involuntary exposure should be banned in order to keep exposure to airborne emissions as low as possible.

ASHRAE's mission to act for the benefit of the public encourages lawmakers, policymakers and others who exercise control over buildings, to maximize mitigation of secondary involuntary exposure from smoking and ENDS use inside and near buildings. ASHRAE also recommends:

- That building design practitioners work with their clients to define their intent, where smoking and ENDS use is still permitted, for addressing exposure in their facilities and educate and inform their clients of the limits of engineering controls in regard to both ETS and ENDS.
- That multifamily buildings have complete smoking bans and which maximize mitigation of smoking and ENDS passive emissions, inside and nearby in order to protect nonsmoking adults and children.
- That further research be conducted by cognizant health authorities on the health effects of involuntary exposure in the indoor environment from smoking cannabis, using hookahs, and using ENDS.

GOE Status Summary

Spring 2022 GAC Meeting

TRACKING GOVERNMENT OUTREACH EVENTS SY2021-2022

Note: Delta assumes that ALL planned and scheduled events are held (negative indicates that we are behind the goal).

PROGRESS CHART

	Target	Held	Scheduled	Planned	Delta	Forms Submitted
City/Local	32	39	0	25	32	11
State	24	27	2	17	23	13
Federal	15	10	1	9	5	4
Global	13	19	2	19	28	9
In-Person		78	5	70	153	
Virtual		17	0	0	17	
Total	**83**	**95**	**5**	**70**	**87**	**37**

Note: Totals may not add up due to rounding

SY21-22 SUMMARY TOTALS (to date):	Number of Attendees (ASHRAE Members)	Number of Meetings	Number of Events
Local	**12**	**12**	**39**
State	**30**	**36**	**27**
Federal	**3**	**6**	**10**
Global	**71**	**12**	**19**
TOTAL:	**116**	**66**	**95**

In Comparison

PREVIOUS YEAR (SY20-21)	Number of Attendees (ASHRAE Members)	Number of Meetings	Number of Events
State and Local	171	66	47
Federal	7	4	4
Global	126	54	24
TOTAL:	**304**	**124**	**75**

LOCAL	Meeting Description	Date	Chapter	Region	Number of Attendees (ASHRAE Members)	Number of Meetings	Govt Outreach Form Submitted?	Note if Virtual	Comments
Held	Brevard County Energy Transition Plan (ETP) Meeting	9/22/2021	Gold Coast	XII	2	4	yes		Further meetings will be held on the ETP; also possible engagement on ASHRAE standards.
	Event in Reno	9/20/2021	Nevada	X	1	1	no		re: proposed city ordinance (which was ultimately tabled), cannabis industry asked about Environmental Tobacco Smoke information
	Meeting with City of Anchorage, Alaska	Oct-22	Alaska	XI	1	1	yes		Jeff Hurd from the Alaska Chapter met with the Assistant Director of Facilities for the City of Anchorage to discuss how Standard 90.1 can reduce energy consumption in city buildings.
	Meeting with Gwinnett County Public Schools	10/4/2021	Atlanta	IV	4	1	yes	virtual	Shared ETF resources with school facility managers and officials. Plan to follow up with more technical info from ETF Schools team if needed.
	Meeting with Milwaukee and Indianapolis Offices of Sustainability	10/13/2021	Milwaukee and Indianapolis	VI	2	1	yes	virtual	Shared knowledge on city ordinances and building decarbonization. Victor Nino will be meeting bi-weekly as technical support re: Standard 211 and Standard 100 in Milwaukee's city ordinance.
	HOLD for meeting with code officials in Cleveland	12/1/2021		VI			no		
	Kansas City meeting with code officials	TBD	Kansas City	IX			no		
	meeting with Houston code officials	TBD	Houston	VIII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	HOLD for West Virginia meeting	TBD	West Virginia	VII			no		
	Meeting with Brevard County	11/3/2021	Gold Coast	XII	2	4	yes		Discussion was on the draft Energy Transition Plan to be created by the Workgroup on Innovative Solar Energy Resources (WISER).
	City of Des Moines	11/12/2021	Iowa Chapter	VI	2	1	yes		Introductory meeting with Jeremy Caron, Sustainability Program Manager for the City of Des Moines, Iowa.
	La Crosse Energy Action Planning Committee	TBD		VI			no		
	La Crosse Energy Action Planning Committee	TBD		VI			no		
	La Crosse Energy Action Planning Committee	TBD		VI			no		
	La Crosse Energy Action Planning Committee	TBD		VI			no		
	La Crosse Energy Action Planning Committee	TBD		VI			no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	City of Milwaukee Green Building Workgroup	TBD					no		
	Brevard County Commission Meeting	12/7/2021	Gold Coast	XII	2	1	yes		A presentation by John Constantinide was made on behalf of the Workgroup on Innovative Solar Energy Resources (WISER) on the workgroup-issued Energy Transition Plan. Bruce Lindsay followed up with Public Comment with commentary on the Plan in relation to installation of solar photovoltaic panels.
	Meeting with the City of Anchorage, Alaska	1/1/2022	Alaska	XI	1	1	yes		Jeff Hurd from the Alaska Chapter met with the Anchorage Water Department and assembled a team to see how they could generate savings throughout our infrastructure.
	Meeting with City of Melbourne, Florida officials re: Clean Energy Pioneer Award	2/8/2022	Gold Coast	XII	1	1	yes		BEEB Award for Clean Energy Pioneers in the City of Melbourne was awarded with ASHRAE Gold Coast Chapter input
	Meeting with City of Melbourne, Florida officials re: Clean Energy Pioneer Award	3/22/2022	Gold Coast	XII	1	1	yes		2nd meeting re: Clean Energy Pioneers Award
	Meeting with City of Melbourne Councilwoman Yvonne Minus	4/7/2022	Gold Coast	XII	1	1	yes		Meeting with City of Melbourne Councilwoman Yvonne Minus. Councilperson highlighted accessibility to City of Melbourne.
	Total Local Held:	**39**			**12**	**12**	**11**	**2**	
Scheduled									
	Total Local Scheduled:	**0**			**0**	**0**		**0**	
Planned	St. Charles County, MO	TBD		VI					presentation to 25 municipal building inspectors/officials in St. Louis metro area.

	NC school board	TBD		IV					
	GA school board	TBD		IV		4			
	Hold for Richmond School District	TBD		III					
	Hold for Richmond School District	TBD		III					
	Hold for Richmond School District	TBD		III					
	Portsmouth Energy Dept.	TBD		III					
	Louisville chapter meetings	TBD		VII					
	WV local	TBD		VII					
	Nashville local	TBD		VII					
	Lexington	TBD		VII					
	Birmingham	TBD		VII					
	Region V- meeting with local officials	TBD		V					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region VI placeholder	TBD		VI					
	Region X school board	TBD		X					
	Region X school board	TBD		X		3			
	Total Local Planned:	**25**			**0**	**7**		**0**	

STATE	Meeting Description	Date	Chapter	Region	Number of Attendees (ASHRAE Members)	Number of Meetings	Govt Outreach Form Submitted?	Note if Virtual	Comments
Held	Flood Resistant Design TAG Meeting with MN Dept. of Labor and Industry	7/20/2021	Minneapolis	VI	1	1	yes	virtual	Discussion of flood-resistant design and code revisions
	MN Dept. of Labor and Industry and MN Home Builders	8/4/2021	Minneapolis	VI	1	1	yes	virtual	Home builders recommended changing footing depth levels based on changing ASHRAE Climate Zones.
	Meeting with new Commissioner on the Oklahoma State Uniform Building Code Commission	9/20/2021	Northeast Oklahoma	VIII	2	1	yes		Discussed current commission review of energy code and advocated for current version of 90.1, along with ETF resources.
	MD Rep. Stein meeting with Baltimore chapter	10/7/2021	Baltimore	III			no		Rep. Stein attended and discussed multiple bills
	Meeting with member of the Oklahoma State Uniform Building Code Commission	10/12/2021	Central Oklahoma	VIII	1	1	yes	virtual	Discussed 2018 IBC, 2015 IRC adoption and work on commerical IECC code adoption.
	Puget Sound Chapter panel discussion with City of Seattle and state energy officials	11/16/2021	Puget Sound	XI			yes		included in 12/2 GAU
	Meeting with PA state representative Delozier	11/22/2021	Central Pennsylvania	III	4	1	yes		Met regarding sponsoring PA House Bill 2079 and to hear her insights on setting appointments and best practices for our planned outreach event.
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	HOLD for WV state meeting	TBD	West Virginia	VII			no		
	Hawaii chapter attending meeting re: adoption of 2018 IECC	TBD	Hawaii	X			no		
	In-pesron small group with Utah chapter	12/10/2021	Utah		2	1	yes		Lincoln Harmer attended; no other info included.
	Meeting with GA Rep. Schofield	12/13/2021	Atlanta	IV	1	1	yes	virtual	Interested in examples of public policies to improve IAQ. Mandates are not well-received in GA, what other mechanisms have been used? I mentioned voluntary programs, technical support.
	Meeting with GA Sen. Kirkpatrick	1/4/2022	Atlanta	IV	2	1	yes	virtual	Would be interested in an ASHRAE HQ tour (daughter is architect, son is mechanical engineer)
	MD testimony re: legionella	2/2/2022	Baltimore	III	2	2	no	virtual	Baltimore Chapter ASHRAE members provided testimony re: legionella for MD SB 302 and HB 248.
	TN Day on the Hill	3/1/2022	TBD	VII	3	10	yes		Met with 3 State Senators and 7 House Representatives. Joined by American Council of Engineering Companies of Tennessee (ACEC) and Tennessee Society of Professional Engineers (TSPE)
	Meeting with South Dakota State Legislators	3/8/2022	South Dakota	IX	2	3	yes		Met with state senators in the lobby at the ASHRAE table, and a separate meeting with the Public Utilities Commission
	Oklahoma Day on the Hill	3/9/2022	Central and Northeast Oklahoma	VIII	8	12	yes		Met with 2 representatives and 2 senators at the state capitol, discussed specific Senate and House Bills and explained the relevance of ASHRAE.
	FL City Hall Testimony	3/22/2022	Gold Coast	XII	1	1	yes		Gave public testimonial to the City of Melbourne City Council on March 22, 2022, at their regular Council meeting announcing this award. The City of Melbourne has put the event on the city's website and social media.
	ASHRAE/NYSERDA webinar on heat pumps	TBD					no		
	Total State Held:	**27**			**30**	**36**	**13**	**6**	
Scheduled									
	Boise Chapter meetings with State legislators	February	Boise	IX	TBD	TBD			
	Iowa State Capitol (AIA Design Professionals Day)	2/17/2022	Iowa	VI	TBD	TBD			
	Total State Scheduled:	**2**			**0**	**0**		**0**	
Planned	NC state building code council	TBD		IV		3			
	GA state building code council	TBD		IV					
	CA state building code council	TBD		IV					
	Virginia state house (Day on the Hill event)	TBD		III					
	MD Day on the Hill	TBD		III					
	FL legislature (Day on the Hill event)	spring		XII					
	West Virginia High Performance Buildings Day	TBD		VII					
	WV code council	TBD		VII					
	AL state	TBD		VII					
	PA state house (Day on the Hill event)	TBD		III					
	Region I placeholder	TBD		I					
	Region I placeholder	TBD		I					
	Region I placeholder	TBD		I					
	OR state	TBD		XI					
	AK state	TBD		XI					
	CA state	TBD		X					
	AZ state	TBD		X		2			
	Total State Planned:	**17**			**0**	**5**		**0**	

FEDERAL	Meeting Description	Date	Chapter	Region	Number of Attendees (ASHRAE Members)	Number of Meetings	Govt Outreach Form Submitted?	Note if Virtual	Comments
Held	Meeting with Sen. Warnock's office	8/24/2021	Atlanta Chapter	IV	1	1	yes	yes	staff requested Building Decarbonization background; we sent PPIB
	Meeting with Jessica Northridge (DOE EERE)	9/1/2021	Gold Coast Chapter	XII	1	1	yes	yes	EISA 432 compliance (Discussed usage of ASHRAE Standard 211 to complete Level 1 Energy Audits, and Building EQ to assist in completing the audits)
	Meeting with Sen. Ossoff's office	9/14/2021	Atlanta Chapter	IV	1	1	yes	yes	
	ASHRAE HQ Grand Opening Event (Sen. Ossoff & Warnock staff)	11/18/2021	Atlanta Chapter	IV		2	no	no	Repsentatives from both GA Senate offices made remarks at ASHRAE's HQ Grand Opening after previos meetings and a request from ASHRAE member Meghan McNulty
	Clean Air in Buildings Challenge - White House Covid 19 Response Team	3/17/2022	Central PA		2	1	yes	yes	High level overview of what building owners could do to improve the performance of their buildings in future pandemics.
	ASHRAE Leadership meeting with Sen. Baldwin	3/22/2022					no		
	ASHRAE Leadership meeting with Sen. Smith	3/22/2022					no		
	ASHRAE Leadership meeting with Efficient and Healthy Schools - DOE, EPA, Dept. Ed.	3/21/2022					no		
	ASHRAE Leadership meeting with ENERGY STAR - EPA	3/21/2022					no		
	Healthy Schools Summit	TBD					no		
	Total Federal Held:	**10**			**3**	**6**	**4**	**3**	
Scheduled	Meeting with Sen. Graham's Office	5/24/2022							Dennis Knight will meet with Sen. Graham's staff and introduce them to ASHRAE.
	Total Federal Scheduled:	**1**			**0**	**0**		**0**	
Planned	NC federal	TBD		IV					
	GA federal	TBD		IV					
	TN federal	TBD		VII					
	AL federal	TBD		VII					
	Region III placeholder	TBD		III					
	Region VI placeholder	TBD		VI					
	NV federal	TBD		X					
	CA federal	TBD		X					
	AZ federal	TBD		X					
	Total Federal Planned:	**9**			**0**	**0**		**0**	

GLOBAL	Meeting Description	Date	Chapter	Region	Number of Attendees (ASHRAE Members)	Number of Meetings	Govt Outreach Form Submitted?	Note if Virtual	Comments
Held	Meeting with the Office of Efficiency Canada and Natural Resources	8/19/2021	multiple	II, XI	6	1	yes	yes	possible consensus on HVAC&R Standards and Guideline on Single Family Dwellings
	Meeting with Barbados Government	9/9/2021	CARICOM Chapter	XII	2	1	yes	yes	discussion on training in Standard 62.1 to mitigate COVID-19 transmission, and promoting additional training and ASHRAE standards
	HOLD for Brazil meeting	TBD		XII			no		
	Meeting with Government of Monterrey	3/16/2022	Monterrey	XII	15	1	yes		Meeting with government of Monterrey to discuss decarbonization in buildings, as well as ASHRAE standards and guidelines.
	HOLD for meeting with school boards and Toronto chapter	TBD		II			no		
	HOLD for Malaysia meeting	TBD		XIII			no		
	event in Pakistan	11/7/2021		RAL			no		no details provided
	HOLD for meeting with India energy minister	TBD		RAL			no		
	HOLD for additional state-level meeting in India	TBD		RAL			no		
	Argentina Chapter participating in Technical Advisory Committee	11/30/2021	Argentina	XII	8	1	yes		The Argentine Chapter of ASHRAE has been invited to be part of the technical advisory committee for the drafting of a standard on Air Treatment Systems in Public and Private Buildings entrusted to the Argentine Institute for Standardization and Certification IRAM requested at the initiative of the University of Buenos Aires.
	Ontario Ministry of Education	12/3/2021		II		1	no		Ontario Ministry of Education Energy Conservation Office (OMC); Corey Metzger of the ETF Schools Team participated.
	Meeting with U.S. Embassy Mexico	2/22/2022	Central PA		1	1	yes	yes	Bill McQuade met with Mary Vargas, Trade and Investment Counselor, U.S. Embassy Mexico. Discussed a new anti-corruption law in Mexico requiring a waybill document to be presented for products shipped domestically within Mexico or across borders.
	Webinar with APEGA and ASET featuring ETF presentation	3/1/2022	Northern and Southern Alberta	XI	4	1	yes	yes	The NA & SA ASHRAE Chapters arranged a joint meeting webinar on the afternoon of March 1st with APEGA and ASET of Alberta featuring an ETF presentation by Dr. William Bhanfleth and moderated by Bill Dean. There were 370 participants including school district officials, university officials and government officials.
	Costa Rica Ministry of Environment and Energy	3/11/2022	Florida West Coast		3	1	yes		Meeting with Costa Rican Ministry of Environment and Energy on how to implement 90.1.
	Monterrey, Mexico Energy State Department Workshop	3/16/2022	Monterrey	VIII	15	1	yes		Workshop with Monterrey's Energy State Department. 15 public servants, secretaries of economy, environment and urban development of the state were in attedence to discuss HVACR in response to climate/resilience.
	ASRHAE Meeting with PAHO and WHO	3/22/2022			7	1	no		Senior Officer meeting on establishing a partnership with PAHO and WHO.
	Vancouver and British Columbia webinar on Making Schools Safer for Occupancy	4/12/2022	Vancouver and British Columbia	XI	8	1	Yes	yes	Vancouver Island and Region XI RVC organized a joint Vancouver and BC chapter webinar on Making BC Schools Safer for Occupancy, featuring ETF Chair Bill Bahnfleth. 52 government officials attended, including school and health care officials.
	Efficiency Canada Webinar	4/8/2022			2	1	no	Yes	Efficiency Canada Webinar - sharing work of TFBD and GAC.
	Chile adoption of ASHRAE Standard 170	TBD		XII	TBD	TBD	no		
	Total Global Held:	**19**			**71**	**12**	**9**	**6**	
Scheduled	Meeting with Saskatchewan Ministry of the Environment	May 5 to 7		I	1	1			
	Meeting with Canadian Members of Parliament	June 6 or 13	Ottawa	II					
	Total Global Scheduled:	**2**			**1**	**1**		**0**	
Planned	Region II Canada federal event	TBD		II		TBD			
	Region II Canada federal event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada local event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Region II Canada provincial event	TBD		II					
	Canadaian Parliament / Ottawa Day in the Park	TBD		II					
	Total Global Planned:	**19**			**0**	**0**		**0**	

Region Successes

- **Monterrey continued work with local and state government officials in relation to ASHRAE Epidemic Task Force (ETF) and Task Force for Building Decarbonization (TFBD).**
- **Monterrey procured agreement with local/state government with a main goal of the event to sign an agreement between ASHRAE Monterrey Chapter and the Energy State Department.**
- **Monterrey celebrated 2nd Edition of Mexico World Refrigeration Day**
- **Central OK & NE OK work directly with Oklahoma Uniform Board of Code Commission (OUBCC) in adoption of IECC**
- **Central OK & NE OK continued annual joint state capitol visit. Chapters work directly with state senators on approval of SB 148 which added two licensed engineers to OUBCC for design review regarding code compliance.**
  - **Mechanical Engineer Appointed: Wayne Allen**
  - **Electrical Engineer Appointed: Dee Hays**
- **Dallas, Fort Worth, NE OK, & Central OK were presented Proclamation of E-Week for local or state government**

GAC

Region Successes

- **Central Oklahoma & Northeastern Oklahoma Chapters – 8th consecutive Outreach Day. Longest running in Society. Involved in sponsored legislation HB1818 & SB148**
- **Central Oklahoma & Northeastern Oklahoma obtained National Engineer successfully worked with our legislature and leaders for our first statewide proclamation for Engineer's Week from Oklahoma Governor Kevin Stitt**

GAC

Region Successes

- **Monterrey procured agreement with local/state government with a main goal of the event to sign an agreement between ASHRAE Monterrey Chapter and the Energy State Department. due the impact of energy demand for space cooling on the energy landscape in Mexico, as well as to identify emerging opportunities for collaborations. This event is part of the efforts made by the local government aimed at creating awareness, supporting effective objectives, developing energy policies and promoting technologies for cooling and conditioning responsible spaces with future energy and environmental impact**

From Daryl Collerman, RVC for Region XI
Spring 2022 GAC Meeting

My 3 minute update of significant Region XI activities for the May 5th GAC spring meeting.

- State of Oregon recognized National Engineers Week Feb 20 - 26 2022

- Northern Alberta and Southern Alberta ASHRAE Chapter Presidents wrote a letter recommending the School Districts act on mitigating the spread of infectious diseases, that letter was reviewed by the ETF Chair Bill Bahnfleth who subsequently wrote a letter of review to reinforce the Chapter President's letter. These letters were presented to the School Districts in Alberta and as a result, the Edmonton School District allocated 6 million dollars to go towards equipping all of the classrooms within the school district with portable HEPA Filter Units.

- Northern Alberta and Southern Alberta ASHRAE Chapters organized a joint webinar with the Association of Professional Engineers & Geologists of Alberta, and the Science and Engineering Technologists of Alberta, with a presentation from ETF Chair Bill Bahnfleth. There were 370 participants in the webinar, including officials from school districts and universities, as well as government officials. There was also significant international participation, with attendees from Turkey, Israel, Bahrain, the United Kingdom, Ireland, Germany, the Philippines, the Dominican Republic, and Mexico, as well as Canada and the U.S.

- Vancouver Island ASHRAE Chapter GA Chair Eric Loper with the help of GA RVC Daryl Collerman organized a joint (BC & V.I ASHRAE Chapter) webinar presentation on April 12th featuring a presentation from ASHRAE ETF Chair Dr. William Bahnflethand moderation by Robert Bean. There were 148 attendees; of those there were 33 School District Officials, 8 Post Secondary School Officials, 11 Government Officials, 2 Officials from the BC CDC, and 3 Officials from BC Health Care, and the balance were from Industry, Consultants, and the General Public including a News Reporter who later that day interviewed Bill Bahnfleth and Minister of Education and wrote and published an article on those interviews by press deadline that day!

In the works:

- Organizing a Social Event with the Vancouver Island GA Chair to be held at a Local Brew Pub in Victoria from 5-9pm on Thursday June 23rd to celebrate and commemorate International Women in Engineering Day (June 23rd) and the up and coming World Refrigeration Day on June 26th. Coinciding with the recognized Proclamations for these very special days.

- I'm also reaching out to all of the 11 Chapters within Region XI irregardless whether they have GA representation or not, and encouraging them to seek Proclamation recognition by their respective governmental bodies, and to consider organizing and evening celebration and commemoration at a local brew pub, as the Vancouver Island Chapter is doing.

End of Update

ACTION ITEMS

GOVERNMENT AFFAIRS COMMITTEE

Last Updated: May 5, 2022

#	Action	Assigned To	Due Date	Status	C/O
1	Provide a list of needs (resources, tools, educational products, etc.) that policy makers and elected officials are looking for from a technical perspective; please provide these lists to Chad and/or GovAffairs@ashrae.org In the list you send, please provide the name of the government group that was looking for this information, and/or the context for the request	All GAC Members	Oct. 22	11/22: Nothing yet received Material has been sent to Chad.	C
2	Send recommendations to Hayter for SY22-23 GAC leadership.	All GAC Members	Nov. 30		C
Added at 12-02-2021 meeting					
	None				
Added at 01-29-2022 meeting (ASHRAE Winter Meeting)					
3	Add a slide to the CRC PPT training that speaks to the topic of chapters within a state working together on advocacy).	Staff	Before Spring CRCs	4/26 Emily Porcari added a slide to the CRC training, posted online.	C
Added at 05-05-2022 meeting					
4	Provide updates on new editions of Standards and other ASHRAE publications that will soon be released, so that the most updated versions can be referenced in government outreach.	Cindy Callaway	ASAP	5/5 – Sent via email.	C

#	Action	Assigned To	Due Date	Status	C/O
5	Discuss when training on the ASHRAE Codes process should take place, and the nature of the training.	Meghan McNulty and Alice Yates	By Annual Meeting (June 24)		