

TC 8.5: Liquid to Refrigerant Heat Exchangers
Minutes ASHRAE 2022 Annual Meeting

1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400
DRAFT

TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. TC8.5 DATE 6/27/2022

TC/TG/MTG/TRG TITLE Liquid to Refrigerant Heat Exchangers

DATE OF MEETING 6/27/2022 LOCATION Toronto, ONT.

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE	
Joseph B Huber ('22)	7/1/2020	Khaled Saleh ('25)	7/1/2021	<u>Cor. Members</u>	<u>Cor. Members</u>
Minoo Mehdizadeh ('24)	7/1/2020	Nicholas Zupp ('25)	7/1/2021	Steven J. Eckels	Jun Li (YEA)
Pedro Perez ('24)	7/1/2020			Achim Gotterbaum	Josua Meyer
Adnan H Ayub ('22)	7/1/2018			Michael Wilson	Kishan Padakannayam
Icksoo Kyung ('24)	7/1/2020			Satheesh Kulankara	Austin Armstrong (YEA)
Stanislav Perencevic ('23)	7/1/2019			Kashif Nawaz	Sugun Tej Inamppudi
Evraam Gorgy ('22)	7/1/2018			Benjamin Heyser	Lokanath Mohanta
Andreas Knoepfler ('25)	7/1/2021			Zahid Ayub	Subbalakshni Pispapati
Vikrant C. Aute ('23)	7/1/2019			Jim Bogart	
				Ben Dingel	<u>Guests</u>
				Pratik S Deokar (YEA)	Christian Bach
				Druv Hoysall (YEA)	Mehdi Doura
DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:					
TAC Section Head: Kevin Mercer			SH8@ashrae.net		
Research Liaison: Christopher J Seeton Standard Liaison: Srinivas Katipamula Staff Liaison: Steven J Hammerling			cseeton@shrieve.com srinivas.katipamula@pnnl.gov shammerling@ashrae.org		
Mike Vaughn, Manager Of Research & Technical Services			MORTS@ashrae.net		

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

TC 8.5: Liquid to Refrigerant Heat Exchangers
Minutes ASHRAE 2022 Annual Meeting

1. Monday, June 27, 2022, 2:35 PM. Call to order and reading of TC 8.5 scope (J. Huber):
 - *TC 8.5 is concerned with the thermal and mechanical design, performance, and application of devices for accomplishing heat transfer between refrigerants (including secondary refrigerants) and liquids.*
2. Introduction of members and guests (in-persona and virtual)
3. ASHRAE Code of Ethics Commitment (J. Huber)
 - *“Commitment to the ASHRAE Code of Ethics – 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 Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>)

4. Establish quorum requirements (J. Huber)
 - 9 out of 11 voting members present (3 in-person and 6 virtual), quorum established.

Joe Huber (Chair, Standards) '22	Vikrant Aute (MTG A) '23	Andreas Knoepfler, '25	
Adnan Ayub (VC, Handbook) '22	Pedro Perez (Webmaster) '24	Icksoo Kyung '24	Khaled Saleh, '25 (not present)
Minoo Mehdizadeh (Program) '24	Evraam Gorgy '22	Stanislav Perencevic '23	Nicholas Zupp, '25 (not present)

- Shared e-mail aliases in presentation.
5. Review/approve minutes from previous meeting (J. Huber)
 - Motion to approve minutes made by V. Aute
 - Seconded by A. Knoepfler
 - No objections or comments, and minutes approved by all members
 6. Section Head comments (C. Hank filled in for section head K. Mercer)

Following was shared in the TAC Chairs breakfast:

 - A set of training blocks (ASHRAE Leadership Development Auto-Tutorial) related to leadership training are posted at TAC website (www.ashrae.org/tac)
 - New Roster starts July 1st
 - Program submission due August 9th
 - Activity reviews are due in a week (from today, June 27)
 7. Liaison comments
 8. Membership subcommittee report (S. Kulankara)
 - S. Kulankara recommended to clean up the roster by removing corresponding members that have not recently participated in any meetings
 9. Handbook subcommittee report (A. Ayub)
 - A. Ayub attended System and Equipment Handbook QnA meeting a day before this meeting
 - The deadline to edit chapter 39: Condensers and chapter 42: Liquid Coolers (for 2024 version) is 31st July 2023, and then need to send Chapter Approval Checklist
 - Derek Crowe is the new handbook liaison
 - Earlier and 2024 ASHRAE handbooks can have edits in word document. However, 2025 ASHRAE Handbook and later will allow edits via pdf only. Guide to edit in pdf is available on portal.
 - <https://authoring.ashrae.org/> can be accessed by any member to make edits
 - B. Heyser mentioned that after 2025 all Handbooks will be available free as a pdf, while hardcopies can be purchased

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10. Program subcommittee report (M. Mehdizadeh)

- ASHRAE Annual 2022, Toronto, has 8 Tracks with a mixture of live and on-demand sessions, available for 18 months
- TC 8.5 co-sponsored Seminar 'Thermal and Hydraulic Performance of Low GWP Refrigerants under Flow Condensation'
- Deadline for Atlanta 2023 Winter is August 9 for Program proposals
- Next ASHRAE Winter Conference, February 4-8, 2023, Atlanta, GA
- ASHRAE Summer Conference, June 24-28, 2023, Tampa, FL
- Program ideas for Winter and Summer 2023 were not decided in the meeting and interested speakers were asked to get in touch with Minoo by next month
- V. Aute added a note from TC chair breakfast; CEC is looking at reducing conference publication lead-time below that of current 9 months. Thus, the abstract call will be in November instead of in August.

11. Standards subcommittee report (J. Huber)

- SPC-22 and SPC-181 have been formed to fix out-of-date references in Standards 22 and 181
- The SPCs are active, and plan to vote on Publication Public Review drafts later this summer
- Changes are not drastic, and 1 meeting should be OK to go ahead with the review draft
- Standard 24-2019 is due for re-affirmation, revision, or withdrawal
- Issues with Standard 24:
 1. Normative reference to ASHRAE Guideline 2(Engineering Analysis of Experimental Data)
 - Guideline 2 has been withdrawn
 - Guidelines should not be referenced normatively, since they suggest practices and procedures, not mandate them
 2. Have two other out-of-date references
Item 1 requires revision, and cannot be fixed by ASHRAE Standards Revision Subcommittee (SRS); an SPC must be formed
TC 8.5 can:
 1. Re-affirm Standard-24 as-is
 2. Recommend that ASHRAE form a Standards Project Committee to revise the Standards (recommended)
 3. Table the matter until the next meeting
- J. Huber made a motion to form a Standards Project Committee, A. Ayub seconded. The vote was 9-0-0-2.

12. Webmaster report (P. Perez)

- Website is up to date

13. MTG Liaison (S. Kulankara)

- Currently there are 3 ongoing projects:
 1. RP-1806, Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update
 - Active and running
 2. RP-1855, Determination of the Impact of Combustion Byproducts on the Safe Use of Flammable Fluorinated Refrigerants
 - Project in last stage, draft report to PMS for final approval
 3. RP-1884, The Incorporation of odorants in refrigerants to improve leak detection
 - Next phase of this project has started

14. Research subcommittee report (K. Nawaz)

- Update from the Research Sub-Committee Breakfast Meeting
 1. Research Administration Committee (RAC) chair, M. Pouchak, rolling off

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Minutes ASHRAE 2022 Annual Meeting

2. O. Abdelaziz will be the new RAC chair
 3. C. Seeton, our Section 8 liaison, rolled of this month and was recognized in the meeting. Section 8 not yet decided next liaison after C. Seeton.
 4. Budget is \$2.6M to \$2.7M per year
 - Funds raised through donations, sponsored events, and AHR expo
 - RAC current budget is \$1.8M and it covers current contract commitments only
 - Funds used for Research Projects (12-15 new projects per year) and Grants and Awards
 - To maintain budget, RAC's 1st priority is to maintain their ability to fund ongoing projects where a current contract is in place
 - GIA, NIA and IRG will be suspended for this Society year (Pandemic reason)
 - Can't consider any unsolicited research projects (URP) right now
 5. Annual 2022 Meeting
 - Reviewed and approved 2 Work Statements
 - 2 Research Topic Acceptance Requests
 - 8 Research projects awarded for BID (pending)
 6. ASHRAE's Research Strategic Plan published. It provides 6 Research Initiatives.
 7. PES and PMS training modules scheduled in summer
- TRP-1731: "Heat Transfer Performance of Medium Pressure Lower GWP Refrigerants in a Flooded Evaporator Comprising an Enhanced Tube Bundle" (K. Nawaz)
 1. WS was reviewed, however, during communication it got lost and was not considered by RAC. Not our fault.
 2. Next step will be to resubmit the WS to RAC
 3. M. Vaughn is involved in communication
 4. Before C. Seeton rolls off, he wants the WS go to the RAC
 5. Someone asked to review the refrigerants in WS and update them with latest. A comment was made that the WS has the criteria and milestones as required by ASHRAE, and its test matrix includes valid refrigerants.
 6. By Wednesday this WS needs to be voted by RAC, and before that it needs to be voted in today's meeting
 - A. Knoepfler made a motion to approve the WS, V. Aute seconded. The vote was 9-0-0-2.
 - 1800-RP: "Spray Evaporation on Enhanced Tube Bundles with Low GWP Pure Refrigerants and Refrigerant/Miscible Oil Mixtures" (PMS Chair Z. Ayub; co-sponsor with TC 1.3)
 1. TC 8.5 and TC 1.3 research subcommittee had virtual research review meeting on June 21
 2. Two bundles were tested and completed (Bundle-1 had triangular tube arrangement of 5 rows, and Bundle-2 had square tube arrangement of 5 rows)
 3. Bundle-3 and Bundle-4 are next in line to be tested
 4. R-1234ze(E) and R-1233zd(E) tests were done with multiple POE
 5. R-1234ze(E) has good results, while results of R-1233zd(E) need to be reviewed again before proceeding to Bundle-3 and 4
 6. The HTC results were lower than recorded by others
 7. Several suggestions were made at the research update call, and PI was asked to perform additional tests, like that of flooded tests
 8. A no-cost extension may be needed, but that will be decided at the upcoming Atlanta meeting
 - LGWP condensation on enhanced tube bundles RTAR

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1. Received feedbacks

- Characterization of Heat Transfer in Fluted Tubes RTAR
 1. No update
- Other RTARs, WS, and new topics for research
 1. S. Kulankara proposed a new idea, 'low GWP refrigerant and oil mixture's in-tube condensation and evaporation', which will look at foaming in heat exchangers in systems using positive displacement compressors
 - TC 1.3 could co-sponsor and TC 8.4 could sponsor
 - More info on the topic will be shared by S. Kulankara

15. Chairman's report (J. Huber)

- Technical Committees (TCs), Task Groups (TGs), and Technical Resource Groups (TRGs) will now be generally referred to as Functional Groups (FGs)
- FGs and MTGs (Multidisciplinary Task Groups) now have separate Manual of Procedures (MOPs)
- ASHRAE is investigating purchasing better equipment and resources to conduct hybrid meetings, particularly for the FGs
- K. Nawaz received the ASHRAE Exceptional Service Award

16. New Business

- No new business was discussed

17. Schedule Next meeting: Monday, Feb 6, 2023, afternoon – Atlanta, GA, USA

- Will try to have hybrid meeting and at same time

18. Adjourn

Attachments:

A – Hybrid Meeting Slides Annual Meeting 2022

B – Program Subcommittee Minutes Annual Meeting 2022

C- Functional Group Breakfast Reminder Handout Annual meeting 2022

D – Research Committee Chairs Breakfast Presentation Annual Meeting 2022

Welcome! TC 8.5 Liquid to Refrigerant Heat Exchangers

Welcome!

We will begin at **2:30 PM EDT**



Housekeeping

Audio

- Attendees are muted upon entry
- Do not un-mute your line
- If you are joining via computer and phone line, ensure both are muted

Video

- You are welcome and encouraged to share your webcam
- Be mindful that you are on display! Turn off your video when needed.

Q&A

- Use the chat function to ask questions
- Our speaker will pause throughout the presentation to answer questions from the chat box.

Joe Huber

Chair, Facilitator for this virtual meeting



TC 8.5 Call to Order and Reading of Scope

ASHRAE Technical Committee 8.5 **Liquid to Refrigerant Heat Exchangers**

TC 8.5 is concerned with the thermal and mechanical design, performance, and application of devices for accomplishing heat transfer between refrigerants (including secondary refrigerants) and liquids.



Joe Huber
Committee Chair



TC 8.5 Introduction of Members and Guests

Introduction of our members and guests...

- Please give your name and affiliation, and any TC 8.5 committee duties you have.
- In-person attendees will go first
 - Please be sure to note your attendance on the sign-in sheet.
- Online attendees will go next
 - Wait for a brief pause, and then speak. Remember to unmute before speaking, and then mute again after you have finished speaking.
 - Please send an email to TC0805@ashrae.net with subject “attendance 6/27” so we can log your attendance. Make sure the email contains your full name and please indicate if you are a YEA member.



Joe Huber
Committee Chair



ASHRAE Code of Ethics Commitment

- Our TC meeting will abide by the ASHRAE Code of Ethics:
- *Commitment to the ASHRAE Code of Ethics – 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.*
- Full Code of Ethics:
<https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>



Joe Huber
Committee Chair



ASHRAE Commitment to Care Statement

ASHRAE is committed to the health and safety of our members and conference attendees.

- Registration required
- Masks strongly recommended while indoors
- Color-coded lanyards available to indicate personal comfort level
- If you feel sick, join virtually

View the full Commitment to Care at [commitment-to-care.pdf \(ashrae.org\)](#)



TC 8.5 Establish Quorum – Current Voting Members

- Joe Huber (Chair, Standards) '22
- Vikrant Aute '23
(MTG LGWP Alt 1)
- Adnan Ayub
(Vice Chair, Handbook) '22
- Evraam Gorgy '22
- Andreas Knoepfler '25
- Icksoo Kyung '24
- Minoo Mehdizadeh (Program) '24
- Stanislav Perencevic '23
- Pedro Perez (Webmaster) '24
- Khaled Hassan Saleh '25
- Nicholas Zupp (Secretary) '25

Voting Members roll off after June 30 of the year indicated



Joe Huber
Committee Chair



Other TC 8.5 Positions

- Satheesh Kulankara: Membership, MTG LGWP representative
- Kashif Nawaz: Research Subcommittee Chair



Joe Huber
Committee Chair



TC 8.5 Email Addresses

- Chair: TC0805@ashrae.net
- Vice Chair: TC0805.VCH@ashrae.net
- Secretary: TC0805.SEC@ashrae.net
- Handbook: TC0805.HBK@ashrae.net
- Program: TC0805.PRO@ashrae.net
- Research: TC0805.RES@ashrae.net
- Standards: TC0805.STD@ashrae.net
- Webmaster: TC0805.WEB@ashrae.net

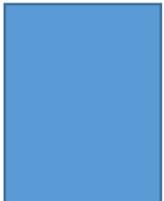
The full list of aliases can be found on the Technical Committees page on the ASHRAE website



Joe Huber
Committee Chair



TC 8.5 Handbook



Adnan Ayub
Handbook Subcommittee Chair



TC 8.5 Standards

TC 8.5 is responsible for the following Standards:

- ANSI/ASHRAE Standard 22-2018
Methods of Testing for Rating Liquid-Cooled Refrigerant Condensers
- ANSI/ASHRAE Standard 24-2019
Methods of Testing for Rating Evaporators Used for Cooling Liquids
- ANSI/ASHRAE Standard 181-2018
Methods of Testing for Rating Liquid to Liquid Heat Exchangers



Joe Huber
Standards Subcommittee Chair



TC 8.5 Standards

SPC-22 and SPC-181 have been formed to fix out-of-date references in Standards 22 and 181

(SPC = Standards Project Committee)

The SPCs are active, and plan to vote on Publication Public Review drafts later this summer.



Joe Huber
Standards Subcommittee Chair



TC 8.5 Standards

Standard 24-2019 is due for re-affirmation, revision, or withdrawal.

Issues with Standard:

1. Normative reference to ASHRAE Guideline 2
(Engineering Analysis of Experimental Data)
 - A. Guideline 2 has been withdrawn
 - B. Guidelines should not be referenced normatively, since they suggest practices and procedures, not mandate them
2. Have two other out-of-date references

TC 8.5 Standards

Item 1 requires revision, and cannot be fixed by ASHRAE Standards Revision Subcommittee (SRS); an SPC must be formed.

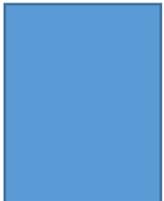
TC 8.5 can:

- Re-affirm Standard-24 as-is
- Recommend that ASHRAE form a Standards Project Committee to revise the Standards (recommended)
- Table the matter until the next meeting

Joe Huber
Standards Subcommittee Chair



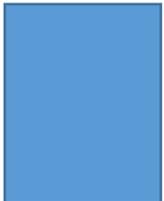
TC 8.5 Webmaster



Pedro Perez
Webmaster



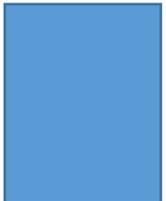
TC 8.5 Research



Kashif Nawaz
Research Subcommittee Chair



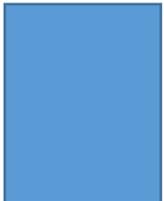
TC 8.5 Program



Minoo Mehdizadeh
Program Subcommittee Chair



Low Global Warming Potential Multidisciplinary Task Group



Satheesh Kulankara
MTG Representative



TC 8.5 Membership

Membership Housekeeping

- Huber, Gorgy rolling off as Voting Members (VM) after June 30
- Huber will roll off as Chair
- Adnan Ayub will roll up to Chair position for SY 2022-2023
- Nick Zupp will roll up to Vice Chair for SY 2022-2023
- Pratik Deokar will become Secretary for SY 2022-2023
- Ben Dingel, Guru Ravi, Pratik Deokar roll to VM for SY 2022-2023
- SY = Society Year

 Sattheesh Kulankara
Membership Subcommittee Chair



TC 8.5 Membership

Membership Housekeeping

- Austin Armstrong, Lokanath Mohanta will roll from PCM to CM
- Rick Heiden (CM) has asked to be removed from roster
- James Schaefer (CM) has asked to be removed from the roster
 - Will do this during the next roster update at the Winter 2023 meeting



Sattheesh Kulankara
Membership Subcommittee Chair



TC 8.5 Membership

Provisional Corresponding Members

- Membership will expire
- Please send email ASAP if you wish to become a Corresponding Member
TC0805@ashrae.net

- Ben Heyser (01/31/2024)
- Sugun Tej Inampudi (02/02/2024)
- Tabeel Amon Jacob (06/21/2023)
- Arindom Joardar (06/24/2024)
- Christopher M Keinath (10/21/2023)
- Neal Lawrence (01/19/2023)
- Stefano Morcelli (10/25/2023)
- Subbalakshmi Pisipati (03/08/2024)
- Ravikanth Vajjha (06/02/2024)

Sattheesh Kulankara
Membership Subcommittee Chair



TC 8.5 Chair Report

- **Technical Committees (TCs), Task Groups (TGs), and Technical Resource Groups (TRGs)** will now be generally referred to as **Functional Groups (FGs)**
- FGs and MTGs (Multidisciplinary Task Groups) now have separate Manual of Procedures (MOPs).
- ASHRAE is investigating purchasing better equipment and resources to conduct hybrid meetings, particularly for the FGs.
- Kashif Nawaz received the ASHRAE Exceptional Service Award



Joe Huber
Committee Chair



Concluding Remarks

- **Schedule Next meeting:**
Monday, Feb 6, 2023, Atlanta, GA
- Adjourn



Joe Huber
Committee Chair





TC 8.5: Liquid to Refrigerant Heat Exchangers

Program Subcommittee Updates

Minoo Mehdizadeh



2022 ASHRAE Annual Conference June 25-29, 2022 | Toronto, Ontario, Canada

- Hybrid conference, June 25-29
- 8 Tracks with a mixture of live and on-demand sessions, available for 18 months
- Seminars, Paper Session, Forum, Workshop, Round Tables
- Social events:
 - Welcome party
 - Fun run and walk
 - Champion meet & greet
 - Women in ASHRAE
 - Members night out

Program Subcommittee Updates

Summer Conference, Toronto, ON, Canada June 25-29, 2022

Tracks:

- Fundamentals and Applications
- HVAC&R Systems and Equipment
- Research Summit
- Connected Buildings, Connected Communities
- Cold Climate Building System Design, Operation and Resilience
- IAQ, Energy Use, Comfort and Health of Sustainable Buildings
- Professional Development and Education
- Buildings in the Aftermath of COVID-19



2022 ASHRAE Annual Conference June 25-29, 2022 | Toronto, Ontario, Canada

TC 8.5 programs for Toronto

- Seminar session
- Co-Sponsoring TC 1.3
 - Thermal and Hydraulic Performance of Low GWP Refrigerants under Flow Condensation
 - Tuesday, June 28th, 9:45 AM-10:45 AM
 - Dominion South (2)

Program Subcommittee Updates

Winter Conference, Atlanta, GA, Feb 4-8, 2023

Tracks:

- Fundamentals and Applications
- HVAC&R Systems and Equipment
- Refrigeration & Refrigerants
- Grid Resilience & Thermal Storage
- Pathways to Zero Energy Emissions & Decarbonization
- Multifamily & Residential Buildings
- Building Simulation & Virtual Design in Construction
- Operations & Maintenance
- Mini Track – Innovative Responses to Supply Chain Challenges

Deadlines:

- **April 5, 2022**
Conference Paper Abstract Due
- **April 26, 2022**
Conference Paper Abstract Accept/Reject
- **July 25, 2022**
Conference Paper Due
- **August 9, 2022**
Other Programs Proposals Due
- **August 15, 2022**
Conference Paper Abstracts
Accept/Revise/Reject Notifications
- **August 29, 2022**
Revised Conference/Technical Papers Due
- **September 23, 2022**
Conference Papers Accept/Reject
Notifications
- **October 10, 2022**
Other Programs Accept/Reject
Notifications

Program Subcommittee Updates

Future Programs

- ASHRAE Winter Conference, February 4-8, 2023, Atlanta, GA
- ASHRAE Summer Conference, June 24-28, 2023, Tampa, FL

Discussion

- Program Ideas for Winter and Summer 2023

**Announcements and Reminders for Functional Groups (FG)
[TC/TG/TRG & MTG Chairs]
Annual Meeting 2022**

A. NEW!

1. **Updated FG MOP - available at www.ashrae.org/TAC**
2. **New MTG MOP – available at www.ashrae.org/TAC**
3. **Discuss and confirm that TCs, TGs, TRGs, and MTGs in section will continue in 23-24 Society Year**

This will be an annual activity and FG agenda item for **Winter Meeting** but wish to highlight here as well. TCs are encouraged to work with Section Head on new FG Evaluation worksheet.

From FG MOP:

1.7. Review

1.7.1. Once a year, preferably at, or prior to, each Winter Society meeting, the FG Chair and Membership shall evaluate their progress in accomplishing the purpose for which they were constituted and recommend one of the following actions to their Section Head:

- a) Continue as a FG
- b) Merge with a FG and submit a revised scope for the merged FG
- c) Dissolve the FG.
- d) If an FG votes to disband, it must establish whether any current responsibilities should be continued and, if so, recommend existing FG(s) to assume the responsibilities and obtain those FG written concurrence.

4. Open Mic

Technical Activities Committee (TAC) Open Mike Policy

Purpose: Allow the ASHRAE membership to have a voice to express their concerns and offer improvements.

When: TAC traditionally meets during in-person conferences the Saturday before the summer and winter conferences and the Wednesday at the conclusion of the conference. Likewise, during a virtual conference, the TAC meetings are conducted prior to the start and after the conclusion of the conference.

You need to check the conference schedule for the correct date/time of the meetings.

TAC also conducts virtual meetings between the formal conferences. If you want “open mike” time just send your request using ASKTAC@ASHRAE.net.

How: It would be appreciated if you would send a written request to ASKTAC@ASHRAE.net with the topic, however, this is not required.

It is the prerogative of the chair to advise how much time is available and when you can be heard. A 3-minute time limit is preferred. It would be preferable to be present at the beginning of the meeting so that you may be heard and not have to wait a prolong period of time.

Please make sure you make your presence is recognized by the chair upon your arrival.

When in doubt email: ASKTAC.ASHRAE.net

5. FG Motions

New form to submit motion to TAC for consideration. Intent to give FGs a method to

Announcements & Reminders for FG (TC/TG/TRG & MTG) Chairs Annual Meeting 2022

require TAC response, report ideas, etc. Will be added to www.ashrae.org/TCs and Basecamp:

MOTION TYPE: TAC / Society

If a motion impacts only TAC, it will stay a TAC Motion and will be completed at the TAC level. Indicate only one here. **If you are using this as a template, erase all red text!**

MOTION:

Write your motion here.

- This should be short and to the point. It should state exact action you are requesting, by whom, and by when.
- This is the ONLY part of your motion that is voted on. Any change to this portion must be submitted as a motion in of itself to amend this motion (unlike the background and fiscal impact portions)
- Do not include/repeat background and fiscal impact here.
- Dates of implementation are important.
- Work with your Section Head, if necessary, where dollar amounts that vary year to year
- Try to be as specific as possible and not use words like "recommend", "investigate", "look in to", or "try".
- Do not include background or fiscal impact portions.
- The rest of the information (background and fiscal impact) are for information only.
- If you don't know how to work something, ask, your Section Head can help you with this.

BACKGROUND:

Write background here.

- This area is where you provide your anecdotes necessitating change.
- You can provide historical context, precedents set, etc.
- You can also use this area to explain your logic or experiences that led your committee to believe this will make the overall Society better because of your motion.
- It is best to appeal to the greater good of Society (as opposed to requesting Society change to fit the goals of one or two committees only)

FISCAL IMPACT

Fiscal impact should not exceed \$ ____ annually.

-or-

Fiscal impact is expected to be negligible.

- Estimate what the total cost impact of the motion is to society. Leadership understands this is the framers best guess.
- "Fiscal impact is zero" is not well received by some members. Better to say "minimal" or "negligible".
- If you don't know, it is ok so admit it, like "Fiscal impact is unknown." But it is better to indicate to some degree whether the impact is minimal, large, etc. Leadership should have an idea if the framer appreciated the large potential fiscal impacts when they are significant, or where the framer's believed the potential impacts to be negligible.
- It is best practice to use some sort of justification and the broad impacts. If your motion impacts all members of society, it is best to extrapolate the impact of one person to 50,000 members. If it is travel-related work to get an average cost that Society uses to estimate expenses.
- Your Section Heads can help you with this.

6. asktac@ashrae.net

Resource for all TAC/TC related questions, comments, etc. Any questions, please email.

7. TC Meeting schedule and protocols

TC committee meeting schedules posted at www.ashrae.org/conferences/2021-annual-conference. Access to virtual committee meetings will available to all. The meeting access information is included in the program.

8. 21-22 Roster Rollover

Remember, the current 2021-2022 roster for your TC, TG or MTG is in effect until after this Annual meeting. 2022-2023 roster takes effect after Annual Meeting.

9. Interim TC Meeting Procedures

TAC is encouraging TC's to meet in between ASHRAE Meeting. TAC will implement the following:

- Maintain a listing of the interim meetings on the Technical Committees webpage (www.ashrae.org/technical-resources/technical-committees), similar to the listing done for Standards.
- TC interim meetings should be posted (by emailing shammerling@ashrae.org) two weeks or more before an online meeting and four weeks before a face-to-face meeting. The person emailing should also include the meeting call-in info/ link for posting.
- To keep our members apprised of the meetings, we will add a notice in the ASHRAE Journal Newsletter (bimonthly) to remind our members to check the listing and to provide a link to the list.

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10. Section Head/TC leadership Basecamp

Basecamp (<https://3.basecamp.com/3106353/projects/15520814>) is set up to communicate and transfer documents between TAC Section Heads and TC leadership (Chairs, Vice Chairs). Contact list to be updated after July 1.

Current documents include breakfast presentations, forms, etc. This can be used to send documents to your section head as well.

Send staff (shammerling@ashrae.org) an email if you need access.

11. TC Re-Org update

TAC has finished their work to re-organize TCs but TCs can continue to work towards effort of streamlining and improving efficiency.

For those TC's that wish to merge, you need to:

- Vote on the revised Title & Scope. Any combining TC's need to be voting on the same TPS.
- Proposed leadership and voting roster need to be completed.
- Please work closely with your Section Head.
- So far, TAC has numerous TC mergers – 3.2 & 3.3, 8.10 & 8.12, 9.4 & 9.8, 7.3 & 7.8, 10.5 & 10.8 & 10.2 and 10.1 & 10.3. More (8.9 & 10.7) are in the works.
- For those TC's still in the discussion phase, please keep your Section Head aware of your discussion status.

12. How to Import Your TC Roster Information into MS-Outlook

Detailed instructions on how to import your TC roster information into MS-Outlook has been created and an e-mail announcement will be issued to all TC chairs, vice chairs, and secretaries once these instructions and the restructured TC MOP are posted to the TC page of the website (www.ashrae.org/TCs)

B. ANNUAL MEETING

1. Free Wi-Fi Access at this Society meeting

Sheraton Wi-Fi Access: Network Name: **ASHRAE**, PWD: Toronto100

2. Training Options

i. TC/TG/TRG/MTG Chair's Training Topic

A set of training blocks (ASHRAE Leadership Development Auto-Tutorial) related to leadership training are complete and posted at TAC website (www.ashrae.org/tac), TC website (www.ashrae.org/technical-resources/technical-committees), and TAC/TC basecamp (<https://3.basecamp.com/3106353/projects/15520814>):

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ASHRAE Leadership Development Auto-Tutorial

Block A: Five E's – Envision, Equip, Empower, Edit, Evaluate

- (A) Intro to Block A
- (B) A.1.a - Envision
- (C) A.1.b - Equip
- (D) A.1.c - Empower
- (E) A.2d - Edit
- (F) A.2e - Evaluate
- Block A Introspections

Block B: Three C's – Change, Communication, Character

- (G) Intro Block B
- (H) B.1.a - Leadership and Change
- (I) B.1.b.i - Communication
- (J) B.1.b.ii - Communication Applied
- (K) B.1.c - Leadership and Character
- Block B Introspections

Block C: Committee Dynamics; Consensus; Decision Making

- (L) Bridge to Block C
- (M) C.1.a.1 - Typical or Atypical Meetings
- (N) C.1.a.ii - Flow
- (O) C.1.b - Consensus
- (P) C.1.c - Decision Making
- Block C Introspections

Block D: Creativity; Ideation; Problem Solving; Planning

- (Q) Bridge to Block D
- (R) D.1.a.i - Creativity
- (S) D.1.b - Ideation
- (T) D.1.c.i - Problem Solving Intro
- (U) D.1.c.ii - Problem Solving Blocks
- (V) D.1.c.iii Part 1 - Thinking Like an Engineer
- (W) D.1.c.iii Part 2 - Failure to Think
- (X) D.1.d - Strategic Planning
- (Y) E.1.a - Think Like a Leader
- Block D Introspections

TAC is exploring making PDH credits available. Part of training will be presented at TC Chair's Breakfast meeting.

TAC TC Breakfast presentations will also posted at TAC website (www.ashrae.org/com/TAC) and TAC/TC basecamp (<https://3.basecamp.com/3106353/projects/15520814>)

ii. TC Program Subcommittee Chair Training (<https://events.rdmobile.com/Sessions/Details/1368974>)

Tuesday, June 28, 2022 EDT

11:15 AM – 12:00 PM EDT

TC Program Subcommittee Training

Sheraton, Civic South (2)

Hybrid

Session Type: Technical Committee (TC, MTG, TG, TRG)

Location / Room: Sheraton, Civic South (2)

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iii. RAC's TC Research Subcommittee Chair's Breakfast (<https://events.rdmobile.com/Sessions/Details/1363132>)

Monday, June 27, 2022 EDT

6:30 AM – 9:15 AM EDT

Research Subcommittee Chair's Breakfast

Sheraton, Grand Centre/West (LC)

Hybrid

Session Type: Technical Committee (TC, MTG, TG, TRG)

Location / Room: Sheraton, Grand Centre/West (LC)

iv. TC Handbook Subcommittee Training (<https://events.rdmobile.com/Sessions/Details/1363165>)

Sunday, June 26, 2022 EDT

8:00 AM – 9:00 AM EDT

Handbook Training for TCs and Liaisons

Sheraton, Willow West (M)

Hybrid

Session Type: Standing Committee

Location / Room: Sheraton, Willow West (M)

C. UPCOMING DEADLINES

1. TC Activity Forms for the 2022 Annual Meeting are due to Your Section Head before Friday July 1, 2022

TC/TG/TRG Activity Feedback Form (Excel) were sent by Section Heads via email and posted to TAC/TC Leadership basecamp - (<https://3.basecamp.com/3106353/projects/15520814>).

2. ASHRAE is meeting next in Atlanta, GA, USA, Feb 4-8, 2023. Seminar and Forum proposals are due by Tuesday, August 9, 2022.

Please visit the following site to submit your proposal: For more information, go to: www.ashrae.org/conferences/2023-winter-conference-atlanta. Here's the deadlines:

- **Tuesday April 5, 2022** – Conference Paper Abstracts, Technical Papers, and Paper Session Requests Due
- **Tuesday April 26, 2022** – Conference Paper Abstract Accept/Reject Notifications
- **Monday July 25, 2022** – Conference Papers Due – Submitted for Review
- **Tuesday August 9, 2022** – Debate, Panel, Seminar Form, Workshop Proposals Due
- **Monday August 15, 2022** – Conference Paper Abstract Accept / Revise / Reject Notifications
- **Monday August 29, 2022** – Revised Conference Papers, Technical Papers Due
- **Friday September 23, 2022** – Conference Paper Accept / Reject Notifications
- **Monday October 10, 2022** – Debate, Panel, Seminar, Forum Workshop Accept / Reject Notifications

3. 2021-2022 Hightower Award Nominations by Thursday, September 1st

There were 4 nominations for last year's award. Thanks to all TCs that nominated! All that did not win are encouraged to resubmit.

TAC wishes to encourage TCs to make nominations for the 2022-2023 *George B. Hightower Technical Achievement Award*. Nominations are due to Section Heads by September 1, 2022 or sooner. The award recognizes outstanding technical leadership and contributions on a TC/TG/TRG during the past four years, excluding research and standards activities. Please go to the Technical Committee page of the ASHRAE website at the following link under the "Procedures, Forms..." heading:

www.ashrae.org/tcs.

D. REMINDERS

1. 22-23 Roster Rollover

Remember, the current 2021-2022 roster for your TC, TG or MTG is in effect until after they meet for the ASHRAE Annual Conference. Rosters will roll over to 2022-2023 at that point.

2. Useful TC/TG/TRG/MTG Chair Information and forms on ASHRAE website

Information for TC/TG/TRG and MTG chairs can be found on the Technical Committee page of the ASHRAE website at the following link: www.ashrae.org/tcs

3. Request for each TC to briefly review ASHRAE Code of Ethics at start of meeting

See the following link for the latest version of the ASHRAE Code of Ethics:

www.ashrae.org/about-ashrae.

4. Make a Special Effort to welcome new Members, and Visitors to TC meeting

Potential new members for your committee have been encouraged to drop-by your meeting. As a result, please make a special effort to recognize and warmly welcome all visitors to your meeting – A TC can never have too many willing and able volunteers.

5. Option for TC Subcommittee Meetings via Conference Calls and Web Meetings

TCs and TC subcommittees are encouraged to use Interim Meeting procedures described above for subcommittee meetings as well.

6. Is Your Committee Website up to Date?

If not, please ask your webmaster to at least post the latest minutes and the Virtual Annual meeting times and agenda. Please note that the webmaster indicated on the roster will automatically have access to make edits.

If your website has been neglected, add an action item for this meeting to appoint a responsible member of the TC/TG/TRG who will bring it back to life. The new TC website template has greatly simplified the duties of the TC webmaster and this form of

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communication is critical to the efficient operation of your committee, and for attracting new members. Please note a listserv is available to TCs to communicate with rostered members and all interested in keeping track of TC activities.

The conversion to a new TC website platform highlighted a couple areas where a refresher of the ASHRAE rules on website maintenance is warranted. First be aware that ASHRAE Products (i.e., handbook chapters, journal articles, final reports from research projects, etc.) cannot be published on your TC's website. It is very appropriate to post the title and scope of the product and then link the reader to the ASHRAE bookstore or other location on the ASHRAE site where the product may be purchased. Any possible exceptions to this rule must be sent through Mark Owen for review and approval (mowen@ashrae.org). The second issue involves timely posting of the draft minutes. Draft minutes (and final, approved minutes from the prior meeting) should be posted to your website (or otherwise distributed to the members) within 60 days after the meeting. Please ensure that your secretary and webmaster are aware of this deadline. To assist your secretary in understanding the procedures for taking and reporting minutes, a video has been developed and posted on the Technical Committees' Training page (<http://www.ashrae.org/tcs>). On the same page, a video has also been posted for use by webmasters to learn about the procedures and schedule to maintain the new websites.

- 7. TC Master Calendar – Now Available through Google** - The Technical Committee Master Calendar is now available through Google. In order to access this calendar you need to have a Google account.

Once you log into your Google account, follow the instructions below:

To add a friend's calendar, just follow these steps:

- At the bottom of the calendar list on the left, click Add and select Add a friend's calendar.
- Enter the appropriate email address (techservices1791@gmail.com) in the field provided, then click Add.

This calendar is public and will appear under 'Other Calendars' in the left column.

To set up Google Calendar Sync to your Outlook:

- Make sure you're using a supported operating system and Outlook version.
- Download Google Calendar Sync (version 0.9.3.6) at <https://google-calendar-sync.en.softonic.com/>
- Once a dialog box appears, click Save File. The downloaded file should open automatically. If it doesn't, manually open it from your browser's download window.
- Click OK to confirm that you're aware this is an executable file.
- Read through the Google Calendar Sync Terms of Service, and click I Agree.
- Follow through the Installation Options and click Install to finish the set-up process.

Once Google Calendar Sync is installed on your computer, the Google Calendar Sync Settings window will appear:

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In the Settings window, enter your email address and password and select the Sync Option you prefer. Read about each Sync Option.

You'll also be able to set the time interval for syncing to occur. Please keep in mind that 10 minutes is the minimum time interval allowed.

After the initial set-up, you can access the Google Calendar Sync Settings window again by double-clicking the calendar icon in your Windows System Tray.

13. TC E-mail Position Aliases available

SY 21-22 TC Position e-mail alias addresses for the mandatory positions of the Technical Committee management team (Secretary, Standards Sub. Chair, Program Sub. Chair, Handbook Sub. Chair, and Webmaster) will stay in effect until July 1st. The 20-21 E-mail Alias list with these position aliases is posted on the ASHRAE website www.ashrae.org/TCs under the heading *Procedures, Forms & Information for TCs/TGs/MTGs and TRGs*.

SY 22-23 email alias list will be available in July.

14. Updated TAC Presentation Template Available for TC members to use with local Chapter

TAC recently updated the standard presentation and presentation notes that TC members can use, without a lot of effort, to explain what TCs do for the Society and how that work benefits members in your local ASHRAE Chapter.

The new presentation and presentation notes files are posted now at the following link www.ashrae.org/tcs under the heading *General TC Information* at the top of the page in case you prefer to direct others to these files posted online. The presentation material is now also available in both English and Spanish.

15. Basecamp and Virtual Meeting Information from Communications Committee

More and more TCs and standing committees are making use of ASHRAE's subscription to Basecamp3 to better organize, store, and distribute on-line committee files that are needed for their meetings through a dedicated committee Basecamp site. If you would like to learn more about Basecamp and how to request a site for your particular committee, please go to the Communications Committee (CC) web page: (www.ashrae.org/communities/committees/standing-committees/electronic-communications-committee) and scroll down to the section titled *Basecamp Guidance*

E. RECENT ANNOUNCEMENT

1. CEC's Standing Request for Future Society Meeting Program Track Suggestions

The Conferences and Expositions Committee (CEC) oversees ASHRAE's annual and winter conferences and other specialty conferences and expositions globally. The CEC continually works to improve the conference experience for all attendees. To help keep a

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“pulse” on the technical issues facing professionals in the HVAC&R marketplace, and to create meetings that reach all of ASHRAE’s constituencies, the CEC seeks ideas for tracks for the 2023 meeting conferences as well as topics for specialty conferences from TC members.

Please submit your suggestions to ASHRAE Staff member Tony Giometti (Giometti@ashrae.org). You can also add your track suggestion in the “Comment” section of the TC Activity form for the Toronto or Atlanta meetings.

2. CEC Always Seeks TC Volunteers willing to Support Content Development and Quality Control for Society Technical Program at Society Meetings

Provide to your Section Head after each Society meeting a list of qualified volunteers from your TC that are potential Technical Session chairs and reviewers of session papers that are related to TC’s scope for use by the Conferences & Expositions Committee (CEC) in developing technical content for future technical programs.

3. The Professional Development Committee (PDC) is seeking ideas for new ASHRAE Learning Institute (ALI) courses.

The Professional Development Committee (PDC) is actively seeking ideas for new ASHRAE Learning Institute (ALI) courses. We need practical courses of broad interest to be presented as face-to-face seminars or short courses, instructor-led online courses and self-paced courses. Examples include courses with a focus on new technologies that need to be shared, fundamentals for engineers new to the discipline, standard applications that need explanation, and courses based on new design guides. Does your TC have a potential course idea?

Contact Karen Murray (ASHRAE staff) kmurray@ashrae.org or PDCchair@ashrae.net with your course ideas.

4. ASHRAE Certification Committee seeking ideas from TCs for possible professional certification programs

Certification Committee seeking ideas from TCs for possible professional certification programs related to 1) support adaptability, resilience and recovery of buildings and communities, 2) promote understanding of indoor environmental quality (IEQ) among practitioners). Representatives from the Certification Committee will meet with TCs in Orlando that expressed an interest or had ideas.

F. CURRENT & UPCOMING ASHRAE CONFERENCE PROGRAMS

1. Toronto Annual– Jun 25-29, 2022

Conference Website: www.ashrae.org/conferences/2022-annual-conference-toronto

Program Focus at Toronto Annual Conference

- i. **Track 1 Fundamentals and Applications:** Fundamentals are the foundation for understanding applications in engineering. Key components of ASHRAE fundamentals include thermodynamics, psychometrics, fluid and mass flow. This track provides

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opportunities for papers and presentations of varying levels across a large topic base. Concepts, design elements and shared experiences for theoretical and applied concepts of HVAC&R design are included.

Track Chair: Erik D Sanchez esanchez@prmech.com

- ii. **Track 2 HVAC&R Systems and Equipment:** HVAC&R systems and equipment are constantly evolving to address the changing requirements of the built environment. Papers and programs in this track focus on the development of new systems and equipment, improvements to existing systems and equipment and the proper application and operation of systems and equipment.

Track Chair: Marites Calad mcalad@norman-wright.com

- iii. **Track 3 Research Summit:** Active research, and the exchange of those research findings, are critical to the development of our HVAC&R industry and built environment. The 9th annual research summit invites researchers to share those results, including ASHRAE-sponsored research and research of interest to the ASHRAE community. Researchers are invited to present papers, extended abstracts, seminars, forums or participate in panel discussions. The Research Summit includes a partnership with ASHRAE's archival journal, Science and Technology for the Built Environment.

Track Chair: Brian Fronk brian.fronk@oregonstate.edu

- iv. **Track 4 Connected Buildings, Connected Communities:** As buildings become smarter, and as sensor systems, internet connectivity and data collection become more ubiquitous, there are substantial opportunities to improve the performance and efficiency of buildings. Similarly, as renewable energy resources, including wind and solar energy and energy storage, becoming increasingly common, buildings can be used as electric grid assets, to strategically support energy efficiency and demand flexibility. To accomplish this requires many stakeholders, coordinated efforts and a diversity of buildings and buildings systems components and controls.

Track Chair: Ahmed Abdel Salam ahmed.abdel-salam@usask.ca

- v. **Track 5 Cold Climate Building System Design, Operation and Resilience:** The design, construction and operation of buildings in cold climate regions which experience extreme winter conditions require specific considerations for the building envelope and HVAC&R systems and resulting thermal and hygrothermal performance. Resilience in the face of extreme temperature shifts, and in some cases remoteness and permafrost, should be considered to ensure building maintain interior design conditions. This track covers efforts and topics specifically focused on buildings, building systems and equipment in cold, arctic and subarctic climates.

Track Chair: Davide Ziviani dziviani@purdue.edu

- vi. **Track 6 IAQ, Energy Use, Comfort and Health of Sustainable Buildings:** Indoor environmental quality, energy use and efficiency and occupant comfort and health are all priorities buildings must balance. Sustainability priorities in buildings continue to increase, requiring careful consideration of how to achieve sustainability goals without sacrificing other building functions and owner/operator priorities. This track covers each of these topics, and how they interact and impact one another.

Track Chair: Rafi Karim rkarim@aeieng.com

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vii. **Track 7 Professional Development and Education:** As members of a professional organization, we not only participate for the great value of technical exchange, but also the interpersonal exchange. We recognize that the single greatest strength of our organization is its membership. This track is designed to allow those professionals and educators an opportunity to develop and share knowledge in the areas of presentation skills, leadership, team-building, understanding various business operations, lean collaboration strategies, interpersonal skills, etc., and an opportunity for educators to share knowledge in the teaching and education of current and future generations of professionals. Submissions to this track may lend themselves to interactive session types such as workshops, panels and forums.

Track Chair: Maggie Moninski maggie.moninski@gmail.com

viii. **Track 8 Buildings in the Aftermath of COVID-19:** The pandemic has had significant impacts on how buildings are used, and the priorities associated with building operations to ensure a healthy environment for occupants. More people are working remotely; commercial building interior design and functionality and occupant use of these buildings, ventilation and system needs and building owner, operator and occupant priorities have been impacted. This track covers these topics as our buildings transition to design and operation in the aftermath of the pandemic.

Track Chair: Andy Cochrane acochrane@industrialairinc.com

G. OTHER UPCOMING WORKSHOPS, CONFERENCES AND EVENTS

1. 2022

1. Ventilation 2022: 13th International Industrial Ventilation Conference for Contaminant Control, June 22-24, 2022 Toronto, Canada - www.ashrae.org/conferences/topical-conferences/ventilation-2022
2. 2022 Building Performance and Analysis Conference and SimBuild Co-organized by ASHRAE and IBPSA-USA. Sept. 14-16, 2022. Chicago, IL. www.ashrae.org/buildperform2022.
3. The Fifth International Conference on Efficient Building Design – Materials and HVAC Equipment Technologies. Oct. 20-21, 2022. Beirut, Lebanon. www.ashrae.org/beirut2022.
4. Buildings XV Conference: Dec. 5-8, 2022. Clearwater FL. www.ashrae.org/buildingsXV.

2. 2023

1. ASHRAE Winter Meeting – February 4-8, 2023. Atlanta GA. www.ashrae.org/conferences/2023-winter-conference-atlanta
2. ASHRAE and SCANVAC – HVAC Cold Climate Conference 2023. March 6-8, 2023. Anchorage AK. www.ashrae.org/2023HVACColdClimate
3. 14th IEA Heat Pump Conference – Resilient and Efficient. May 15-18, 2023. Chicago IL. www.hpc2023.org



Research Subcommittee Chair's Breakfast Meeting

Annual Meeting, June 27, 2022

Mike Pouchak, P.E.

Research Administration Committee Chair

Mike Pouchak
ASHRAE

RACChair@ashrae.net

Overview

1. Meeting agenda: RAC Intro Presentation(this presentation-recorded), PES Training(recorded), RL section updates meetings (in person)
2. Warm up Activities
3. RAC Membership – RL outgoing members, RL incoming members
4. ASHRAE meetings / in person / hybrid
5. Research Budget
6. Accomplishments: RAC reviews
7. New ASHRAE Research Strategic Plan
8. Training Sessions for PES / PMS – new training available on-line
9. PTARS: Funded Publications
10. New RAC initiatives – new Basecamp for TC research subcom chairs
11. TC basecamps, Research PM initiatives
12. Going forward

Warm UP Activities



Talk like a
Minnesotan!



Ya, Sure, You betcha (TRUE)

OR

Could be worse (FALSE)

1. For **projects co-sponsored by multiple TCs**, should the RTAR coversheet contain the vote tally of all sponsoring TCs?
2. Should the **Proposal Evaluation Subcommittee (PES) and Project Monitoring Subcommittee (PMSc)** meeting announcement include the ASHRAE RAC research Liaison and MORTS?
3. If an **RTAR is “Accepted With Comments,”** the TC should address the comments and then resubmit the RTAR to MORTS?
4. **Can the Project Monitoring subcommittee (PMSc) Research Project (RP) products and deliverable be published internally and externally for widespread use** before it is approved by the sponsoring Technical Committee?
5. If a **Work Statement is returned with comments**, should the TC should address the comments, produce a letter stating how the comments were addressed, and resubmit to MORTS with copy to RL?
6. Are the **Project Monitoring Subcommittee meetings open to the Public** and notices should be published in the Winter & Annual Conference Schedule?

RAC Membership for SY 2021-2022

ExCom

Chair: **Mike Pouchak**

Vice-Chair: Omar Abdelaziz

RPS Chair: **Paolo Tronville**

RAS Chair: William Murphy

Liaisons

Section 1: Ahmed Kashef

Section 6: Stefan Elbel

Section 2: William Hutzal

Section 7: James Bogart

Section 3: Chee Sheng Ow

Section 8: **Chris Seeton**

Section 4: Natascha Milesi-Ferretti

Section 9: Roland Charneux

Section 5: Jin Wen

Section 10: Lorenzo Cremaschi

BOD Ex-Officio – Tyler Glesne

Coordinating Officer – **Tim McGinn**

(Rolling Off in Bold)

Rolling Off RPS Chair Paolo Tronville 2017-2022

Politecnico di Torino- DENERG ; Corso Duca delgi Abruzzza 24 ; Torino, 10129 ;Italy
Region: XIV

Paolo Tronville is an Associate Professor at the Politecnico di Torino, the renowned engineering school in Turin, Italy. He received his undergraduate and PhD degrees from the Politecnico. His postgraduate studies focused on the assessment of the performance of air filter elements for general ventilation. He joined the Politecnico Faculty as an Assistant Professor in 1997, and advanced to Associate Professor in 2012.

Paolo has been active in national and international standards development. He joined ASHRAE in 1997. He contributed in the development of several ASHRAE publications. These include Standards 145.1 and 145.2 for testing gas-phase air cleaning media and devices; Standard 52.2 for testing particulate air filters; Guideline 26 for testing general ventilation filters in situ; and Guideline 35P for determining the energy impact of air cleaning devices. He has been a member of ASHRAE Technical Committee 2.3 (Gaseous contaminants and their control); TC 2.4 (Particulate contaminants and particulate filters); and TC 4.10 (Indoor environmental monitoring). He helped develop, evaluate and monitor several research projects. Her eceived the ASHRAE Distinguished Service Award in June 2015.

Paolo was instrumental in reactivating ISO (International Organization for Standardization) Technical Committee 142 "Cleaning Equipment for Air and Other Gases", which had been inactive since 1976. He was its Chairman from September 2005 through 2016. Under his guidance TC 142 grew to have twelve active Working Groups. It now has about two hundred experts from twenty participating countries. Eighteen new standards were prepared under his chairmanship and several others are in preparation.

Since 2006 Paolo has been the Chairman of CEN (Comité Européen de Normalisation) Technical Committee 195 (Air Filters for General Air Cleaning). He heads CEN TC195 Working Group 6, in charge of developing test methods of filtration media in removing nanomaterials. Paolo worked also in the field of standardization of air filtration for the automotive industry (ISO/TC22/SC7). He was the Italian expert in the group which developed the test method for efficiency-vs-particle size of engine intake and cabin air filters.

In 2012 he was awarded the Paolo Scolari Award by UNI (the Italian national standardization body) in honor of his work in studying, disseminating and standardizing topics related to air cleaning and hygiene. Paolo carries on research in air cleaning and indoor air quality. He has published papers in both European and American technical and scientific journals. He is currently involved in the application of computational fluid dynamics to air filter media and filter design, and in the development of laboratory and in-situ test methods to assist predicting the actual performance of air cleaning equipment.

Paolo has given seminars in several countries on air cleaning equipment performance and its energy implications. He is one of the authors of REHVA (Federation of European Heating, Ventilation and Airconditioning Associations) Guidebook 11, "Air Filtration in HVAC Systems". The book is intended to educate designers, manufacturers, installers and building owners on the role of air filters in improving IAQ, their actual behavior in service and the costs associated to air filtration. The book has been translated from English into Italian, Japanese and Portuguese.

At the Politecnico Paolo teaches courses on energy performance and use in buildings, indoor air quality, acoustics and lighting. He is the supervisor of the Aerosol Technology and Filter Testing Laboratory which is recognized as a major independent laboratory to assess the performance of air cleaning equipment for many applications, ranging from HVAC serving commercial buildings to filters for the intakes of gas turbine systems.

Paolo likes to play cards with friends and relatives, especially at night in his vacation cottage in the Italian countryside, while eating pears boiled in sweet red wine. He has practiced judo, skiing and soccer. Being a true son of Torino, he likes to watch the Juventus Football Club games whenever he has the chance to do so.



Rolling Off RPS Chair Paolo Tronville 2017-2022

"O mio babbino caro" [Aria](#) by Giacomo Puccini and Giovacchino Forzano

O mio babbino caro
Mi piace è bello, bello
Vo' andare in Porta Rossa
A comperar l'anello
Sì, sì, ci voglio andare
E se l'amassi indarno
Andrei sul Ponte Vecchio
Ma per buttarmi in Arno
Mi struggo e mi tormento
O Dio, vorrei morir
Babbo, pietà, pietà
Babbo, pietà, pietà

Rolling Off Research Liaison Section 8 – Chris Seeton (2018-2022)



B.S., M.S. Mech Eng. Georgia Institute of Technology

Ph.D. Mech Eng. Univ. Illinois Urbana-Champaign

TC Sect 8 : AC & Refrig. Sys Components

Section 8: **Chris Seeton**

Industry-wide leadership roles on Refrigerants and Lubricant technologies

Rolling Off Research Liaison Section 8 – Chris Seeton (2018-2022)

The [song](#) has become extremely famous over the years, so much so that Richard Nixon and Nikita Khrushchev sang it together in 1959 at their meeting in Moscow.

The lyrics of the song are as follows:

I'm a Ramblin' Wreck from Georgia Tech and a hell of an engineer...

RAC Membership for SY 2022-2023

New Officers

ExCom

Chair: *Omar Abdelaziz*

Vice-Chair: *William Murphy*

New Members

Douglas Scott

Carl Huber

Dennis Lansberg

Liaisons

Section 1: Ahmed Kashef

Section 2: William Hutzel

Section 3: Chee Sheng Ow

Section 4: Natascha Milesi-Ferretti

Section 5: Jin Wen

Section 6: Stefan Elbel

Section 7: James Bogart

Section 8: **TBD**

Section 9: Roland Charneux

Section 10: Lorenzo Cremaschi

BOD Ex-Officio – Tyler Glesne

Coordinating Officer – **Sarah Maston**

(Incoming Members in Bold – *New Position changes in Italic*)

Incoming RAC Members



Douglas Scott - BS EnvEng, MBA, TC 10.1 Indust Refrig & Piping, TC 10.2 Refrig Applications Res Subcom Chair - Co-Founder, Vacom Industries, Atascadero CA



Carl Huber P.E.- TAC MTG Section Head 2017-2021 , RAC veteran 2010-2016, RAC chair 2015-2016; MS & BS ME; TC 1.3 Res Subc chair, VM TC 6.8 Geothermal Heat Pump & Energy Recovery, VP WaterFurnace Int'l , ASHRAE Award for Distinguished Public Service, ASHRAE Life Member, Ft. Wayne IN



Dennis Landsberg, Ph.D, CEM, CDSM, LEED, BEAP, FASHRAE – 39 years experience in energy efficient buildings, TC 7.6 Bldg Energy Perf, TC 9.9 Mission Critical Facilities; President L&S Energy Services Henderson NV,

Research Budget

- Typically, \$2.6M - \$2.7M per year
 - Donations
 - Research Promotion sponsored events
 - AHR Expo contribution
- Funds collected in each SY becomes RAC budget in next SY .
Our current budget is 1.8 million and it covers current contract commitments only.
- Funds (Typical Expenditures):
 - Research Projects – 12-15 new projects per year
 - Grants and Awards
 - Innovative Research Grants (\$125k over 3 years)
 - New Investigator Award (\$125k over 3 years)
 - Grant In Aid – Typically 20-25 per year @ \$11,500

ASHRAE Research Budget today with COVID Impacts

- To maintain budget, our 1st priority is to **maintain our ability to fund ongoing projects where a current contract is in place.**
- **The NIA, GIA, and IRG programs have been suspended for this Society year due to severe budget constraint caused by Pandemic – No applications or nominations will be accepted this year. Please check back for SY 22-23.**
- **URP stopped for the time being.**
- Congratulations to All the ASHRAE Research Donors – the Research Promotion (RP) was very successful; The RP campaign supports ASHRAE Research, Education, YEA programs, Scholarships, Endowed Funds, the RP General Fund and Special Initiatives; Total of \$2,300,519 for SY 20-21 including \$1,769,785 for Research.
- Thank you to all who have supported the efforts of RP and all the individual chapters and members. Encourage new participant in the ASHRAE Research.
- Continue to demonstrate an interest in ASHRAE research and be willing to spend time spreading the high value and excellent results of ASHRAE-sponsored research.

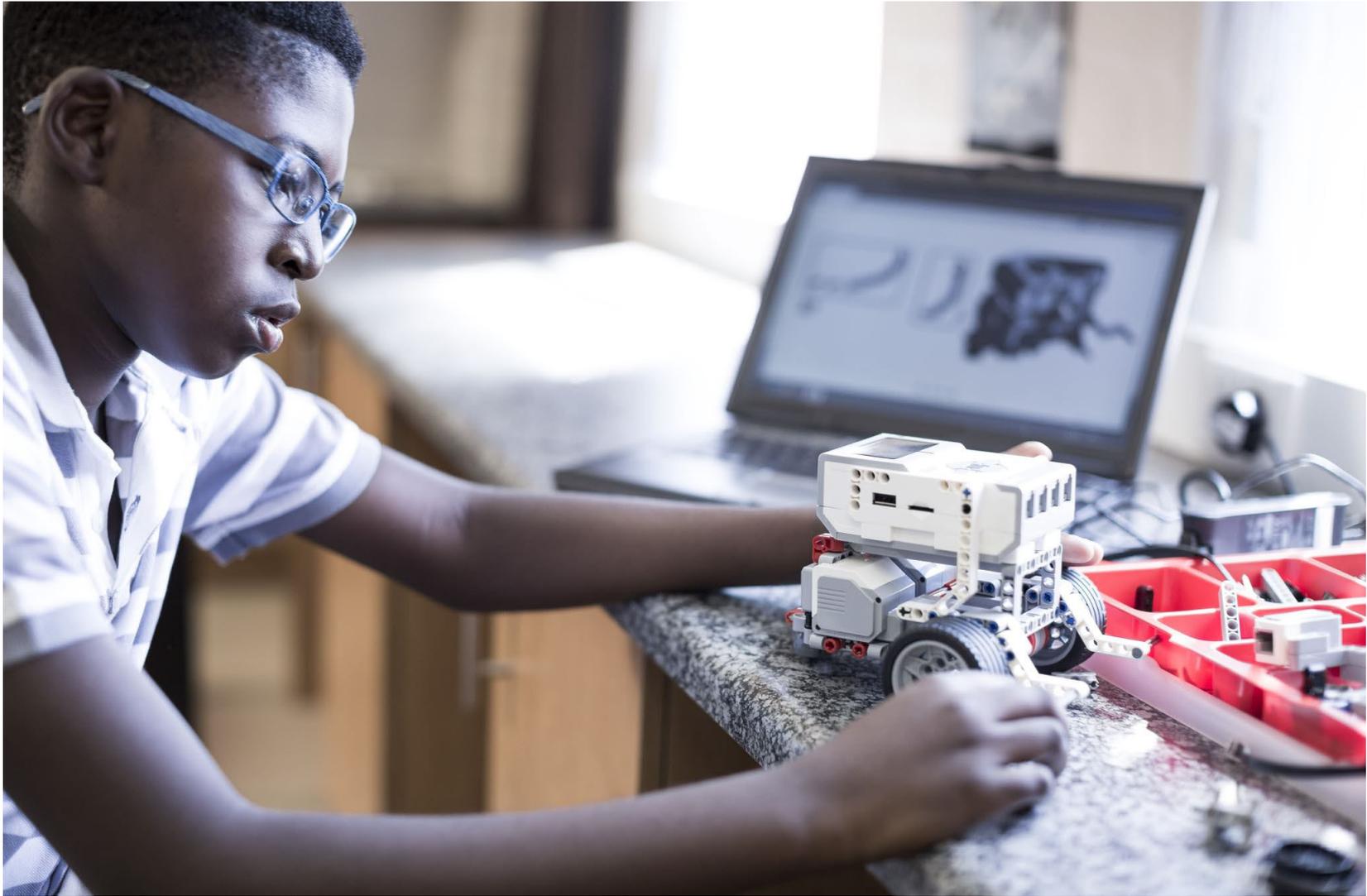
Fiscal Impacts from Covid-19

- Reduced revenues from closures, cancellations, austerity
- Top Priority: Ensure continuity of core function

TC-developed research addresses member-most needs

- Unsolicited Research Projects (URPs) will not be considered for now
- GIA, NIA and IRG will be delayed for now
- Encourage your members to donate to ASHRAE research!

Accomplishments



RAC reviews for SY 2021-22 to date

Fall 2021 Meeting:

Research Strategic Plan approved

6 Research Topic Acceptance Requests (RTARs)

5 Work Statements

3 Released for Bid

Winter 2022 Meeting:

1 RTARs (carry over from fall 2021 meeting)

0 Work Statements

17 TRPs that are ready to bid in Spring 2022 – impact SY 22-23 budget

Spring 2022 Meeting

3 Research Topic Acceptance Requests

2 Publication Topic Acceptance Request

1 Work Statement

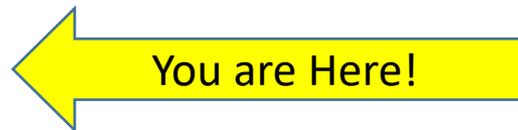
8 Projects released for Bid

Annual 2022 Meeting

2 Work Statements

2 Research Topic Acceptance Requests

8 Research projects awarded for BID (pending)



ASHRAE's Research Strategic Plan

RAP Membership	
Reinhard Radermacher (Chair)	Mike Pouchak (RAC)
Larry Markel (past RAP)	Pawel Wargocki (Intl)
Eckhard Groll	Kishor Khankari
Allen Chad Kirkwood	Dawen Lu
Chun-Cheng Piao	Agami Reddy
Chris Wilkins (RAC)	Mary Baugher

- Research Advisory Panel Started Nov 2019 and was approved
- Solicited input through online survey
- Analyzed responses from panel and respondents
- RSP now posted at top of [ashrae.org](https://www.ashrae.org) Research Page!

NOW Published!!!

ASHRAE's Research Strategic Plan



ASHRAE Research

Since 1960, ASHRAE has sponsored research studies at universities and research firms. The results of these studies have been used to prepare chapters in the ASHRAE Handbook series; as foundational material in special publications; in the formulation of standards; to train university students as they prepare for service in the HVAC&R industry; and to spread the knowledge gained through presentation at Society Conferences and publication in ASHRAE Transactions or conference proceedings.

ASHRAE currently has 42 active research projects.

The total value of all active projects is \$6,263,721. The average duration is 20 months.

Average cost: \$149,502

Since 1959, ASHRAE has sponsored 943 projects with a combined value of \$79.7 million.

Information for TCs/TGs/MTGs Sponsoring Research

 [2021 ASHRAE Research Strategic Plan](#)

ASHRAE's Research Strategic Plan

The New Research Strategic Plan (RSP) provides the following 6 Research 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**

ASHRAE's Research Strategic Plan

ASHRAE research is guided in part by the ASHRAE Research Strategic Plan.

The purpose of the plan is to:

identify key HVAC&R research needs

- **And provide that information to TCS as guidance while they develop research projects**
- **And Provide that information to RAC as it approves and fund research proposals.**

ASHRAE's Research Implementation Plan

Complementing the Society's RSP is the Society's Research Implementation Plan

- Documents all TC research topics that support the RSP or are tactical in nature (such as updates and new info for ASHRAE HB & Stds)
- has been approved for further development into ASHRAE research projects.

The implementation plan has:

- 65 projects in various stages of development
- Total Value is \$16.1 M; total value of active projects is \$8.7M ; avg duration is 20 months; average cost is \$149 K; Since 1959 ASHRAE has sponsored 943 projects with a combined value of \$79.7 M.
- The total value projects under contract exceeds the current annual budget for research, but we hope to implement most of these projects in the near future

Training schedule for Proposal Evaluation and Project Monitoring

Both PES and PMS training modules are now complete

(PES training and PMS Training will be restarted based on new projects released for Bids!)

	Fall Solicitation	Spring Solicitation
Projects released for bid	Mid October	Mid March
Bids due from potential contractors	Mid December	Mid May ★
Contractors selected	Winter meeting	Summer meeting
Earliest possible start date for project	April 1	September 1

Project Monitoring Subcommittee Training

Proposal Evaluation Subcommittee Training



NEW PES Training Module Available!

- [Proposal Evaluation Subcommittee training](#) is now available on the public ASHRAE Web site / [Research page](#)
- All PES members need to view this training before participating in the upcoming PES review meetings scheduled for Toronto.
- Ensure that you invite the Research Liaison (primary and secondary reviewers) to your PES meeting. This is held in executive session!

PTAR - Funded Publications

- TCs have requested RAC to fund documents as part of technology transfer effort
- RAC and PubCom jointly developed the new PTAR process to align with workflow for these projects
- RAC and PubCom have now accepted the first PTAR and are working to create the first Funded publications

Approved by BOD!
Online submittal of
RTARs WS & approvals
– reduced time &
emails!

TAC research Breakfast
communications; Full Project
Electronic storage tracking of
all RTARs, WS, RP products.
Searchable; Full coordination
with TCs RAC, Research Staff

PMSc Mtgs. published in
ASHRAE 365, Electronic
reports

Better communication on TC
Meeting minutes, Res Chair
training, Meeting notices, RL
to PMSc status updates.

- **Web-based process** that is used to submit and track Research project documents through the research process. This will reduce time and inefficiencies with submittals & email approvals!
- **Improve RAC feedback to and from TCs** through improved project reporting skills and minutes of Project Monitoring Subcommittee and direct reports to RLs. -- this will include improved project tracking through standardized RL information storage system and enhanced research reminder report info on history of project.
- **Common RL project reporting information** with TCs and PMSc. RL reminder Rep format between Sections, Historical Res tracking
- **Improved PI project summary** with TCs and PMSc
- **Improved coordination between MORTS, TC, Research Subcom Chair PMSc Chair, and PMS.**

Improve
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THE SERVICE TO ASHRAE
RESEARCH AWARD

New ASHRAE Research Subcommittee Chairs Basecamp Site



Welcome to Basecamp

www.basecamp.com

ASHRAE Research Subc Chairs

ASHRAE Research Subcommittee Chairs
Basecamp site. Used to di...

New site created for distribution of Research Subcommittee Chair information

Includes:

- **Research subcommittee chairs breakfast handouts & Presentations (PMS / PES training material)**
- **Additional useful information** for research links (research manual searchable from your phone!)

Contact your Research Liaison (RLX@ashrae.net where x is your section #) for access to the Basecamp site!

ASHRAE Research Subc Chairs

ASHRAE Research Subcommittee Chairs
Basecamp site. Used to distribute slid...



BASECAMP IS PHONE BROWSER FRIENDLY!

TC Basecamp sites Information

Many TCs are using Basecamp to work effectively in a virtual environment. Easy folder

management. Use the “find” feature for powerful research topic searches including the research manual!

Contact your Section Head for more information!

You can get combined updates on topics by subscription or decline altogether! Reduces your emails significantly.

Make sure to invite your Research Liaison for your TC Basecamp site!

The screenshot shows the Basecamp website interface. At the top, the URL 'www.basecamp.com' is visible. Below it is the ASHRAE logo, a blue hexagon with the word 'ASHRAE' inside. Underneath the logo is the text 'Welcome to Basecamp'. The navigation bar includes icons for Home, Lineup, Pings, Hey!, Activity, My Stuff, and Find. The 'Find' icon is circled in red. Below the navigation bar is a link for 'ASHRAE Research Subc Chairs'. The main content area is titled 'Docs & Files' and features a yellow lightning bolt icon. Below the lightning bolt is the text 'Support Publish/Subscribe!'. There are two red prohibition signs (a red circle with a diagonal line) over the words 'EMAILS' and 'SPAM' respectively.

RAC Research Project Management Initiative Actions for TCs

1. PMSc meetings are open to the Public. (Results should not be released or discussed outside of the TC until the final report is delivered and approved).

Make sure you are PUBLISHING a meeting time for your Research Project Monitoring Subcommittees (TC chair, PMS chair)

2. Make sure your PMSc meeting is listed in the conference program. Ensure that Mike Vaughn and your RL are invited to all PMSc meetings as they are ex-officio members of the PMS.

3. Ensure that the PMSc Chair is keeping the TC informed of their progress—Minutes of the PMS should include a summary of your report to the TC

4. Ensure that the TC is publishing research project updates in their minutes. TC minutes are to be posted within 60 days following your meeting

5. Ensure that PES and PMS members attend the RAC-sponsored training sessions

6. Members of the Project Monitoring committee, TC research chairs, TC chairs, and RTAR / WS authors should have a copy of the Research Manual available for questions.

Looking to Next Year

- Identify Areas of Research; Identify Knowledge Gaps and challenges;
- Ensure you are communicating with other TCs on collaboration; share your internal TC drafts, documents, minutes on your TC basecamp page.
- Review Research Strategic Plan; Identify key technology area associated with Res. Strat. Plan.
- Brainstorm areas of needed research and document them with your TC in a separate meeting!
- Continue creating RTARS and WS –Publish your Proj Monitoring Subcom Meetings in the ASHRAE 365 app! Really! Ensure your RL & Morts is invited to every ProjMonSubcom Mtg!
- Mandatory: Proposal Eval Subcom / ProjMonSubcom are 100% trained
- Encourage companies & individuals to Donate to ASHRAE research!



Thank You!



Research

Subcommittee Chairs

PES and PMS members

RAP Members

RAC Members

ASHRAE staff