

TC 8.5: Liquid to Refrigerant Heat Exchangers  
Minutes ASHRAE 2023 Annual Meeting

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

**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 06/24/2024

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

DATE OF MEETING 06/24/2024 LOCATION Indianapolis, IN

MEMBERS PRESENT	YEAR APPT D	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE	
Nicholas Zupp ('25)	7/1/2021	Khaled Saleh ('25)	7/1/2021	<u>Cor. Members</u>	<u>Guests</u>
Dhruv Hoysall ('28)	7/1/2023	Adnan H Ayub ('22)	7/1/2018	Achim Gotterbarm	Trevor Houck
Joe Huber ('28)	7/1/2023	Proshat Mehdizad ('24)	7/1/2020	Vikrant Aute	L Collato Carballode (YEA)
Pedro Perez ('24)	7/1/2020	Icksoo Kyung ('24)	7/1/2020	Bradley Bock (Int'l)	Hongqing Jin
Benjamin Dingel ('26)	7/1/2023			Chris Keinath	Chee S Ow
Kashif Nawaz ('28)	7/1/2023			Michael Wilson	
Gurunarayana Ravi ('26)	7/1/2023			Satheesh Kulankara	
Andreas Knoepfler ('25) (Int'l)	7/1/2021			Harshad Inamdar	
Pratik S Deokar ('26)	7/1/2023			Justin Kauffman	
				Benjamin Heyser	
				Kalyan Boyina	
				<u>Pro Cor. Members</u>	
				Muneeshwaran (YEA)	
<b>DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:</b>					
TAC Section Head: Kevin Mercer, Kashif Nawaz			SH8@ashrae.net		
Research Liaison: Carl Huber Standard Liaison: Srinivas Katipamula Staff Liaison: Steven J Hammerling Handbook Liaison: Derek Crowe			srinivas.katipamula@pnnl.gov shammerling@ashrae.org derek.crowe@stantec.com		
Mike Vaughn, Manager Of Research & Technical Services			MORTS@ashrae.net		

YEA: Young Engineers in ASHRAE, Int'l: International Members, from outside USA and Canada

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 2023 Annual Meeting

1. Monday, June 24, 2024, 2:30 PM. Call to order and reading of TC 8.5 scope (N. Zupp):
  - *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 (N. Zupp)
  - *“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>)
  - Shared ASHRAE’s Commitment of Health and Safety of the members and conference attendees.
4. Establish quorum requirements (N. Zupp)
  - 7 out of 13 voting members present (6 in-person and 1 virtual), quorum established

Adnan Ayub (Chair, Handbook) '24 [not present]	Joe Huber '28	Andreas Knoepfler '25	Benjamin Dingel '26
Nicholas Zupp (VC) '25	Pedro Perez (Webmaster) '24	Icksoo Kyung '24 [not present]	Khaled Saleh '25 [not present]
Proshat Mehdizad (Program) '24 [not present]	Gurunarayana Ravi, '26	Druv Hoysall '28	Pratik Deokar (secretary) '26
Kashif Nawaz ('28)			

- Shared e-mail aliases of subcommittee chairs in presentation
  - K. Nawaz and G. Ravi joined few minutes late in-person
5. Review/approve minutes from previous meeting with corrections (N. Zupp)
    - J. Kauffman and D. Hoysall asked to correct their names in last minutes draft
    - Motion to approve minutes made by J. Huber
    - Seconded by A. Knoepfler
    - The vote was 7-0-0-6
  6. Handbook subcommittee report (N. Zupp)
    - TC responsible to edit chapter 39: Condensers and chapter 42: Liquid Coolers (for 2024 version)
    - No chapters for approval for this meeting
  7. Program subcommittee report (N. Zupp)
    - ASHRAE Annual 2024, Indianapolis, is in hybrid format with 8 tracks
    - N.Zupp on behalf of P. Mehdizadeh asked for interested topics for Orlanda session
    - V. Aute proposed a potential topic for program on state of the art of liquid to refrigerant heat exchangers
      - a. Thermo-hydraulic characterization of 2-phase flow of natural refrigerants
      - b. Charge prediction in plate heat exchangers, work on void fraction
        - Potential Speakers from European Low Charge LC150, Contact Lena Schnabel
      - c. Seminar on Plate Heat Exchangers
        - Contact K. Nawaz for speakers
      - d. Flow Boiling and Condensation of Emerging Refrigerants, with and without glide
        - Contact K. Nawaz for speakers
  8. Standards subcommittee report (J. Huber)
    - TC 8.5 is responsible for ANSI/ASHRAE Standard 22-2023, 24-2019, and 181-2023
    - SPC-22 and SPC-181 were formed to revised Standards 22 and 181 to fix out of date references

## TC 8.5: Liquid to Refrigerant Heat Exchangers

### Minutes ASHRAE 2023 Annual Meeting

- The publication process for Standards 22-2023 and 181-2023 completed in August 2023
- TC voted to form SPC and revise Standard 24-2019, to remove normative references ASHRAE Guideline 2
- Five volunteers are present on SPC-24
- Approval of the SPC should occur during this 2024 annual meeting
- No other standard recommendations were made

#### 9. Webmaster report (P. Perez)

- Website is up to date

#### 10. Research subcommittee report (K. Nawaz)

- Update from the Research Sub-Committee Chairs' Breakfast Meeting was provided
- RTAR and WS
  1. One RTAR under review, 'Condensation heat transfer of novel low GWP refrigerants on enhanced tube bundles including effects of non condensables', whose application can be found in comfort cooling, cooling tower, and heating applications
  2. RTAR is not yet approved, however B. Dingle has started working on WS
  3. MTG.LowGWP voted to co-sponsor
  4. Refrigerants like R1233ze, R513A, and R515B could be proposed in this work, and this could change as WS progresses based on email feedback from TC
  5. Kansas State University and ACRC were discussed as potential bidders on WS cover form
- Other RTARs, WS, and new topics for research
  1. RTAR is being developed for A3 and flow boiling
  2. V. Aute suggested RTAR for void fraction model development for plate heat exchangers
  3. V. Aute suggested RTAR for 2-phase flow in TPMS
- 1683-RP "Experimental Evaluation of Two-Phase Pressure Drop and Flow Pattern in U-Bends with Ammonia", PMS Chair Z. Ayub; co-sponsor with TC 1.3, Co-PI is L. Cremaschi and PI is GIK (update from J. Huber)
  1. Work started at GIK, remaining work finishing up at Auburn University
  2. Dr. Abas and L. Cremaschi gave project update in research review meeting, and presented flow visualization and pressure drop results
  3. 85% data analysis work is done, while correlation development is in process
  4. The project could not achieve low temperatures due to equipment limitations, the temperature range would be discussed with PMS
  5. PMS to ship tubes to L. Cremaschi, and the PIs are to investigate the ovality of the tested tubes with the commercial samples
  6. The project has no cost extension till Oct 2024

#### 11. MTG Liaison (S. Kulankara)

- S. Kulankara gave an update from 06-26-2024, the next MTG meeting will be on Wednesday
- MTG voted to co-sponsor TC 8.5 RTAR titled "Condensation Heat Transfer of Novel Low GWP Refrigerants on Enhanced Tube Bundles Including Effects of Non Condensables"
- Other ongoing research projects:
  1. RP 1806 "Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update"
    - Project in process, possibly the longest running project in ASHRAE history
    - Recommendation was due to PMS in Spring 2024.
  2. RP-1884 "The incorporation of odorants in flammable refrigerants to improve leak detection (Experimental Phase III)"

## TC 8.5: Liquid to Refrigerant Heat Exchangers

### Minutes ASHRAE 2023 Annual Meeting

- Expected to be completed by Fall of 2024.
  - Codes and Standards subcommittee monitors developments in codes and standards from around the world standards, and interested persons can reach S. Kulankara for more information
12. Membership subcommittee report (S. Kulankara)
- S. Kulankara needs help with roster updates
  - Currently there are 94 total members on roster, of which 16 are provisional corresponding members and 15 YEAs
  - A. Ayub, P. Mehdizad, P. Perez, and I. Kyung VMs are rolling off on June 30<sup>th</sup>
  - Justin Kauffman requested to be a voting member
  - P. Perez will be secretary
13. Chairman's report (N. Zupp)
- The TC chairs meeting discussed Code Interaction Subcommittee, Global Technical Interaction Committee, Residential Building Committee, and Publications Committee
  - Use of Basecamp for repository and data sharing was discussed, and was accepted by members
14. New Business
- No new business was discussed
15. Schedule Next meeting: Monday, Feb 10, 2025— Orlando, FL, USA
- N. Zupp will roll on as a chair
16. Adjourn
- J. Huber made a motion to adjourn, P. Perez seconded.
  - Adjourned, vote was 10-0-0-3

Attached: Meeting Slides



# 2024 ASHRAE Annual Conference

June 22-26, 2024 | Indianapolis, IN

## ASHRAE Technical Committee 8.5 Liquid to Refrigerant Heat Exchangers

Welcome!

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

# Welcome! TC 8.5 Liquid to Refrigerant Heat Exchangers



**Sign in through ASHRAE Website**

**Adnan Ayub**

Chair, Facilitator for this virtual meeting



## Housekeeping

### Audio

- 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.

## 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.

**Adnan Ayub**  
Chair, Facilitator for this virtual meeting

# 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>

**Adnan Ayub**  
Chair, Facilitator for this virtual meeting



## 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.VCH@ashrae.net](mailto:TC0805.VCH@ashrae.net) with subject “attendance 6/26” so we can log your attendance. Make sure the email contains your full name and please indicate if you are a YEA member.

**Adnan Ayub**

Chair, Facilitator for this virtual meeting

# Welcome! TC 8.5 Liquid to Refrigerant Heat Exchangers

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

- Masks may be worn at the individual's discretion. Masks are not required inside the conference hotels but are strongly encouraged.
- Hand sanitizing stations will be positioned throughout the meeting space.
- If symptoms develop, attendees should NOT attend sessions and can join the conference virtually.
- If an attendee tests positive while at the conference, he or she may quarantine at the conference hotel at their own expense and should report the positive test to ASHRAE staff.

View the full Commitment to Care at [commitment-to-care.pdf \(ashrae.org\)](https://www.ashrae.org/commitment-to-care.pdf)

## TC 8.5 Establish Quorum – Current Voting Members

- Adnan Ayub (Chair) '24
- Nicholas Zupp (Vice Chair) '25
- Pratik Deokar (Secretary) '26
- Andreas Knoepfler '25
- Icksoo Kyung '24
- Proshat Mehdizad (Program) '24
- Pedro Perez (Webmaster) '24
- Khaled Hassan Saleh '25
- Gurunarayana Ravi '26
- Benjamin Dingel '26
- Kashif Nawaz (Research) '27
- Dhruv Hoysall '27
- Joe Huber (Standards) '27

13 Voting Members  
7\_\_ Present

Voting Members roll off after June 30 of the year indicated

**Adnan Ayub**  
Chair, Facilitator for this virtual meeting

## Other TC 8.5 Positions

- Arindom Joarder (Handbook)
- Satheesh Kulankara Membership, MTG LGWP representative
- Vikrant Aute (MTG LGWP Alt 1)

**Adnan Ayub**  
Chair, Facilitator for this virtual meeting

## TC 8.5 Email Addresses

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

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

**Adnan Ayub**  
Chair, Facilitator for this virtual meeting

# TC 8.5 Minutes from Winter Meeting 2024

- Minutes from the Winter Meeting were sent out 3/19/2024
  - Does anyone want to review? Fix Justin Hoffman in document, H missing Dhruv first name
  - Motion for Approval: Joe
  - Second: Andreas
  - Vote
    - For Approval: 7
    - Against approval: 0
    - Abstain: 0
    - Not Present: TBD

**Adnan Ayub**

Chair, Facilitator for this virtual meeting

## TC 8.5 Handbook

- Arindom Joarder is Handbook Subcommittee Chair
- TC 8.5 is responsible for Chapters 39 and 42 of the ASHRAE HVAC Systems and Equipment Handbook
  - Edits to be done through the authoring portal ([authoring.ashrae.org](http://authoring.ashrae.org))
    - Make sure Track Changes are left on whenever possible
- Handbook in pdf version available through the technology portal of ASHRAE ([technologyportal.ashrae.org](http://technologyportal.ashrae.org))
- Handbook Liaison (our chapters): Derek Crowe ([derek.crowe@stantec.com](mailto:derek.crowe@stantec.com))

**Adnan Ayub**  
Chair, Facilitator for this virtual meeting

## TC 8.5 Handbook

- Additional Information

Handbook Responsibilities			
Total Number of Chapters	2		
Chapter(s) approved at this meeting	0		
Special Publications (last six months)		0	Title(s):

Did Handbook Chair attend training? **YES**

**Proshat Mehdizad**  
Program Subcommittee Chair





## TC 8.5: Liquid to Refrigerant Heat Exchangers

Program Subcommittee Updates  
Proshat Mehdizad



- Hybrid conference, June 22-26
- 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
  - Cultural Appreciation Event
  - Women in ASHRAE
  - Members night out

Summer Conference, Indianapolis, IN, June 22-26, 2024

Tracks:

- Fundamentals and Applications
- HVAC&R Systems and Equipment
- Research Summit
- Professional Development
- Electrification: Possibilities and Pitfalls
- Artificial Intelligence and the Built Environment
- Building Life Cycle Assessment
- Legislation, Standards, Codes and Guidelines

## Tracks:

- Fundamentals and Applications
- HVAC&R Systems and Equipment  
Winter Conference, Orlando, FL, Feb 8-12, 2025
- Refrigerants & Refrigeration
- Energy Storage and Grid Resiliency
- Pathway to Building Decarbonization
- Artificial Intelligence
- Industrialized Construction: Opportunities and Challenges
- Ventilation and Indoor Environment Quality
- Future-Proofing the Built Environment
- Potential Topic : State of the Art of Liq to ref HX
  - Characterization of Natural Refrigerant Heat transfer
    - Potential Speakers from LC150 project
  - Charge Prediction
    - Same Speakers LC150
    - Contact Lena Schnabel
  - Seminar on Plate Heat Exchangers
    - Contact Khasheef
  - Flow Boiling and Condensation of Emerging Refrigerants
    - With and Without Glide
    - Contact Khasheef

## Deadlines:

- May 29, 2024  
Conference Paper Abstract Due
- June 17, 2024  
Conference Paper Abstract Accept/Reject
- August 2, 2024  
Programs Proposals Due
- September 4, 2024  
Conference Papers Due
- September 27, 2024  
Conference Paper Accept/Reject
- October 8, 2024  
Conference Papers Final Accept/Reject Notifications

### Future Programs

- ASHRAE Winter Conference, February 8-12, 2025, Orlando, FL
- ASHRAE Summer Conference, June 21-25, 2025, Phoenix, AZ

### Discussion

- Program Ideas for Future Winter and Summer Conferences

# TC 8.5 Program

- Additional Information

Program Activities (For This Meeting)										
Total # of Forums			Total # of Seminars			Total # of Debates			Total # of Paper Sessions	
Submitted*	Accepted*	Co-sponsored**	Submitted*	Accepted*	Co-sponsored**	Submitted*	Accepted*	Co-sponsored**	Submitted*	Accepted*
0	0	0	0	0	0	0	0	0	0	0
Other Presentations										
TC Research Results			Other			Papers***				

Did Program Chair attend training? **No**

**Proshat Mehdizad**  
Program Subcommittee Chair

\* Include only sessions which your TC initiated  
 \*\* Sessions which were initiated by another TC  
 \*\*\* Papers from TC in sessions not sponsored by TC

## TC 8.5 Standards

**Standards Subcommittee Chair is Joe Huber**

**TC 8.5 is responsible for the following Standards:**

- ANSI/ASHRAE Standard 22-2023  
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 181-2023  
Methods of Testing for Rating Liquid to Liquid Heat Exchangers

Joe Huber  
Standards Subcommittee Chair

## TC 8.5 Standards

- SPC-22 and SPC-181 were formed to fix out-of-date references in Standards 22 and 181 (SPC = Standards Project Committee)
- The revision and publication process was completed in August 2023
  - Standard 22-2023
  - Standard 181-2023

**Joe Huber**  
Standards Subcommittee Chair



# TC 8.5 Standards

TC 8.5 voted to revise Standard 24-2019 to correct:

- Remove normative reference to ASHRAE Guideline 2 (Engineering Analysis of Experimental Data)
  - Guideline 2 has been withdrawn, and Guidelines should not be referenced normatively, since they suggest practices and procedures, not mandate them
- Fix other out-of-date references
- 5 people have now applied to be on the SPC to revise Standard 24. 5 members are required as a minimum.
- The approval of the SPC should occur during the 2024 Annual meeting

Joe Huber  
Standards Subcommittee Chair

# TC 8.5 Standards

Standards Responsibilities	
Total Number of Standards	3
# Standards recommended	0

Joe Huber  
Standards Subcommittee Chair

# TC 8.5 Webmaster Update

## **TC 8.5 Website is up-to-date:**

- TC Main Meeting and Research Schedule with links to ASHRAE Conference Schedule Website.
- Indianapolis Agenda
- Chicago [Draft] Meeting Minutes
- Suggestions?

# TC 8.5 Research

- **Kashif Nawaz is Research Subcommittee Chair**
  - Update from Research Subcommittee
  - Discussed the proposed WS and refrigerant
  - Potential Future RTARs
    - Another RTAR is being developed for A3's and flow boiling
    - Consider an RTAR on void fraction in plate heat exchangers
    - Two phase flow in TPMS surfaces
  - RP 1683
    - Started at GIK and finishing up at Auburn
    - Experimental work finished
    - Presented pressure drop and flow visualization
    - About 85% done, need some work on correlation development
    - Did not cover the full temperature range of temperature (low temperature)
      - Needs to be considered by the PMS
    - Have also asked the investigator to identify the ovality of the tested tube and compare to production samples
    - Working on no cost extension to Oct 2024

**Pedro Perez**  
Webmaster

## TC 8.5 Research

	Current Research Activities (active)
# of new/revised RTARs submitted	0
# of other active RTARs	0
# of new/revised Work Statements submitted	1
# of other active Work Statements	0
# of active TRPs	0
# of active RPs	1
# of RPs completed & approved at this meeting	0
Problems getting RTAR/WS approved?	?

Did Research Chair attend breakfast? **YES**

**Kashif Nawaz**

Research Subcommittee Chair

# TC 8.5 MTG.LowGWP Update

## **Research Activities since TC 8.5 Meeting at Chicago (Further updates expected during MTG meeting on Wednesday, 6/26/2024)**


MTG voted to co-sponsor TC 8.5 RTAR titled “Condensation Heat Transfer of Novel Low GWP Refrigerants on Enhanced Tube Bundles Including Effects of Non Condensables”

RP 1806 “Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update”

- In process
- Reports and decisions were due in Spring 2024. Go/No-Go decision on future phases of the project

RP-1884 “The incorporation of odorants in flammable refrigerants to improve leak detection (Experimental Phase III)”

- Expected to be completed by Fall of 2024.



**Satheesh Kulankara**

TC 8.5 Representative on MTG.LowGWP

# TC 8.5 MTG.LowGWP Update

## Program Activities

MTG received several requests for co-sponsorship of programs


- 3 approved (One each from TC 1.3, TC 8.4 and TC6.3) for submission to Indianapolis

Considering co-sponsoring two program submissions for Orlando

- Expected to be considered during Indianapolis meeting of the MTG
  - TC 3.1 topic related to PFAS
  - Updates to Standards 15 and 15.2

## Codes and Standards Updates

MTG codes and standards subcommittee continuing to monitor developments in codes and standards related to low GWP refrigerants around the world



Satheesh Kulankara

TC 8.5 Representative on MTG.LowGWP

# TC 8.5 Membership

Satheesh Kulankara Is membership Subcommittee Chair

Membership Housekeeping

- Adnan, Proshat, Pedro, and Icksoo rolling off as Voting Members (VM) after June 30
  - Consider having Mike Wilson Roll on
- Any Volunteers for Secretary? – Volunteer Pedro Perez
- Please send an email if you are interested in becoming a voting member
  - Copy both [TC0805@ashrae.net](mailto:TC0805@ashrae.net) and [TC0805.VCH@ashrae.net](mailto:TC0805.VCH@ashrae.net)

Provisional Corresponding Members

- Membership will expire after 2 years
- Please send email ASAP if you wish to become a Corresponding Member
- Copy both [TC0805@ashrae.net](mailto:TC0805@ashrae.net) and [TC0805.VCH@ashrae.net](mailto:TC0805.VCH@ashrae.net)

Satheesh Kulankara  
Membership Subcommittee Chair



## TC 8.5 Chair Report

- TC Chairs Meeting at 7:00 AM Sunday Morning (6/23/2024)
  - Code Interaction Subcommittee
    - A means to represent the interests of ASHRAE and to promote uniform adoption of ASHRAE Standards, Guidelines, and documents by Model Building Codes, government regulations, and other entities.
    - Can be used to request use of copyrighted information from other organizations
    - Will help in gathering information on overlapping code from other organizations
    - There is CIS list serv that you can join to follow the activity of the CIS
  - Global Technical Interaction Committee
    - Responsible for harnessing the technical resources of ASHRAE to impact international standards and maximize the global influence of ASHRAE standards, guidelines, and other technical work products on the practice of HVAC&R and the built environment.

**Adnan Ayub**  
Committee Chair

# TC 8.5 Chair Report

- TC Chairs Meeting at 7:00 AM Sunday Morning (6/23/2024)
  - Residential Building Committee
    - 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.
  - Publications Committee
    - Excellent handout on various ASHRAE publications how to submit proposal along with contacts within ASHRAE

**Adnan Ayub**  
Committee Chair

# TC 8.5 Chair Report

- TC Chairs Meeting at 7:00 AM Sunday Morning (6/23/2024)
  - RAC
    - Will shortly move to an on-line system for processing RTARs
      - Expected to be trialed late this summer
    - Will be adding an on-line budgeting guide soon
      - Will still only require a single value
      - Will provide cost categories as optional content

**Adnan Ayub**  
Committee Chair

## TC 8.5 Chair Report

Other Technical Activities	
# FAQs updated this meeting	0
# New members added to roster	0

Award Nominations (last six months)	
# of Other Nominations: Hightower, Research, Fellow, etc.	0
Specify Award :	

**Adnan Ayub**  
Committee Chair

## TC 8.5 New Business

- **New Business**
- Does this committee want to use basecamp?
- Yes

**Adnan Ayub**  
Committee Chair

# Concluding Remarks

- **Schedule Next meeting:**  
Monday, February 10, 2025, Orlando, FL
- As of July 1, 2024, Nicholas Zupp will roll on as Chair of TC 8.5
- Joe Huber Motion
- Pedro Second
- Vote unanimousAdjourn

**Adnan Ayub**  
Committee Chair