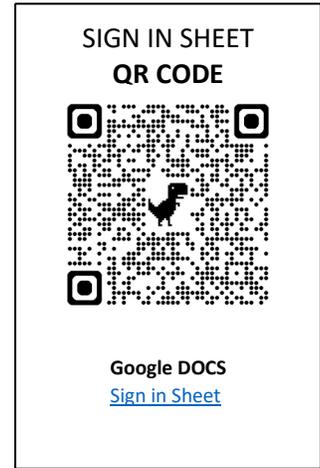


**ASHRAE TC 5.1 Fans
Main Meeting Agenda
2024 ASHRAE Annual Conference
Hybrid Meeting
Monday 6/24/2024, 4:30 PM - 6:30 PM EDT
JW Marriott Indianapolis, White River F (1) & Virtual**



Microsoft Teams meeting
[Click here to join the meeting](#)
Meeting ID: 298 330 987 012
Passcode: CX4Cnr

1. Call to order 4:34pm

Harold Dubensky

2. ASHRAE Value Statement

Harold Dubensky

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

3. ASHRAE Code of Ethics Commitment

Harold Dubensky

“In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests.” See full ASHRAE Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>

4. Introductions

All

- a. Determination of a quorum by Secretary Kevin Gebke

VOTING MEMBERS FOR THIS MEETING (Need (8) or ½+1 for a Quorum)

Voting members and/or subcommittee chairs for 2024 Annual Meeting

TC 5.1 Voting Members	Non-Voting Subcommittee Chairs
Harold Dubensky – Chair X	Z. Patrick Chinoda – Handbook S/C Chair
Mark VanderKooy – Vice Chair X	Joseph Brooks – Standards S/C Chair
Kevin Gebke – Secretary X	Brandon Diaz – Webmaster
Dr Rich Stauter - Program S/C Chair X	
Jaime Yeh - Research S/C Chair X	
Dr. Rad Ganesh X	
Chaitanya Johar X	
Nazme Mohsina X	
Kim Osborn X	
Brian Reynolds -	
Eric Tinglof X	
Jay Eldridge -	
Greg Wagner X	
Dr Gang Wang X	

5. Modifications to Agenda 4:47pm

All

6. Approval of Previous Meeting Minutes 4:47pm

Harold Dubensky

- a. The last meeting of this committee was held on June 25, 202, in Tampa, FL as an in-person meeting. Draft meeting minutes will be posted on the TC 5.1 website <https://tc0501.ashraetcs.org/>.
- b. Motion by Rich, 2nd by Jamie unanimous, changes include – Eric in 2 spots, fans instead of Fluids, change 2024 to 2023 in minutes approval section

7. Chair’s Report Harold Dubensky 4:55pm

- a. Announcements and Highlights from TC/TG/TRG /MTG Chairs Breakfast Sunday 6/23.
 - i. ASHRAE Standards and Communications Policy
 - ii. TAC organization updates
 - iii. Center of Excellence Building Decarbonization (CEBD)
 - iv. Global Technical Interactions Committee (GTIC)
 - v. The Residential Buildings Committee (RBC)
 - vi. Research Process Training - Writing RTARs, PTARs and Work Statements
 - vii. See Chair’s Breakfast slides attached

8. TC Membership/Roster Report

Harold Dubensky

As of July 1, 2024: Voting members and/or subcommittee chairs.

TC 5.1 Voting Members	Non-Voting Subcommittee Chairs
Harold Dubensky - Chair	Z. Patrick Chinoda – Handbook S/C Chair
Mark VanderKooy – Vice Chair	Nathan Fetting – Standards S/C Chair
Kevin Gebke - Secretary	
Dr Rich Stauter - Program S/C Chair	
Jaime Yeh - Research S/C Chair	
Brandon Diaz – Webmaster	
Dr. Rad Ganesh	
Chaitanya Johar	
Nazme Mohsina	
Kim Osborn	
Joseph Fiegen	
Eric Tinglof	
Jay Eldridge	
Greg Wagner	
Dr Gang Wang	

- a. Membership: 114 - Total Members
 - i. ~~15~~ 13 - Voting Members
 - ii. 2 - Non-voting Subcommittee Chairs
 - iii. 70 - Corresponding Members
 - iv. 27 - Provisional Corresponding Member
- b. Voting approval is 50% plus 1.
- c. ASHRAE requires a TC Balance - See update FG MOP on basecamp.
- d. Term limits:
 - i. Chair = 2 years with a 1-year extension through the approval of the Section Head.
 - ii. Vice Chair = 2 years.
 - iii. The Chair's term is not limited by the policy limiting normal Member and Member Non-Quorum reappointments to four (4) consecutive terms.

- e. Chair and Vice Chair MUST BE ASHRAE members!
- f. The Chair should have served at least one one-year term as Vice Chair or Secretary.
- g. Corresponding Members can serve in all TC management positions except Chair.
- h. July 1, 2024: updates to voting members and/or subcommittee chairs. Email for the Roster Update Form will be sent the first of February, 2025.
- i. Provisional Corresponding Members are dropped or changed to a Corresponding Member after 2 years.
 - i. The TC chair will email you to see if you want to be a Corresponding Member.
- j. If Interest in becoming a voting member. Submit your request to the TC Chair by February 2, 2025.

9. Liaison/Section Head Reports (as they arrive) 4:06pm

Liaisons

- a. Any TC liaisons or section heads present are given an opportunity to report on their activities.
- b. Kevin Marple Section Head 4:06pm
 - i. New roster tool is working well, let staff know if you have heard otherwise
 - ii. New strategic plan was approved Sat.

10. Fan Regulatory Activities

Michael Ivanovich

- a. Slides presented during the meeting are attached

11. Subcommittee Reports

Each subcommittee report should include a review of S/C roster, confirmation of S/C chairmanship for next year, and actionable items with target dates and responsible persons (if different from S/C chair.)

a. Website Report

Brandon Diaz

b. Standards Subcommittee 4:34pm

Joe Brooks

- i. **ASHRAE 51 is currently meeting**

c. Handbook Subcommittee 4:41pm

Patrick Chinoda

- d. Chapter reviews were completed from 4/10/2024 to 4/17/2024

- i. The reviewers were:

- 1 Patrick Chinoda
- 2 Zhiping Wang
- 3 Nathan Fetting
- 4 Sharma Abhishek

- e. Looking forward to the 2028 Handbook Updates:

- i. Inclusion of FEI and Labelling. (Was earmarked for Tim M. Looking for someone to spearhead that?)
- ii. Addition of Isometric Curves. (Suggested by Armin H. ?)
- iii. Addition of Belt Drive Research Findings. (Suggested by Zhiping W.?)
- iv. Harmonize Fan Terminology with TC 1.6 Fan Definitions. (Suggested by Jaime Y. ?)

- f. Any other suggested additions?

- i. TC 2.6 is looking for reviewers for handbook chapter 49

g. Program Subcommittee

Rich Stauter

- i. Will email info

h. Research Subcommittee

Jaime Yeh

- i. See slides attached

ii. **Include video link for plume study – 1835**

iii.

i. **Long Range Planning Subcommittee**

Harold Dubensky

i. **No update**

12. New Business / Old Business

Harold Dubensky

a.

13. Next meeting date and location - Orlando 2025 Winter Conference

Harold Dubensky

a. February 8th – 12th

14. Adjournment 6:23pm

Harold Dubensky

Code Interaction

Emily Toto

Summer Annual Meeting 2024

Indianapolis, IN

Code Interaction Subcommittee

What is it?

- A subcommittee of ASHRAE Standards Committee
 - Staff liaison provides representation at code hearings
 - Members check proposals for consistency
 - Subject to copyright approvals by ASHRAE Director of Pubs (if needed)

What codes are involved?

- Most often, ICC and IAPMO – Mechanical and Plumbing codes.
- CIS has also provided input for GSA's P100, RESNET, NY Mechanical Code, NFPA, and CSA

Code Interaction Subcommittee

How can we help ASHRAE TCs?

- Per ASHRAE procedures, a code change proposal that originates in a committee requires:
 - 1) majority vote, 2) CIS approval, and 3) submission by ASHRAE staff
- Communication with TCs
 - For occasional code interaction: submit proposals directly to CIS staff liaison (ASHRAE staff)
 - For frequent code interaction: recommend having a standing liaison from your TC to participate in CIS
- Representation at model code hearings* to speak on behalf of CIS-approved proposals and against conflicting items

Code Interaction Subcommittee

CIS or GAC?

- National or international items are always CIS
 - e.g., ICC, IAPMO, P100, NFPA, CSA
- Local or state items:
 - If the proposal includes language from an ASHRAE Standard or Guideline, CIS review should be sought.
 - If you are already working with D.C. staff, Alice Yates or Emily Porcari, they can help determine if CIS needs to be involved.

TAC Updates and Operation

James Bennett, TAC Chair

Summer Annual Meeting 2024

Indianapolis, IN

Some TAC Accomplishments

1. Equipped FG Chairs with online rostering to empower their committees toward achieving balance and succession planning
2. Changed the culture to expect virtual meetings between conferences, support hybrid communication during conferences and to asktac@ashrae.net
3. Met our MBOs and approved a TAC Strategic Plan in concert with the ASHRAE SP
4. Supported communities throughout ASHRAE with new roles for TAC members: Tech Council, OPSC, ISITF→GTIC, CEBD, DRSC, YEA, CTTC (extra work!)
5. Equipped and empowered Section Heads with management training to train their Chairs and to use their authority as required by the TAC MOP
6. Developed FG self-evaluation tools, revised the Activity Form including a version for MTGs, and revised the proposed MTG creation form
7. Increased women on TAC by 300%
8. Resolved controversies related to industrial sector favoritism in FGs
9. Created new MTGs, converted MTGs to TCs, converted TRGs and TGs to TCs, and merged TCs together
10. Revised TAC MOP, TAC Reference Manual (RM), FG RM, and MTG RM



SEVEN ESSENTIAL - vg + 3 = 10 LEADERSHIP ROLES



VISIONARY

CHANGE
AGENT

STRATEGIC
PLANNER

SAFETY & SECURITY
DEVELOP LEADERS
BE A FOLLOWER

TEAM
BUILDER

SERVANT

TEAM
MANAGER

PROBLEM
SOLVER





Rolling off:

Kevin Marple
Section Head and YEA Liaison
TAC Section 5– Ventilation and Air Distribution



Brad Cochran

Section Head and New Section Head Mentor

TAC Section 9– Building Applications

Rolling off:

Pat Marks

Section Head and Data Coordinator

Section 4– Load Calculations and Energy Requirements

TAC Operational Updates

1. New roster updates proposed in Spring **effective July 1**
2. Old roster effective for this meeting (Summer meeting until June 30)
3. Please provide any feedback on the new roster update to your Section Head
4. Please submit Activity form to Section Head by Tuesday, June 25



Center of Excellence Building Decarbonization (CEBD)

CEBD Updates and Operation

Wade Conlan & Costas Balaras, Tech Council

Summer Annual Meeting 2024

Indianapolis, IN

CEBD Interface with Councils



Center of Excellence for
Building Decarbonization

BOD

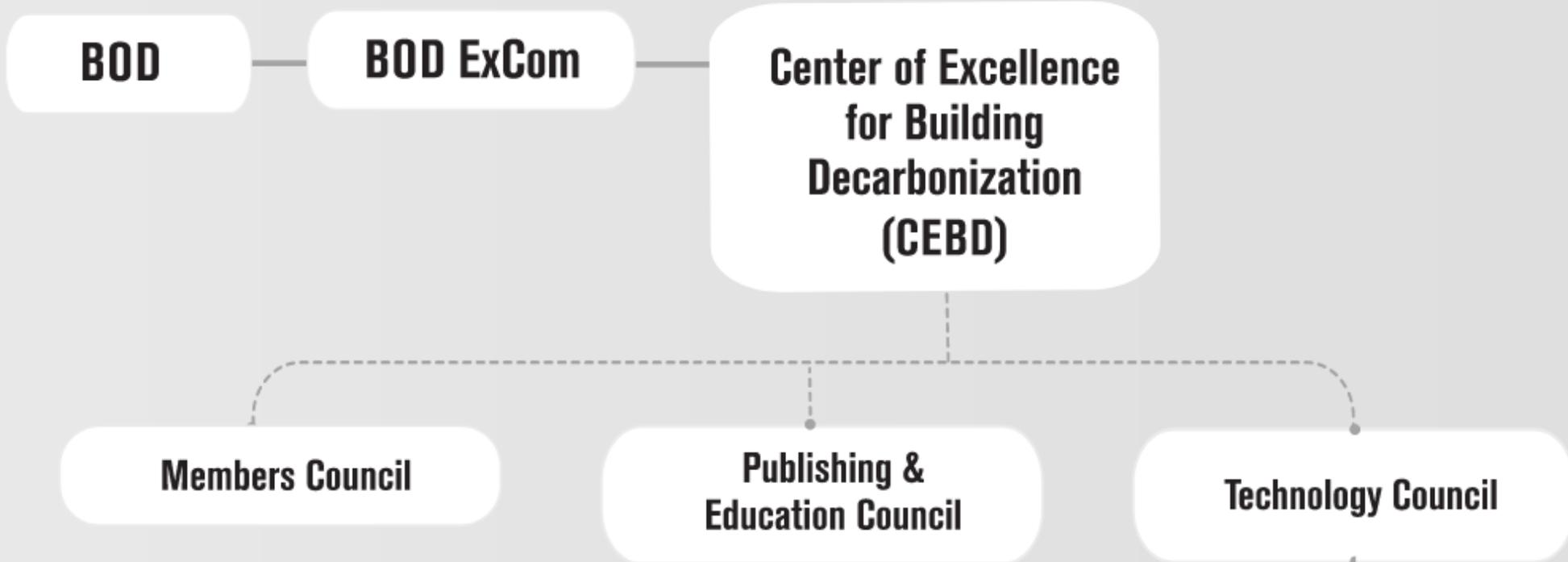
BOD ExCom

**Center of Excellence
for Building
Decarbonization
(CEBD)**

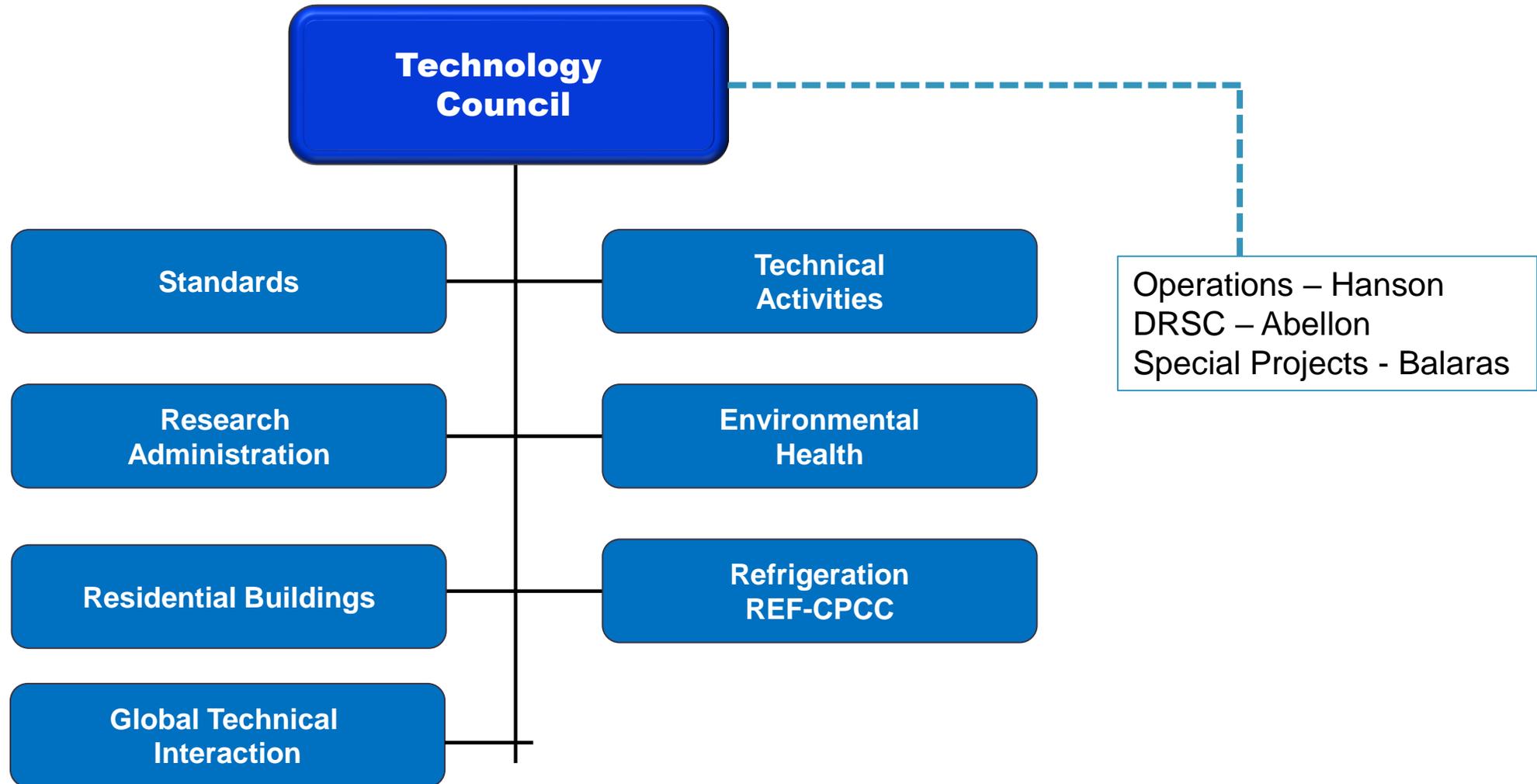
Members Council

**Publishing &
Education Council**

Technology Council



Technology Council



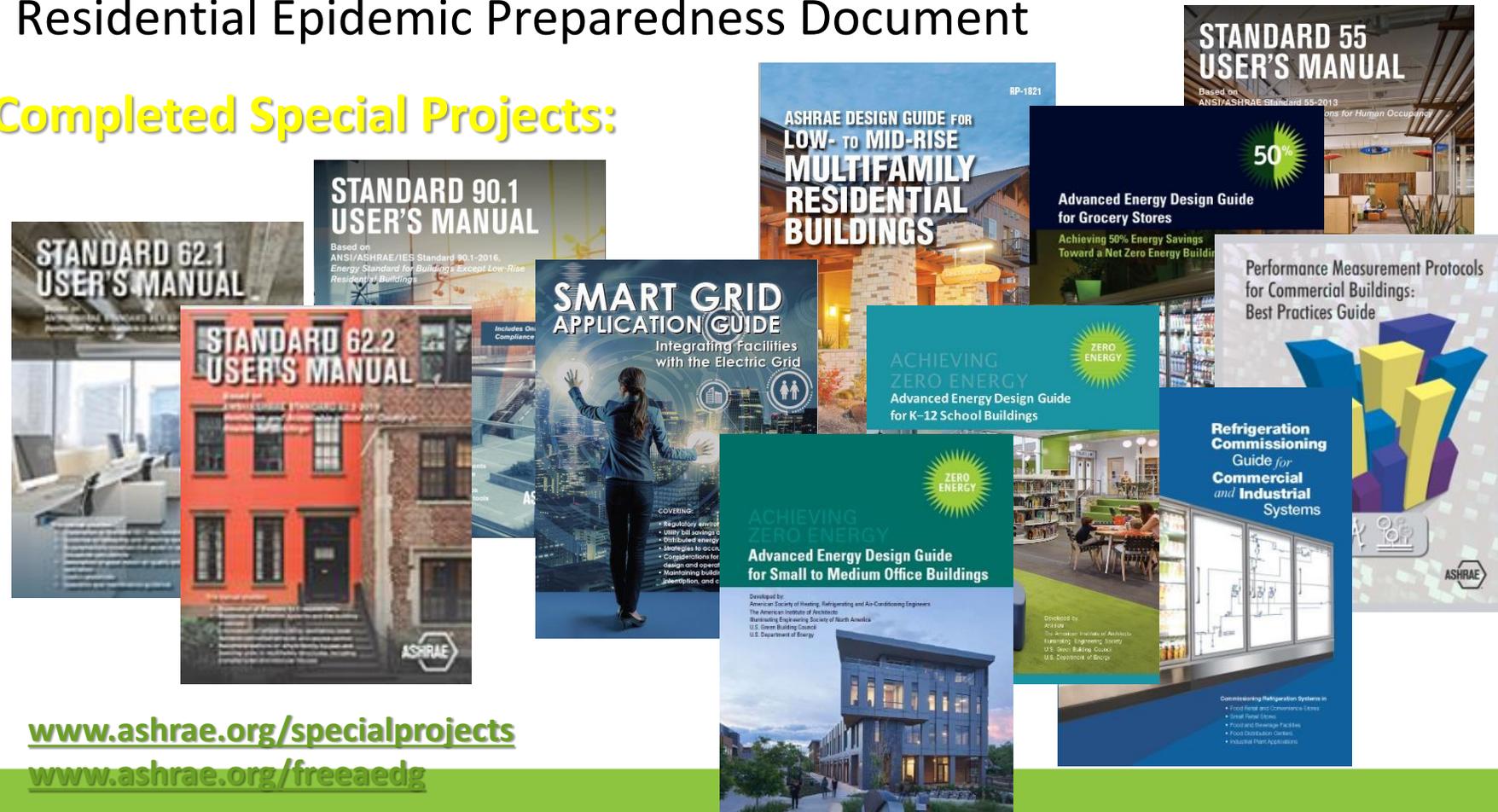
Special Projects

- Special Projects may be any **regular activity** of the Society that fits one or more of the following:
 - Performed outside of the ASHRAE research program
 - Require extensive effort
 - Cannot be accomplished entirely on a volunteer basis
 - Require accelerated approvals or activities
 - Funded in large part by outside sources
 - Performed in cooperation with other organizations
- NOTE: Not all co-funded and/or research projects are Special Projects, but a Research Project can also be a Special Project.

Prior Special Projects

- SP 143: AEDG for Multifamily: Zero Energy (Published!)
- SP 144: Operations Excellence Design Guide (Published!)
- SP 145: Residential Epidemic Preparedness Document

Completed Special Projects:



www.ashrae.org/specialprojects
www.ashrae.org/freeaedg

Special Projects Team – SY 2024-25

- Costas Balaras is Chair and Liaison to CEBD
- Committee Members:
 - Devin Abellon
 - Dru Crawley
 - Corey Metzger
 - Heather Schopplein
 - Kevin Mercer
 - Doug Fick
 - Richie Mittal
- Committee Liaisons:
 - Stds – Justin Prosser, Paolo Tronville
 - TAC – Ongun Kazanci, Kashif Nawaz, Kyle Gluesenkamp, Tina Bruckner
 - GTIC – Jyotirmay Mathur
 - RAC – Srinivas Katipamula
 - RBC – Philip Fairey
 - REF-CPCC – Bruce Nelson
 - EHC - TBD

Special Projects Role

- Assesses project feasibility along with relation to ASHRAE strategic plan, values, and mission
- Ensures projects are consistent with ASHRAE policies and procedures
- Approves project initiation, rosters, and contractors
- Responsible for administrative and financial oversight
- Provides assistance when asked, helping facilitate ASHRAE process requirements
- Recommends actions needed to address issues
- Keeps Technology Council informed of progress

Project Management Group

1. Concept Evaluation Group: Evaluates projects and decides if ASHRAE should pursue (5-10 days)
2. Project Management Group (which includes Special Projects Decarbonization Group) determines path forward for Project (30 days)
 - Internal to ASHRAE with technical cognizant creating information
 - External Project (to be managed by the PMG)
3. Overall project proposal to Sponsor (to TechC Chair and Special Projects for information) (10-21 days)
4. PMG (or Special Project Decarbonization Group for CEBD projects) monitors progress of either Research Team or Guide development team

Preliminary Project List from CEBD

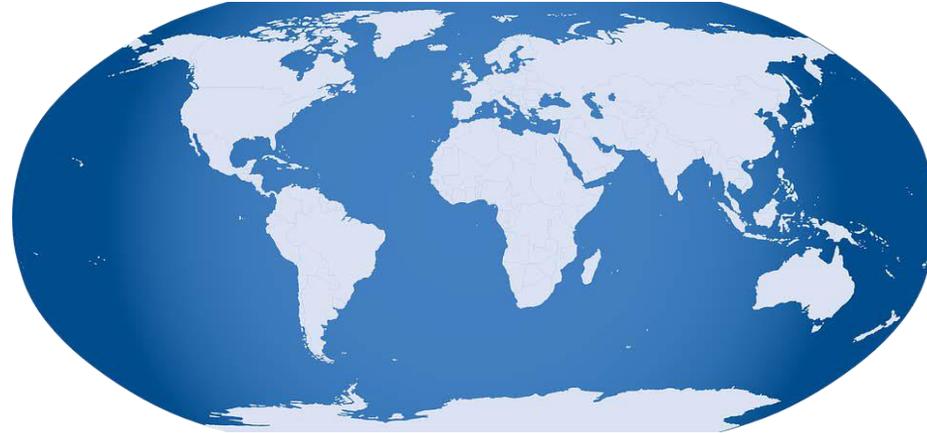
- Refrigerant Emissions Management, Tracking and Compliance
- Harmonizing Global Decarbonization Standards for Streamlined Compliance
- Streamlined, Flexible International Building Code Framework
- Evaluating global ASHRAE Member and Industry Needs for Building Decarbonization Education
- Optimizing PCR Protocols for Enhanced EPD Precision in HVAC&R Manufacturing
- Update HVAC Equipment Service Life Data
- Standardizing Whole Life Carbon Calculations for Building Systems
- Whole-Life Carbon Options Tool
- Strategic Assessment of Embodied and Operational Carbon Trade-Offs
- Updating Heat Pump Testing Requirements
- A1-A3 Foundational Embodied Carbon Quantification for MEP Systems
- Heat Pump Sizing Guide: Enhanced for Defrost Efficiency and Decarbonization
- Decarbonization Framework for Data Centers
- Decarbonizing District Energy Systems Guide
- Decarbonizing Single-Family Homes: A Guide for Sustainable Retrofits
- Building Circular Economy Practices for GHG Reduction
- Expanding Decarbonization to Unconventional GHG Emission Sources
- Decarbonization Strategies for Supermarket Industry Archetypes

Questions

Thanks for the time.

- Special Projects Chair – Costas Balaras (costas@noa.gr)
- Tech Council Chair – Wade Conlan (wconlan@hanson-inc.com)
- Tech Council Vice Chair – Devin Abellon (dabellon@pwsigroup.com)

Global Technical Interactions Committee (GTIC)



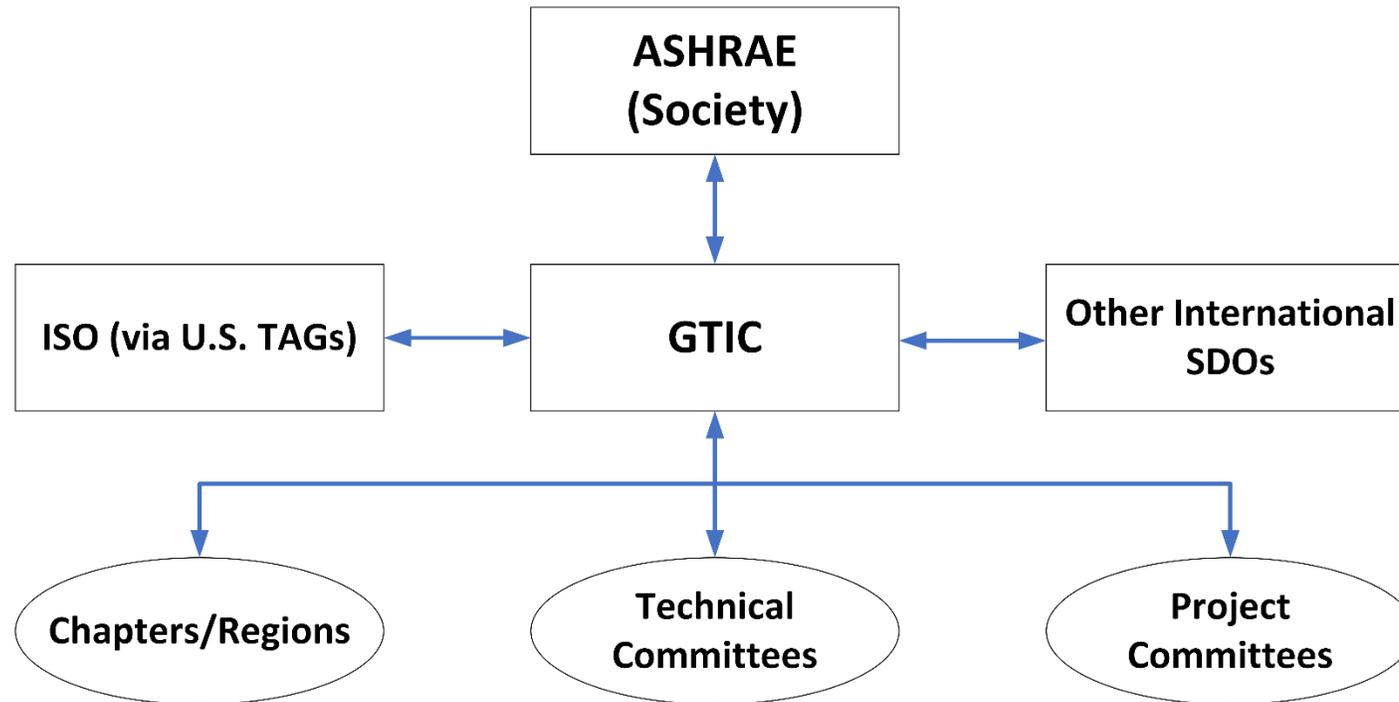
Steve Bushby & Ashish Rakeja

Summer Annual Meeting 2024
Indianapolis, IN

Global Technical Interactions Committee (GTIC)

Scope and Purpose

GTIC shall be responsible for harnessing the technical resources of ASHRAE to influence international standards and maximize the global impacts of ASHRAE standards and other technical work products on the practice of HVAC&R and the built environment.



GTIC - Internal and External Coordination of ASHRAE Technical Resources

GTIC is responsible for:

Harnessing ASHRAE technical resources by Impacting International Standards globally

Maximize the global influence of ASHRAE technical resources and services thru:

- a. **Develop, implement, and manage** processes information flow and coordination between; Chapters, TCs, PCs, and TAGs.
- b. **Encourage global perspective** when developing and maintaining ASHRAE Technical Resources
- c. **Facilitate engagement** of ASHRAE members around the world
- d. **Adapt/Adopt** ASHRAE Codes, Standards, and professional training resources globally
- e. **Inform ASHRAE Leaders and Members** of the potential impact of GTIC activities
- f. **Making recommendations on new activities** to increase ASHRAE global relevance
- g. **Facilitate a two-way knowledge exchange** to enable the adoption/adaptation of ASHRAE Technical resources globally
- h. **Promote ASHRAE Standards** through organizations, such as ISO and IEC

What Has GTIC Accomplished This Year?

Since being formally convened on July 1st, 2023, GTIC has:

- Worked closely with the Standards Committee to assume responsibility for functions which were previously assigned to the Intersociety Liaison Subcommittee/International Standards Advisory Subcommittee (ILS/ISAS).
- Conducted awareness on GTIC activities at previous Winter meeting at TC Chair breakfast meeting.
- Established clear paths for communication and coordination with Standards Committee and the Technical Activities Committee (TAC), with the vice chairs of both committees also serving as members of GTIC

GTIC Main Goals for SY 2024-25

S.No	Goals
1.	Mine the membership survey and identify the tasks to be undertaken to TAC & RAC
2.	Hold a program at ASHRAE Winter Meeting on International Standards & ASHRAE work relating to de-carbonization
3.	Reach out to TC Chairs and discuss & promote if they need members from International chapters for participation
4.	Implementation of ASHRAE-UNEP cooperation plan
5.	Set-up bridge between 2-3 countries/regions and work for adoption/development of De-carbonization Standards

What is ISO?

Established in 1947, the International Organization for Standardization (ISO) is a worldwide federation of **national** standards bodies from more than 170 countries.

Based in Geneva Switzerland

Is one of three formally recognized international standard development organizations. The others are the International Electrotechnical Commission (IEC) and the International Telecommunication Union (ITU).

Like ASHRAE, ISO has a collection of Technical Committees (TCs), each with their own scope.



What is ANSI's Role?

ANSI is the sole U.S. representative and dues paying member of ISO

As a founding member, ANSI plays an active role in ISO governance and technical work

U.S. participation in international standardization activities is through ANSI-accredited Technical Advisory Groups (TAGs). A TAG is comprised of relevant experts from a broad range of U.S. stakeholders.

The scope of a TAG corresponds to the scope of an ISO TC or Subcommittee



Where does ASHRAE fit in?

Administrative support for TAGs is delegated by ANSI to accredited Secretariats that are usually ANSI SDOs.



ASHRAE serves as Secretariat for five U.S TAGs

- ISO/TC 59/SC 13 Organization and digitization of information about buildings and civil engineering works, including building information modeling (BIM)
- ISO/TC 86 Refrigeration and air-conditioning
- ISO/TC 142 Cleaning equipment for air and other gases
- ISO/TC 163 Thermal performance and energy use in the build environment
- ISO/TC 205 Building environment design

Where do ASHRAE TCs fit in?

The GTIC is trying to facilitate information exchange and coordination between ASHRAE TCs and U.S. TAGs with a similar scope of interest:

- We want ASHRAE TCs to be aware of international standards that are relevant to their scope
- We want ASHRAE TCs to be a resource to U.S. TAGs
- We want to encourage ASHRAE TC members to become active in U.S. Tags

How are we going to make this work?

The GTIC subcommittee, Technical Committees Interactions Subcommittee (TCIS) is intended to be the interface with ASHRAE TCs

The TCIS chair is the same person as the **TAC Vice Chair**. Your TAC representative should be your initial point of contact

GTIC is developing a subject matrix that will help match TC and PC scopes with international counterparts

We hope the ASHRAE TCs create an internal process to provide updates about international activities to members at TC meetings. This includes standards but also other relevant activities

2024 ASHRAE Annual Conference

June 22-26, 2024 | Indianapolis, IN

RBC Update to TC Chairs

Carol Marriott, RBC Process Subcommittee Chair

Summer Annual Meeting 2024

Indianapolis, IN

RBC Charter & Vision

Charter:

- The Residential Buildings Committee (RBC) is responsible for identifying major residential trends impacting the practice of HVAC&R, informing the ASHRAE leadership and membership of these trends and their potential impacts, and making recommendations on new activities and policies in response to these trends. The committee will identify, recommend and coordinate relationships with societies and organizations that focus on residential buildings.

Vision:

- A healthy, sustainable and zero carbon built environment for all.
- Drive a greater influence on the residential built environment.

Activities

- Residential Issue Briefs
- Identification of Program topics for ASHRAE Conferences
- Initiation of Standards, Guidelines, or Guidance Documents
- Identification of Research topics
- Initiation of Training Courses
- Support of Functional Groups (i.e., Technical Committees, Standard Project Committees) as needed

A Sampling of Recent Accomplishments

- Initiated process and published “Residential Issue Briefs”
 - Wildfire Smoke Hazards for Dwelling Occupants
 - Ventilation, IEQ and Sleep Quality in Bedrooms
 - Working From Home
- An RBC-nominated Distinguished Lecturer (DL) provided presentations on Standard 90.2 and Residential topics in general
- Awarded first three “Residential Buildings Service Awards”
- Developed ASHRAE Journal podcast on Residential topics
- Led a track on residential topics in ASHRAE’s “Buildings” Conference
- Coordinated publication of columns and articles in ASHRAE Journal under the “Residential Applications” track
- Rewrote chapter on Residential in ASHRAE’s GreenGuide
- Initiated development of Guideline on Humidity Control
- Created a Strategic Plan for Residential focus areas for RBC

RBC Website

RESIDENTIAL ISSUE BRIEFS	-
 RBC Issue Brief - Working From Home (January 2023)	
 RBC Issue Brief - Ventilation, IEQ and Sleep Quality in Bedrooms (June 2022)	
 RBC Issue Brief - Wildfire Smoke Hazards for Dwelling Occupants (May 2022)	
RESIDENTIAL BUILDINGS SERVICE AWARD	+
MEETING MINUTES	+
COMMITTEE DOCUMENTS	+

<https://www.ashrae.org/communities/committees/standing-committees/residential-building-committee-rbc>

RBC 2024-2029 Strategic Plan

Relevance

- Outreach needed beyond ASHRAE
- ASHRAE desires to become the source for expertise

Decarbonization

- Lack of standardization
- Lack of knowledge down to the home owner level

IEQ

- Lack of knowledge, not well understood
- Lack of tools and resources

Resilience

- Lack of motivation
- Lack of standards/tools/resources

Our request to you today

1. We are looking for speakers we can help nominate as DL's on residential topics
 - We would be happy to attend your committee meetings to cover this topic in person
2. Nominate someone for the Residential Buildings Service Award
 - Due Oct 1
3. Let us know how we can partner with your TC to increase the awareness of residential topics throughout ASHRAE

Writing RTARs, PTARs and Work Statements

Natascha Milesi-Ferretti

Summer Annual Meeting 2024

Indianapolis, IN

Summary

- Why we write research proposals
- Importance of format
 - RTARs and Work Statements
 - PTARs and Work Statements for Publications
- Do your own research first
- Intended audiences
- Timeliness
- Tips for success

Why we write research proposals

- ASHRAE is one of the few professional societies to sponsor research in support of its standards and technology transfer products
- Research raises the visibility of the society and the industry
- The Research Administration Committee (RAC) is tasked with screening and prioritizing projects based on the current ASHRAE Research Strategic Plan
- The competitive bidding process is effective for obtaining cost-efficient projects that are well planned and executed
- Developing and monitoring research projects raises interest in TC, standards, and other technical groups within ASHRAE

Format for Research Proposals

- Research Topic Acceptance Request (RTAR)
 - Short, for quick topic development by technical experts and review by RAC
 - Illustrates support of ASHRAE Strategic Plan
 - Demonstrates a real deed within the HVAC&R industry and ASHRAE



- Work Statement (WS)
 - More detailed with no specific page limit
 - Clearly stated requirements for project objectives, tasks, and deliverables
 - Sufficient detail for bidders to estimate time, effort, and equipment requirements
 - Demonstrates a clear understanding of the state-of-the-art

Importance of format (continued)

- Publication Topic Acceptance Request (PTAR)
 - Short, for quick topic development by technical experts
 - Demonstrates a market need for the Publication
 - Other available guidance
 - Age of other guidance
 - Appropriateness as a stand-alone publication (as opposed to in handbook)

If Publications Committee approves and RAC concurs

- Work Statement for Publication (WSP)
 - More detailed with no specific page limit
 - Clearly stated publication need and target audience
 - Proposed Table of Contents and estimate of time, effort
 - Demonstrates a clear understanding of the state-of-the-art

Timeliness

“A Work Statement may be prepared and submitted without a preliminary RTAR approval if, for example, there is an extremely time-critical need for results.” ASHRAE Research Manual

Some technical groups have chosen to submit a WS without submitting an RTAR first.

- Few WSs are approved on the initial submission
- RAC comments on RTARs are often beneficial for later WS approval
- RTAR submittal may be done from one meeting to the next, so does not take long to implement RAC suggestions

Unlike the RTAR stage, we cannot skip the PTAR since it is used to coordinate efforts between RAC and Publications Committee

Do your own research first

- By definition, research is work that has not been done already
- RTAR
 - Show state-of-the-art, the need for this project and how ASHRAE will benefit
 - Include project objectives with special equipment/facilities needs and estimate of completion time and budget
- Work Statements
 - Much more detailed background and literature review to show need and benefits to ASHRAE
 - Clear scope of work, required tasks and format for deliverables
 - Identify those working in this area for recommended bidders and potential cost-share

Intended audiences

- RTAR
 - RAC is the only group that sees RTARs
 - RAC members have various and diverse backgrounds in HVAC&R Topic areas
 - Must present a convincing argument to those unfamiliar with the topic about the project benefits
- Work Statements
 - Diverse RAC must be convinced of need, benefits, and thoroughness of the project description and objectives
 - Approved work statements become the basis for the Request for Proposal and the metric for the project evaluation subcommittee to evaluate bids
 - Objectives, methods, tasks, deliverables must be clear for technical experts to prepare competitive bids
- PTAR
 - PTAR subcommittee of the Publications Committee conducts first reviews discussions and vote to accept or reject, based on the market need for the publication
 - If they accept or accept with comments, the PTAR and any feedback subsequently goes to RAC for a subsequent review for a final vote regarding funding
- WSP
 - RAC reviews to ensure the publication is biddable and that appropriate evaluation criteria are in place to use in comparing bids

Likely Upcoming Changes to RAC Work Statement Development

Bill Murphy

Summer Annual Meeting 2024
Indianapolis, IN

Summary

- Why some WS changes are being discussed
- Potential bidder information and contacts
- Potential co-funding sources and contacts
- Budget estimating guidelines
- Online database for RTARs coming soon

Why are we discussing WS changes?

- During the pandemic, a number of RFPs got no bids and had to be re-bid multiple times.
- Research budgets were also stretched when the Expo in Chicago was cancelled.
- Per ASHRAE Strategic Plan Midterm Update, “Focus on leveraging ASHRAE Research dollars with matching funds from other research partners and funding sources.”
- Many WS budget estimates appear to be simply a number pulled out of thin air.
- The long-awaited online research development tool will soon be rolled out for the RTAR stage.

Potential Bidders

- **Current Requirement**

- List names and contact information for at least three “potential” bidders
- No guarantee that the potential bidders will have any interest in bidding, or even are aware of the RFP

- **Potential Requirement**

- WS authors must contact listed potential bidders to get their approval before being listed on the WS form
- This contact should verify that the potential bidders are aware of the future RFP and would have some interest and qualifications for bidding.

Potential Co-funding Support

- **Current Requirement**

- List names and contact information for any “potential” co-funding organizations
- No guarantee that the potential co-funders will have any interest, and MORTS would follow up with the organization only at the research contract stage.

- **Potential Requirement**

- WS authors should directly contact potential co-funders and include a support letter with the first draft WS.
- No firm financial commitment of the co-funder will be required.
- Co-funding will not be required to get WS approval from RAC but may allow a WS to jump the queue during times of tight research budgets.

Budget Estimating

- **Current Requirement**

- A single number is listed as the estimated budget for the total project
- There is no requirement for showing how that budget number is determined

- **Potential Requirement**

- Budget estimates should be listed for different cost categories, such as personnel, equipment, grad student tuition, indirect costs.
- RAC will develop new guidelines for ranges of estimates for personnel and indirect costs.
- The costs received from bidders is what really counts, but having better budget estimates will help RAC plan our availability for sending RFPs out for bid.

Online Database for WS Development

- **Current System**

- All RTAR and WS documents are now digital using standard templates and are transferred via e-mail attachments.
- Sometimes difficult to keep track of the most current version of documents under revision and for TCs and RAC research liaisons to know the current status of the development process.

- **Online System**

- All research documents will be available online from the initial RTAR to final research report.
- Access will be provided to appropriate TC members, RAC research liaison, and RAC staff so everyone can follow the process in real time.
- It is anticipated that the RTAR phase of this online database will roll out in Fall 2024, with WS and other phases to soon follow.

These changes have not yet been finalized, and the final details will eventually be included in an updated version of the Research Manual on www.ashrae.org.

Thanks for your efforts on behalf of ASHRAE research.

Tips for Success

- Set up a training class for your TC, to increase participation and collaboration
- Review the scoring checklist as you write your proposal
- Keep in mind the time needed for various stages of review, ahead of Research Liaison review.
- If a first WS is returned, keep the committee working on it and don't let it slide into oblivion. Keep your Research Liaison aware of what you are working on and what is dropped.

Deadlines: MMAD 15 (March 15, May 15, April 15, December 15)



Fan Regulation Update

Michael Ivanovich, Senior Director, AMCA Intl.

Briefing for ASHRAE TC 5.1 - Fans
24 June 2024

www.amca.org

Trying something different

- Give a person a fish, and feed them for a day
- Teach a person to fish, and they can feed themselves forever
- Update on California, DOE, and international fan regulations
- Useful links for keeping up to date
 - Will just breeze through them; slides will be in minutes.

California Title 20

- Since January meeting:
 - In effect for fans manufactured on or after April 29, 2024
 - DOE Test Procedure now adopted into CEC Title 20
 - Embedded fans are exempt by Title 20, but still covered by DOE test procedure where applicable
 - Including replacement fans exclusively sold for embedded fans
 - Air curtain units and fans for transportation are exempt but not explicitly in Title 20 language
 - Listed DOE test procedure exemptions for embedded fans
 - Safety Fans includes lab exhaust fans per DOE definition are now exempt in California
 - Alternative Efficiency Determination Methods (AEDM) allowed per DOE requirements
 - But not called out in Table X MAEDbS filing parameters

Fishing in Lake Title 20



MAEDbS Search for fans

- For list of all fans in dataset: Visit <https://cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx>
- Click on Appliance Type
- Select Fans and Dehumidifiers
- Select Commercial and Industrial Fans
- Click on Search
- 102,787 models in database as of June 23, 2024



SEARCH

Quick Search

To begin your search enter model criteria and click search. Use the additional fields if necessary. The quick search also allows search results to be narrowed to currently approved models or to search historical models.

To search historical models, please set the status to archived which can be found on the appliance status tab.

Questions can be directed to Appliances@energy.ca.gov or to the Appliances Hotline, toll free at (888) 838-1467 or outside California (916) 651-7100. [Search Instructions](#) are also available.

Model Number

Appliance Type

Company

Brand

Appliance Status

Select Category

Fans and Dehumidifiers

Select Appliance Type

Commercial & Industrial

Search

Clear

Search Results 102787 record(s) found

Export To: Excel CSV

MAEDbS Quick Search: List of Manufacturers

- On search results page:
 - Click on Company
 - Select Company (drop down menu header) to get list of manufacturers that have models in the database

www.amca.org

✓ Please Select

Acme Engineering & Manufacturing Corporation
Canarm
Captiveaire System Inc
Cincinnati Fan & Ventilator Co., Inc.
ebm-papst inc.
Energy Labs Inc.- Vertiv
Energex, Inc.
Greenheck Fan Corporation
J&D Manufacturing
Loren Cook Company
Maxify Solutions Inc.
Moffitt
Multi-Wing International A/S
Nortek Air Solutions
PennBarry
Punker LLC
Regal Beloit Cassville
Regal Rexnord Germany
S&P USA Ventilation Systems, LLC
Systemair
The New York Blower Company
Twin City Fan Companies
Vostermans Ventilation
ZIEHL-ABEGG

MAEDbS Advanced Search: Download All Data

- Visit
 - <https://cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx>
- Select Fans and Dehumidifiers and Commercial and Industrial Fans as for Quick Search
- Select Fields to Display
 - Select "All" for complete database or pick what you want
 - Apply up to five filters or none (to get all data)
 - Click Search
 - Wait....
 - When prompted, enter email address and await file



Advanced Search

The Advanced Search allows you to create a narrower search by selecting unique model criteria. You will be guided to select the category, type, then narrow your search results with additional filters. In this search you can select the fields displayed in the results by checking the "Select All" box. There are also additional filters that can be applied to look up specific model information.

To search historical models, please set the appliance status to archived.

Questions can be directed to Appliances@energy.ca.gov or to the Appliances Hotline, toll free at (888) 838-1467 or outside California (916) 651-7100. [Search Instructions](#) are also available.

Recent Searches

[Commercial & Industrial Fans & Blowers](#)

Select Appliance Type

Select Category:
 Select Appliance:
 Select Appliance Status:

Select Fields to Display

- Select/Deselect All
- Manufacturer
- Fan Type
- Pressure Type
- Airflow At Maximum Fan Speed (CFM)
- Maximum Pressure (Inches Water Gauge)
- Fepref At Maximum Pressure (Kw)
- Fepact At Maximum Airflow (Kw)
- Brand
- Fan Impeller Diameter (In.)
- Transmission Type (If Fan Is Sold With A Transmission)
- Pressure At Maximum Fan Speed (Inches Water Gauge)
- Airflow At Maximum Pressure (CFM)
- Maximum Air Flow (CFM)
- Fepref At Maximum Airflow (Kw)
- Model Number
- Motor Type (If Fan Is Sold With A Motor)
- Controller Type (If Fan Is Sold With Controller)
- Fepact At Maximum Fan Speed (Kw)
- Fan Speed At Maximum Pressure (RPM)
- Pressure At Maximum Airflow (Inches Water Gauge)
- Add Date
- Regulatory
- Motor Name With An Induct
- Maximum F
- Fepref At M
- Fepact At M
- Fan Speed
- Reference I

- Pressure (Kw)
- Fepact At Maximum Airflow (Kw)
- (Inches Water Gauge)
- Add Date
- Reference Number

Filters

<input type="text" value="Please Select"/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value="Please Select"/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value="Please Select"/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value="Please Select"/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value="Please Select"/>	<input type="text" value=""/>	<input type="text" value=""/>

Search

Clear

Maximum Air Flow (CFM) Pressure At Maximum Airflow Fan Speed At Ma

Export Search Results

You have selected large result set to download
You will be notified by email when the search results are ready to download

*Email Address

Confirm Cancel

NR

No Reply <noreply@energy.ca.gov>

To: Michael Ivanovich

😊 ↶ ↷ → 📧 📎 📧 ...

Sun 6/23/2024 9:01 AM

You don't often get email from noreply@energy.ca.gov. [Learn why this is important](#)

EXTERNAL

Your advanced search export for Commercial & Industrial Fans & Blowers is ready. Please click on the following link to download your document. The link will expire in 30 days.
<https://cacertappliances.energy.ca.gov/Pages/Common/DownloadAdvancedSearchResult.aspx?DocumentID=6c74639f-04d4-45c2-9a66-18144d50e7af>

↶ Reply Forward

U.S. Department of Energy

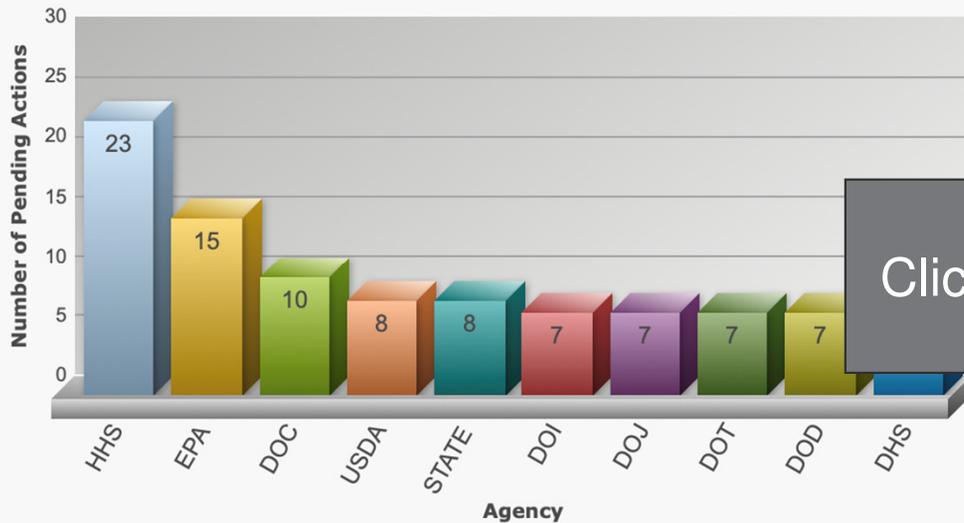
- Fan and Blowers
 - As reported in January, Energy Standard Notice of Proposed Rulemaking (NOPR) deadline for comments was March 19, 2024
 - General Fans and Blower
 - Air Circulating Fans
 - No news since that time
 - Expected later in 2024
 - Would take effect five years later
- Ceiling Fans
 - Large diameter ceiling fans (LDCF) in AMCA scope
 - LDCF Energy Standard Final Rule now undergoing review by Office of Management and Budget
 - www.reginfo.gov to track; Final Rule published soon after it disappears from OMB website

Fishing in Lake OIRA



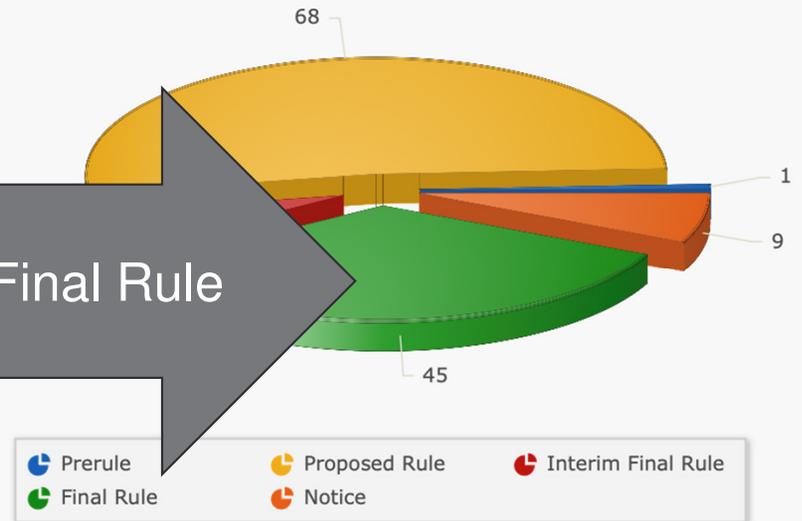


AGENCIES WITH THE MOST REGULATORY ACTIONS CURRENTLY UNDER REVIEW



Total Pending Actions: 131

Pending Actions By Rule Stage

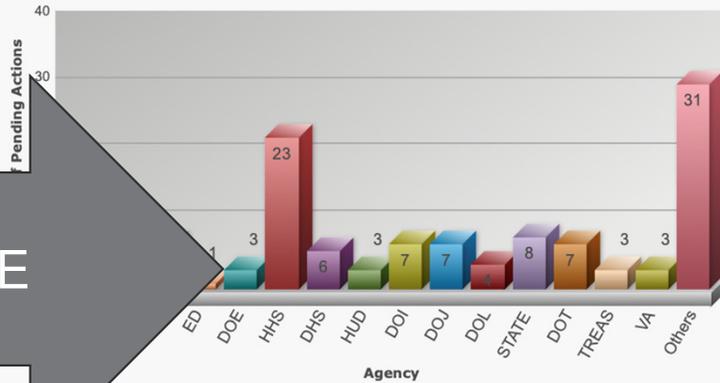


Click on Final Rule

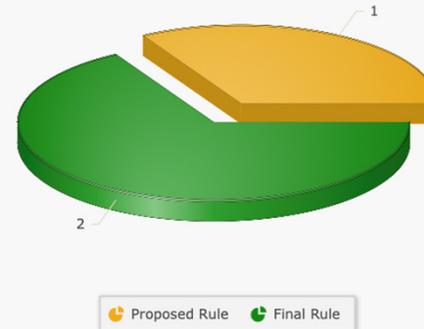
View

Click on DOE

REGULATORY ACTIONS CURRENTLY UNDER REVIEW BY AGENCY



Pending Actions of DOE By Rule Stage



View Agency

Total Pending Actions: 131

View By Rule Stage

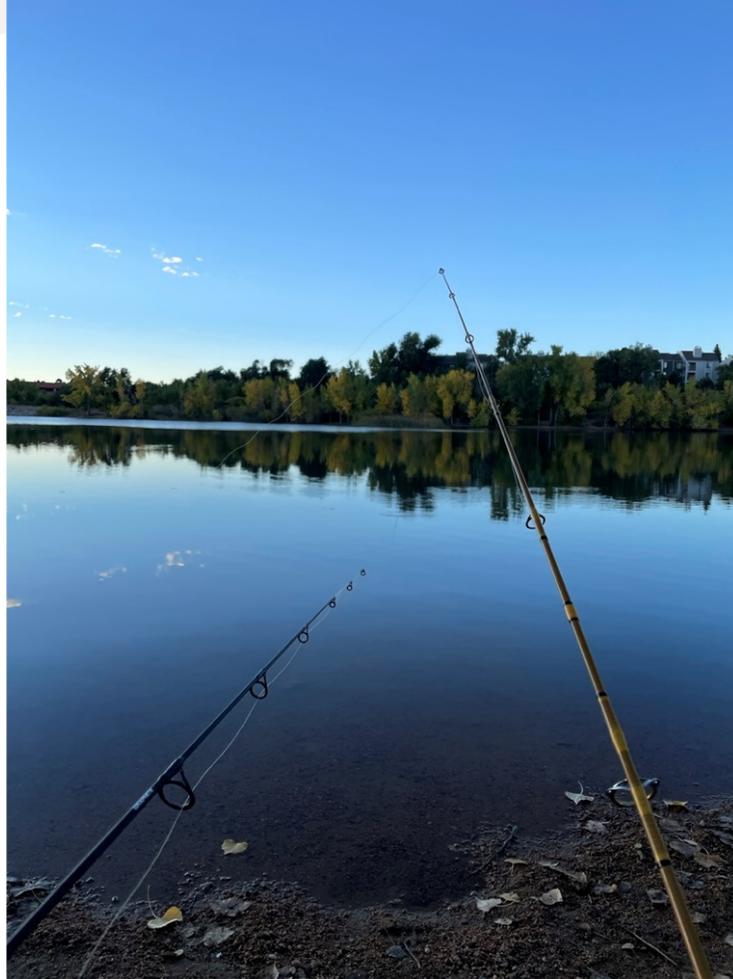
List of Regulatory Actions Currently Under Review

(Agency: DOE; Rule Stage: ALL; Length of Review: ALL; Section 3(f)(1) Significant: ALL; International Impact: ALL)

Department of Energy

AGENCY: DOE-EE TITLE: Energy Conservation Standards for Battery Chargers STAGE: Final Rule RECEIVED DATE: 03/25/2024	RIN: 1904-AE50 SECTION 3(f)(1) SIGNIFICANT: Yes LEGAL DEADLINE: Statutory	Status: Pending Review Request EO Meeting
AGENCY: DOE-EE TITLE: Energy Conservation Standards for Ceiling Fans STAGE: Final Rule RECEIVED DATE: 05/30/2024	RIN: 1904-AE99 SECTION 3(f)(1) SIGNIFICANT: Yes LEGAL DEADLINE: Statutory	Status: Pending Review Request EO Meeting
AGENCY: DOE-EE TITLE: Energy Conservation Standards for Portable Electric Spas STAGE: Proposed Rule RECEIVED DATE: 10/27/2023	RIN: 1904-AF36 SECTION 3(f)(1) SIGNIFICANT: Yes LEGAL DEADLINE: None	Status: Pending Review Request EO Meeting

Fishing at DOE Dam



DOE Fan Regulation Resources

- Appliances Standards Fans and Blowers Pages
https://www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=51&action=viewlive

or

<https://www.energy.gov/eere/buildings/fans-and-blowers>

- Appliance Standards Ceiling Fans Page
<https://www.energy.gov/eere/buildings/ceiling-fans>

Fans and Blowers

Buildings

[Buildings](#) » Fans and Blowers

As defined in the Code of Federal Regulations (CFR), a “fan or blower” means a rotary bladed machine used to convert electrical or mechanical power to air power, with an energy output limited to 25 kilojoule (kJ)/kilogram (kg) of air. It consists of an impeller, a shaft and bearings and/or driver to support the impeller, as well as a structure or housing. A fan or blower may include a transmission, driver, and/or motor controller. 10 CFR 431.172.

Subscribe
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RECENT AND ONGOING ACTIVITIES	+
CURRENT STANDARD	+
CURRENT TEST PROCEDURE	+
HELPFUL LINKS	+
CONTACT INFORMATION	+

RECENT AND ONGOING ACTIVITIES —

For the latest information on the planned timing of future DOE regulatory milestones, see the current [Office of Management and Budget Unified Agenda of Regulatory and Deregulatory Actions](#) . All planned dates are preliminary and subject to change.

Links to energy standard and test procedure rulemakings in Federal Register

STANDARDS	
Notice of Proposed Rulemaking	<ul style="list-style-type: none"> Federal Register, 89FR3714 (January 19, 2024)
Notice of Data Availability	<ul style="list-style-type: none"> Federal Register, 87FR62038 (October 13, 2022)
Request for Information	<ul style="list-style-type: none"> Federal Register, 87FR7048 (February 8, 2022)
Final Rule; Final Determination	<ul style="list-style-type: none"> Federal Register, 86FR54412 (October 1, 2021)

The fans and blowers energy conservation standard rulemaking docket [EERE-2021-BT-TP-0021](#) contains all notices, public comments, public meeting transcripts, and supporting documents pertaining to this rulemaking.

Public Meeting Information

There is no public meeting scheduled at this time.

Submitting Public Comments

The comment period has closed.

TEST PROCEDURE	
Final Rule; Correction Final Rule	<ul style="list-style-type: none"> Federal Register, 88FR53371 (August 8, 2023) Federal Register, 88FR27312 (May 1, 2023)
Notice of Proposed Rulemaking	<ul style="list-style-type: none"> Federal Register, 87FR44194 (July 25, 2022)
Request for Information; Comment Extension Request for information	<ul style="list-style-type: none"> Federal Register, 86FR59308 (October 27, 2021) Federal Register, 86FR54412 (October 1, 2021).

The fans and blowers test procedure rulemaking docket [EERE-2021-BT-TP-0021](#) contains all notices, public comments, public meeting transcripts, and supporting documents pertaining to this rulemaking.

www.amca.org

Fans and Blowers

Buildings

[Buildings](#) » Fans and Blowers

As defined in the Code of Federal Regulations (CFR), a “fan or blower” means a rotary bladed machine used to convert electrical or mechanical power to air power, with an energy output limited to 25 kilojoule (kJ)/kilogram (kg) of air. It consists of an impeller, a shaft and bearings and/or driver to support the impeller, as well as a structure or housing. A fan or blower may include a transmission, driver, and/or motor controller. 10 CFR 431.172.

Subscribe

Sign up for email updates on regulations for this and other products

GO

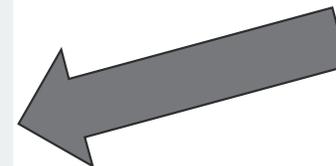
RECENT AND ONGOING ACTIVITIES

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Notice of Data Availability	<ul style="list-style-type: none">Federal Register, 87FR62038 (October 13, 2022)
Request for Information	<ul style="list-style-type: none">Federal Register, 87FR7048 (February 8, 2022)
Final Rule; Final Determination	<ul style="list-style-type: none">Federal Register, 86FR46579 (August 19, 2021)

The fans and blowers energy conservation standard rulemaking docket [EERE-2020-BT-STD-0002](#) contains all notices, public comments, public meeting transcripts, and supporting documents pertaining to this rulemaking.

Docket for energy standard



ca.org



RECENT AND ONGOING ACTIVITIES +

CURRENT STANDARD +

CURRENT TEST PROCEDURE —

All representations of energy efficiency and energy use of fans and blowers, including those made on marketing materials and product labels, must be made in accordance with this test procedure for fans and blowers specified at [10 CFR 431.174](#) and [Appendix A to Subpart J of 10 CFR Part 431](#) - Uniform Test Method for the Measurement of Energy Consumption of Fans and Blowers Other Than Air Circulating Fans and [Appendix B to Subpart J of 10 CFR Part 431](#) - Uniform Test Method for the Measurement of Energy Consumption of Air Circulating Fans.

Useful info and links for test procedure

www.amca.org



International Fan Regulations (Snapshot)

- ISO Standard 12759-Part 6 published
 - Calculating the fan energy index
 - Based on AMCA Standard 208
 - Already being evaluated for China fan regulation
 - China recently adopted ISO 12759-Part 3 for FEG
- ISO TC117 working group now developing a standard for circulating fans ≥ 125 W
 - Basis is AMCA Standard 230-21
- India Energy Conservation and Sustainable Building Code (ECSBC) nearing end of update cycle
 - Replacing FEG with FEI

International Fan Regulations (Snapshot)

- Taiwan published FMEG-based regulation in July 2023
 - Taking effect in July 2024
 - Testing per GB, AMCA, or ISO testing standards
 - Mandatory reporting
 - Mandatory annual check-testing
- European Fan Regulation "327" nearing Tier III publication
 - AMCA, EVIA, and Eurovent collaborating on fact sheet

Fishing in International Waters



Oops... Dry hole...

Will be developing something
on the AMCA Website...

Thank You!

- Michael Ivanovich
- mivanovich@amca.org



TC 5.1 Research Subcommittee

6/23/2024

ASHRAE Research Strategic Plan Initiatives

1. Resilience
2. IEQ – Environmental Quality in Occupied Spaces and Impacts on Work and Learning, Health and Well Being, and Transmission of Airborne Infectious Viruses
3. Sustainability, Decarbonization, Energy and Resources
4. HVAC&R Equipment, Components, and Materials
5. Tools and Applications
6. Education and Outreach

<https://www.ashrae.org/technical-resources/research/research-strategic-plan>

Strategic Initiative 4 - HVAC&R Equipment, Components, and Materials

Expand the scope or application of past research projects in this area but could require collaboration across multiple Technical Committees and/or significant co-funding.

Suggested topics:

- Identify and evaluate low global warming potential (GWP) refrigerants;
- Improve refrigerant management and reclamation methods;
- Preventative maintenance triggered by monitoring equipment and system performance;
- Components to improve ventilation management and temperature control;
- Increase use of recyclable materials in equipment;
- Update design guidance for potable water systems, including service water heating;
- Improve control systems and sensors for grid-interactive buildings.

Past Projects – System Effects

- [RP-139](#) (1977) – Effect of Systems Connections on Fan Performance
- [RP-1010](#) (2004) – Inlet Installation Effects, Air and Sound, on Vaneaxial Fans
- [RP-1223](#) (2008) – Inlet Installation Effects on Propeller Fans, Air and Sound
- [RP-1272](#) (2010) – Inlet Installation Effects on Forward Curved Centrifugal Fans, Air Performance and Sound
- [RP-1420](#) (2014) – Inlet and Discharge Installation Effects on Airfoil Centrifugal Plenum/Plug Fans
- [RP-1216](#) (2016) – Inlet Installation Effects on Backward Inclined Airfoil Centrifugal Fans, Air and Sound
- [TC 8.11: [RP-1743](#) (2022) – Effect of Inlet Duct Design on Fan Performance and Static Pressure of Indoor Air Handling Units]

Past Projects – Other Topics

- [RP-1076](#) (2006) – Diagnostic Test and Analytical Methods for Resolving Fan/Motor Vibration Problems in Air-Conditioning Units
 - Follow up to [RP-685](#) (1997) Test and Analysis Methods for Resolving Fan/Motor Vibration Problems in Air-Conditioning Units
- [RP-477](#) (1988) – Development of a Method to Predict Vibration Response of Propeller Fans Under Actual Operating Conditions
- [RP-1769](#) (2023) – Experimental Evaluation of the Efficiency of Belt Drives for Fans

Publication Topic Acceptance Request (PTAR)

- ASHRAE research funding can be used to support development of publications for design guides or manuals.
- Should serve to disseminate prior research or be related to past or ongoing ASHRAE research.
- Intended to fund publications where there is an industry need and commercial value but requires an effort beyond what can be expected from a volunteer effort.
- Allocate approximately 10% of research budget

Q: Any need for PTAR based on previous TC 5.1 research projects?

Current Projects

- Co-sponsor of RP-1835, Characterizing the Performance of Induced Flow Stacks
 - TC 9.10 (Laboratory Systems) is main sponsoring committee
 - Goal is to verify plume rise calculations and investigate effect of fan.
- No active Work Statements
- No submitted RTARs/PTARs

Scope of TC 5.1 – Potential Topics

- Selection
- Application
- Testing
 - Lab Testing
 - Field Testing
- Rating
- Installation

Previously suggested potential source for ideas:
MTG.EAS (Multidisciplinary Task Group on High Performance Air-Handling Systems for Buildings Except Low-Rise Residential Buildings)

From 2014, so some have since been addressed.

See Appendix D & E of

<https://buildings.lbl.gov/publications/air-handling-system-modeling>

Ideas for new RTARs / PTARs?

- New suggestions always encouraged
- Use of CFD to predict fan performance
 - Opportunities
 - **Develop corrections for various types of system interactions**
 - Investigate / predict fan law limitations (e.g. Reynolds number dependencies)
 - Maintain / improve accuracy while reducing testing burden
 - Inform test procedures or lead to new technology developments for fan design?
 - Challenges
 - Not yet reliable for design; requires testing to validate
 - Manufacturability (blade geometry)
 - Changing variables with flow rates
- Competition? (Previous TC 5.2 project on duct fitting loss)

RTAR Sections

- Title
- Executive Summary (50 words)
- Background (300 words)
- Research Need (250 words)
- Project Objectives (150 words)
- Expected Approach (200 words)
- **Relevance and Benefits to ASHRAE (350 words)**
- Anticipated Funding Level and Duration
- References